

# CERTIFICATE OF CONFORMITY

Hersteller - Manufacturer - Fabricant - Produttore:

**YONGGAO Co., Ltd**

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No.2 Daixi Road, Huagyan Economics Development Zone  
Taizhou, 318020, Zhejiang, China

Prüfgegenstand - Article - Produit - Prodotto:

**Plastic piping systems for water supply, and for drainage and Sewerage under pressure-  
Polyethylene(PE)- Part 3 ; Fittings**Prüfgrundlagen/Anforderungen - Technical specifications/Requirements - Spécifications techniques/Exigences - Norma di controllo/Requisiti: **EN 12201-3 (Ed. 2011+A1:2012)**Werkstoff - Material - Matière - Materiale: **entsprechend - according to - suivant - secondo : Ausgabe - Edition - dizione:**  
PE 100 ( SDR 11, PN 16 ) EN 12201-3 January. 2013

Kennzeichnung - Marking - Marquage - Punzonatura

Manufacturer's name,

Material designation ,Intended use "W/P"

Size, This designation EN 12201

Permissible variations

Herstellerzeichen - Brand of the manufacturer -

Marque du fabricant - Marchio del produttore: **ERA**

Stempel des Sachverständigen - Inspector's stamp -

Poinçon de l'expert - Punzone dell' ispettore: **N/A**Umfang der Lieferung - Extent of delivery - Liste descriptive - Descrizione della fornitura:  
According to PD CEN/TS 12201-7 : 2013

| Pos.-Nr.<br>Item No<br>No poste<br>No. pos. | Stückzahl<br>No of pieces<br>Qte<br>Numero pezzi | Gegenstand<br>Article - Désignation du produit -<br>Tipo di prodotto (mm)     | Schmelze-Nr.<br>Heat No<br>No de coulée<br>No di colata | Probe-Nr.<br>Test No.<br>No d' éprouvette<br>No di prova |
|---------------------------------------------|--------------------------------------------------|-------------------------------------------------------------------------------|---------------------------------------------------------|----------------------------------------------------------|
|                                             |                                                  | <b>General description</b>                                                    |                                                         |                                                          |
| 63×63 mm                                    | See the test report for<br>the each test         | 1. Group 1 : dn < 75 mm<br>2. Fitting type : Electrofusion Tapping Tee        | See the<br>specimen list                                | See the test report<br>for the each test                 |
| 110×63 mm                                   | "                                                | 1. Group 2 : 75 ≤ dn < 250 mm<br>2. Fitting type : Electrofusion Tapping Tee  | "                                                       | "                                                        |
| 315×90 mm                                   | "                                                | 1. Group 3 : 250 ≤ dn ≤ 630 mm<br>2. Fitting type : Electrofusion Tapping Tee | "                                                       | "                                                        |

\*Fitting Group(A) includes the following fitting types ;

Electrofusion couplers, electrofusion 45° elbows, electrofusion 90° elbows, electrofusion tees,  
electrofusion reducers, electrofusion end caps, etcDie gestellten Anforderungen sind lt. Anlagen erfüllt. - The requirements are fulfilled as per annex - Les  
conditions imposées sont satisfaites suivant annexes.- I risultati sono conformi ai requisiti richiesti come  
da allegati.

Anlagen: 1) Test results

(Annexes) 2) Test reports acc. To EN 12201-3 :  
Report No. 133042884-300-2

(Allegati) 3) The specimen list for EN 12201-3

4) Raw material test report

5) Calibration report for test equipment

Ort - Place - Lieu - Località

Changwon, Rep.of Korea

Datum - Date - Data

29 March, 2017

Der Sachverständige - The inspector

L'expert - L'ispettore

H.D.PARK

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## TEST RESULTS

## Annex 1

Page

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There are 12 kinds of test in EN 12201-3.  
All test result for each fittings size are as following.

| Required Test *                                   | Size groups of fittings ( unit : mm ) |               |               |
|---------------------------------------------------|---------------------------------------|---------------|---------------|
|                                                   | Electofusion Tapping Tee              |               |               |
|                                                   | 63×63(Group1)                         | 63×63(Group1) | 63×63(Group1) |
| Hydrosatic strength (20 °C,100h)                  | O                                     | O             | O             |
| Hydrosatic strength (80 °C,165h)                  | O                                     | O             | O             |
| Hydrosatic strength (80 °C,1000h)                 | O                                     | O             | O             |
| Evaluation of ductility of fusion joint interface | O                                     | O             | O             |
| Impact resistance                                 | O                                     | O             | O             |
| Pressure drop                                     | O                                     | O             | O             |
| Oxidation induction time<br>( Thermal stability ) | O                                     | O             | O             |
| Melt mass-flow rate<br>(MFR)                      | O                                     | O             | O             |
| Effect on water quality                           | O                                     | O             | O             |
| Geomertrical characteristics                      | O                                     | O             | O             |
| Electrical characteristics                        | O                                     | O             | O             |
| General characteristics                           | O                                     | O             | O             |

- Note 1) \* : Required test. for each test method is the test order of EN 12201-3 .  
 2) \*\* : Not Applicable  
 3) \*\*\* : By checking the test result of the manufacturer  
 4) O : Accepted

Ort - Place - Lieu - Località  
Changwon, Rep.of Korea

Datum - Date - Data  
29. March, 2017

Der Sachverständige - The inspector  
L'expert - L'ispettore



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# Speciemen list EN 12201-3

| NO | Characteristic                                    | size group 1<br>dn<75 | size group 2<br>75≤dn<250 | size group 3<br>250≤dn≤630 <,710 |
|----|---------------------------------------------------|-----------------------|---------------------------|----------------------------------|
|    |                                                   | 63 x 63 mm            | 110 x 63 mm               | 315 x 90 mm                      |
| 1  | Appearance                                        | 5                     | 5                         | 5                                |
| 2  | Colour                                            | 5                     | 5                         | 5                                |
| 3  | Electrical characteristics                        | 5                     | 5                         | 5                                |
| 4  | Geometrical characteristics                       | 5                     | 5                         | 5                                |
| 5  | Hydrostatic strength (20°C, 100 h)                | 3                     | 3                         | 3                                |
| 6  | Hydrostatic strength (80°C, 165 h)                | 3                     | 3                         | 3                                |
| 7  | Hydrostatic strength (80°C, 1 000 h)              | 3                     | 3                         | 3                                |
| 8  | Evaluation of ductility of fusion joint interface | 1                     | 1                         | 1                                |
| 9  | Impact resistance                                 | 1                     | 1                         | 1                                |
| 10 | Pressure drop                                     | 1                     | 1                         | 1                                |
| 11 | Oxidation induction time (Thermal stability)      | 1                     | 1                         | 1                                |
| 12 | Melt mass-flow rate (MFR)                         | 1                     | 1                         | 1                                |
| 13 | Marking                                           | 5                     | 5                         | 5                                |



☐ inspected 
 ☒ reviewed 
 ☐ witnessed  
 TRK-0001

11 OCT 2016



# Test report

ISSUE DATE : 2016. 10. 11

| TEST | REVIEW | APPROVAL |
|------|--------|----------|
| 郑建刚  | 张亚钧    | J.H. Sun |

|                      |                                                                                                                                                    |             |                                                                                                            |
|----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|-------------|------------------------------------------------------------------------------------------------------------|
| Test name            | Fittings appearance, colour, marking                                                                                                               |             |                                                                                                            |
| Product              | EF TAPPING TEE                                                                                                                                     | REF         | EN 12201-3;2011+A1;2012                                                                                    |
| Size DN              | 63 x 63 mm                                                                                                                                         | LOT         | BD1ETT063063G16                                                                                            |
| Production period    | 16. 07. 25                                                                                                                                         | Test date   | 16. 10. 11                                                                                                 |
| Size group           | <input checked="" type="checkbox"/> 1 Group: 25~ 63mm<br><input type="checkbox"/> 2 Group: 75~225mm<br><input type="checkbox"/> 3 Group: 250~630mm | Model       | HE3490-LS                                                                                                  |
|                      |                                                                                                                                                    | Origin      | Boruge                                                                                                     |
|                      |                                                                                                                                                    | Color       | <input type="checkbox"/> Yellow, <input checked="" type="checkbox"/> Black, <input type="checkbox"/> _____ |
|                      |                                                                                                                                                    | SDR(=D/t)   | <input checked="" type="checkbox"/> 11, <input type="checkbox"/> 17.6, <input type="checkbox"/> _____      |
| Nominal pressure(PN) | 16 bar                                                                                                                                             | Designation | <input checked="" type="checkbox"/> PE 100, <input type="checkbox"/> PE 80, <input type="checkbox"/> _____ |
| Production quantity  | 320 PCS                                                                                                                                            |             |                                                                                                            |

## TEST RESULT

### Appearance

| Description |                                       | Test data |    |    |    |    | Result                                                                       |
|-------------|---------------------------------------|-----------|----|----|----|----|------------------------------------------------------------------------------|
|             |                                       | n1        | n2 | n3 | n4 | n5 |                                                                              |
| Surfaces    | Smooth & clean                        | OK        | OK | OK | OK | OK | <input checked="" type="checkbox"/> Accept<br><input type="checkbox"/> _____ |
|             | No scoring, cavities or other defects | OK        | OK | OK | OK | OK |                                                                              |
| Component   | No damage or other defects            | OK        | OK | OK | OK | OK |                                                                              |

### Colour

| Description                                                                      |  | Test data |       |       |       |       | Result                                                                       |
|----------------------------------------------------------------------------------|--|-----------|-------|-------|-------|-------|------------------------------------------------------------------------------|
|                                                                                  |  | n1        | n2    | n3    | n4    | n5    |                                                                              |
| The colour of the PE parts of fittings shall be either black, yellow, or orange. |  | black     | black | black | black | black | <input checked="" type="checkbox"/> Accept<br><input type="checkbox"/> _____ |

### Marking

| Description                               |                                     | Test data       |    |    |    |    | Result              |
|-------------------------------------------|-------------------------------------|-----------------|----|----|----|----|---------------------|
|                                           |                                     | n1              | n2 | n3 | n4 | n5 |                     |
| Manufacturer's name and/or trademark      |                                     | ERA             |    |    |    |    | ■ Accept<br>□ _____ |
| Nominal outside diameter(s) of pipe, dn   |                                     | dn 63 x 63      |    |    |    |    |                     |
| Material and designation                  |                                     | PE100           |    |    |    |    |                     |
| Design application series (ie design SDR) |                                     | SDR 11          |    |    |    |    |                     |
| Manufacturer's information                | Production year & month             | 16. 07          |    |    |    |    | ■ Accept<br>□ _____ |
|                                           | Manufacturer producing code         | BD1ETT063063G16 |    |    |    |    |                     |
| Label or individual bag                   | Number of the System Standard       | EN 12201-2      |    |    |    |    | ■ Accept<br>□ _____ |
|                                           | Applicable SDR fusion range of pipe | SDR 9 - 11      |    |    |    |    |                     |
|                                           | Intended use                        | Water           |    |    |    |    |                     |
|                                           | Nominal pressure(For water)         |                 |    |    |    |    |                     |

REMARK



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11 OCT 2016

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JUDGEMENT

☒ PASS  
☐ FAIL



# Test report

ISSUE DATE : 2016. 10. 11

| TEST | REVIEW | APPROVAL |
|------|--------|----------|
| 郑事胜  | 王福豹    | J.H. Gao |

|                      |                                                                                                                                                    |             |                                                                                                            |
|----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|-------------|------------------------------------------------------------------------------------------------------------|
| Test name            | Fittings appearance, colour, marking                                                                                                               |             |                                                                                                            |
| Product              | EF TAPPING TEE                                                                                                                                     | REF         | EN 12201-3;2011+A1;2012                                                                                    |
| Size DN              | 110 x 63 mm                                                                                                                                        | LOT         | BD1ETT110063G16                                                                                            |
| Production period    | 16. 07. 23                                                                                                                                         | Test date   | 16. 10. 11                                                                                                 |
| Size group           | <input type="checkbox"/> 1 Group: 25~ 63mm<br><input checked="" type="checkbox"/> 2 Group: 75~225mm<br><input type="checkbox"/> 3 Group: 250~630mm | Model       | HE3490-LS                                                                                                  |
|                      |                                                                                                                                                    | Origin      | Boruge                                                                                                     |
|                      |                                                                                                                                                    | Color       | <input type="checkbox"/> Yellow, <input checked="" type="checkbox"/> Black, <input type="checkbox"/> _____ |
|                      |                                                                                                                                                    | SDR(=D/t)   | <input checked="" type="checkbox"/> 11, <input type="checkbox"/> 17.6, <input type="checkbox"/> _____      |
| Nominal pressure(PN) | 16 bar                                                                                                                                             | Designation | <input checked="" type="checkbox"/> PE 100, <input type="checkbox"/> PE 80, <input type="checkbox"/> _____ |
| Production quantity  | 286 PCS                                                                                                                                            |             |                                                                                                            |

## TEST RESULT

### Appearance

| Description |                                       | Test data |    |    |    |    | Result                                                                       |
|-------------|---------------------------------------|-----------|----|----|----|----|------------------------------------------------------------------------------|
|             |                                       | n1        | n2 | n3 | n4 | n5 |                                                                              |
| Surfaces    | Smooth & clean                        | OK        | OK | OK | OK | OK | <input checked="" type="checkbox"/> Accept<br><input type="checkbox"/> _____ |
|             | No scoring, cavities or other defects | OK        | OK | OK | OK | OK |                                                                              |
| Component   | No damage or other defects            | OK        | OK | OK | OK | OK |                                                                              |

### Colour

| Description                                                                      |  | Test data |       |       |       |       | Result                                                                       |
|----------------------------------------------------------------------------------|--|-----------|-------|-------|-------|-------|------------------------------------------------------------------------------|
|                                                                                  |  | n1        | n2    | n3    | n4    | n5    |                                                                              |
| The colour of the PE parts of fittings shall be either black, yellow, or orange. |  | black     | black | black | black | black | <input checked="" type="checkbox"/> Accept<br><input type="checkbox"/> _____ |

### Marking

| Description                               |                                     | Test data       |    |    |    |    | Result             |
|-------------------------------------------|-------------------------------------|-----------------|----|----|----|----|--------------------|
|                                           |                                     | n1              | n2 | n3 | n4 | n5 |                    |
| Manufacturer's name and/or trademark      |                                     | ERA             |    |    |    |    | ■ Accept<br>□_____ |
| Nominal outside diameter(s) of pipe, dn   |                                     | dn 110 x 63     |    |    |    |    |                    |
| Material and designation                  |                                     | PE100           |    |    |    |    |                    |
| Design application series (ie design SDR) |                                     | SDR 11          |    |    |    |    |                    |
| Manufacturer's information                | Production year & month             | 16. 07          |    |    |    |    | ■ Accept<br>□_____ |
|                                           | Manufacturer producing code         | BD1ETT110063G16 |    |    |    |    |                    |
| Label or individual bag                   | Number of the System Standard       | EN 12201-2      |    |    |    |    | ■ Accept<br>□_____ |
|                                           | Applicable SDR fusion range of pipe | SDR 9 - 11      |    |    |    |    |                    |
|                                           | Intended use                        | Water           |    |    |    |    |                    |
|                                           | Nominal pressure(For water)         |                 |    |    |    |    |                    |

REMARK



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# Test report

ISSUE DATE : 2016. 10. 11

| TEST | REVIEW | APPROVAL |
|------|--------|----------|
|      |        |          |

|                      |                                                                                                                                                    |             |                                                                                                            |
|----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|-------------|------------------------------------------------------------------------------------------------------------|
| Test name            | Fittings appearance, colour, marking                                                                                                               |             |                                                                                                            |
| Product              | EF TAPPING TEE                                                                                                                                     | REF         | EN 12201-3;2011+A1;2012                                                                                    |
| Size DN              | 315 x 90 mm                                                                                                                                        | LOT         | BD1ETT31509H16                                                                                             |
| Production period    | 16. 08. 09                                                                                                                                         | Test date   | 16. 10. 11                                                                                                 |
| Size group           | <input type="checkbox"/> 1 Group: 25~ 63mm<br><input type="checkbox"/> 2 Group: 75~225mm<br><input checked="" type="checkbox"/> 3 Group: 250~630mm | Model       | HE3490-LS                                                                                                  |
|                      |                                                                                                                                                    | Origin      | Boruge                                                                                                     |
|                      |                                                                                                                                                    | Color       | <input type="checkbox"/> Yellow, <input checked="" type="checkbox"/> Black, <input type="checkbox"/> _____ |
|                      |                                                                                                                                                    | SDR(=D/t)   | <input checked="" type="checkbox"/> 11, <input type="checkbox"/> 17.6, <input type="checkbox"/> _____      |
| Nominal pressure(PN) | 16 bar                                                                                                                                             | Designation | <input checked="" type="checkbox"/> PE 100, <input type="checkbox"/> PE 80, <input type="checkbox"/> _____ |
| Production quantity  | 98 PCS                                                                                                                                             |             |                                                                                                            |

## TEST RESULT

### Appearance

| Description |                                       | Test data |    |    |    |    | Result                                                                       |
|-------------|---------------------------------------|-----------|----|----|----|----|------------------------------------------------------------------------------|
|             |                                       | n1        | n2 | n3 | n4 | n5 |                                                                              |
| Surfaces    | Smooth & clean                        | OK        | OK | OK | OK | OK | <input checked="" type="checkbox"/> Accept<br><input type="checkbox"/> _____ |
|             | No scoring, cavities or other defects | OK        | OK | OK | OK | OK |                                                                              |
| Component   | No damage or other defects            | OK        | OK | OK | OK | OK |                                                                              |

### Colour

| Description                                                                      |  | Test data |       |       |       |       | Result                                                                       |
|----------------------------------------------------------------------------------|--|-----------|-------|-------|-------|-------|------------------------------------------------------------------------------|
|                                                                                  |  | n1        | n2    | n3    | n4    | n5    |                                                                              |
| The colour of the PE parts of fittings shall be either black, yellow, or orange. |  | black     | black | black | black | black | <input checked="" type="checkbox"/> Accept<br><input type="checkbox"/> _____ |

### Marking

| Description                               |                                     | Test data      |    |    |    |    | Result                                     |
|-------------------------------------------|-------------------------------------|----------------|----|----|----|----|--------------------------------------------|
|                                           |                                     | n1             | n2 | n3 | n4 | n5 |                                            |
| Manufacturer's name and/or trademark      |                                     | ERA            |    |    |    |    | ■ Accept<br><input type="checkbox"/> _____ |
| Nominal outside diameter(s) of pipe, dn   |                                     | dn 315 x 90    |    |    |    |    |                                            |
| Material and designation                  |                                     | PE100          |    |    |    |    |                                            |
| Design application series (ie design SDR) |                                     | SDR 11         |    |    |    |    |                                            |
| Manufacturer's information                | Production year & month             | 16. 08         |    |    |    |    | ■ Accept<br><input type="checkbox"/> _____ |
|                                           | Manufacturer producing code         | BD1ETT31509H16 |    |    |    |    |                                            |
| Label or individual bag                   | Number of the System Standard       | EN 12201-2     |    |    |    |    | ■ Accept<br><input type="checkbox"/> _____ |
|                                           | Applicable SDR fusion range of pipe | SDR 9 - 11     |    |    |    |    |                                            |
|                                           | Intended use                        | Water          |    |    |    |    |                                            |
|                                           | Nominal pressure(For water)         |                |    |    |    |    |                                            |

REMARK


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 TRK-0001

JUDGEMENT

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☐ FAIL



# Test report

ISSUE DATE : 2016. 10. 11

| TEST | REVIEW | APPROVAL |
|------|--------|----------|
|      |        |          |

|                      |                                                                                                                                                    |             |                                                                                                            |
|----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|-------------|------------------------------------------------------------------------------------------------------------|
| Test name            | Fittings electrical characteristics, geometrical characteristics                                                                                   |             |                                                                                                            |
| Product              | EF TAPPING TEE                                                                                                                                     | REF         | EN 1555-3:2010, EN 12201-3:2012                                                                            |
| Size DN              | 63 x 63 mm                                                                                                                                         | LOT         | BD1ETT063063G16                                                                                            |
| Production period    | 16. 07. 25                                                                                                                                         | Test date   | 16. 10. 11                                                                                                 |
| Size group           | <input checked="" type="checkbox"/> 1 Group: 25~ 63mm<br><input type="checkbox"/> 2 Group: 75~225mm<br><input type="checkbox"/> 3 Group: 250~630mm | Model       | HE3490-LS                                                                                                  |
|                      |                                                                                                                                                    | Origin      | Boruge                                                                                                     |
|                      |                                                                                                                                                    | Color       | <input type="checkbox"/> Yellow, <input checked="" type="checkbox"/> Black, <input type="checkbox"/> _____ |
| Nominal pressure(PN) | 16 bar                                                                                                                                             | SDR(=D/t)   | <input checked="" type="checkbox"/> 11, <input type="checkbox"/> 17.6, <input type="checkbox"/> _____      |
| Production quantity  | 320 PCS                                                                                                                                            | Designation | <input checked="" type="checkbox"/> PE 100, <input type="checkbox"/> PE 80, <input type="checkbox"/> _____ |

## TEST CONDITION (Geometrical characteristics)

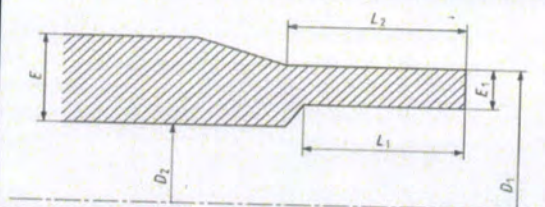
|                             |                              |              |       |        |       |
|-----------------------------|------------------------------|--------------|-------|--------|-------|
| Sampling:<br>>24h after mfg | Mfg time: 15/8/19 17:39      | Conditioning | Temp. | 23±2°C | 23 °C |
|                             | Measurement time: 9/12 08:12 |              | Time  | ≥4h    | 4.5 h |

## TEST RESULT

### Electrical characteristics(At 23°C)

| Test item          | Description     | Test data |       |       |       |       | Result                                     |
|--------------------|-----------------|-----------|-------|-------|-------|-------|--------------------------------------------|
|                    |                 | n1        | n2    | n3    | n4    | n5    |                                            |
| Nominal resistance | -10%~+10+0.1Ω   | 6.225     | 6.395 | 6.514 | 6.223 | 6.221 | <input checked="" type="checkbox"/> Accept |
|                    | 6.175 ~ 6.825 Ω |           |       |       |       |       |                                            |

### Geometrical characteristics



Key  
 $D_1$  mean outside diameter of fusion end piece<sup>a</sup>  
 $D_2$  bore comprising minimum diameter of flow channel through body of fitting<sup>b</sup>  
 $E$  body wall thickness of fitting<sup>c</sup>  
 $E_1$  fusion face wall thickness<sup>d</sup>  
 $L_1$  cut-back length of fusion end piece<sup>e</sup>  
 $L_2$  tubular length of fusion end piece<sup>f</sup>

| NO. | Test item                                              | Description (mm)                     |                |           | Test data |       |       |       |       | Result                                     |
|-----|--------------------------------------------------------|--------------------------------------|----------------|-----------|-----------|-------|-------|-------|-------|--------------------------------------------|
|     |                                                        |                                      |                |           | n1        | n2    | n3    | n4    | n5    |                                            |
| 1   | Diameters and lengths<br>Electrofusion saddle fittings | EN 1555-3,<br>EN 12201-3<br>Table 3. | D <sub>1</sub> | 63.0~63.4 | 63.2      | 63.2  | 63.3  | 63.4  | 63.2  | Accept <input type="checkbox"/>            |
|     |                                                        |                                      | D <sub>2</sub> | min 49    | 51.8      | 51.5  | 51.8  | 51.6  | 51.8  |                                            |
|     |                                                        |                                      | L <sub>1</sub> | min 25    | 120.2     | 120.2 | 120.3 | 120.2 | 120.1 |                                            |
|     |                                                        |                                      | L <sub>2</sub> | min 63    | 99.5      | 99.4  | 99.5  | 99.5  | 99.4  |                                            |
|     |                                                        |                                      | E1             | min 5.8   | 6.1       | 6.0   | 5.9   | 6.1   | 5.8   |                                            |
|     |                                                        |                                      | Rn             | max 0.9   | 0.3       | 0.2   | 0.3   | 0.2   | 0.3   | Accept <input checked="" type="checkbox"/> |

REMARK : EN ISO 3126:2005

JUDGEMENT

☒ PASS  
☐ FAIL



# Test report

ISSUE DATE : 2016. 10. 11

| TEST | REVIEW | APPROVAL |
|------|--------|----------|
|      |        |          |

|                      |                                                                  |             |                                                                                                            |
|----------------------|------------------------------------------------------------------|-------------|------------------------------------------------------------------------------------------------------------|
| Test name            | Fittings electrical characteristics, geometrical characteristics |             |                                                                                                            |
| Product              | EF TAPPING TEE                                                   | REF         | EN 1555-3:2010 , EN 12201-3:2012                                                                           |
| Size DN              | 110 x 63 mm                                                      | LOT         | BD1ETT110063G16                                                                                            |
| Production period    | 16. 07. 23                                                       | Test date   | 16. 10. 11                                                                                                 |
| Size group           | <input type="checkbox"/> 1 Group: 25~ 63mm                       | Model       | HE3490-LS                                                                                                  |
|                      | <input checked="" type="checkbox"/> 2 Group: 75~225mm            | Origin      | Boruge                                                                                                     |
|                      | <input type="checkbox"/> 3 Group: 250~630mm                      | Color       | <input type="checkbox"/> Yellow, <input checked="" type="checkbox"/> Black, <input type="checkbox"/> _____ |
| Nominal pressure(PN) | 16 bar                                                           | SDR(=D/t)   | <input checked="" type="checkbox"/> 11, <input type="checkbox"/> 17.6, <input type="checkbox"/> _____      |
| Production quantity  | 286 PCS                                                          | Designation | <input checked="" type="checkbox"/> PE 100, <input type="checkbox"/> PE 80, <input type="checkbox"/> _____ |

## TEST CONDITION (Geometrical characteristics)

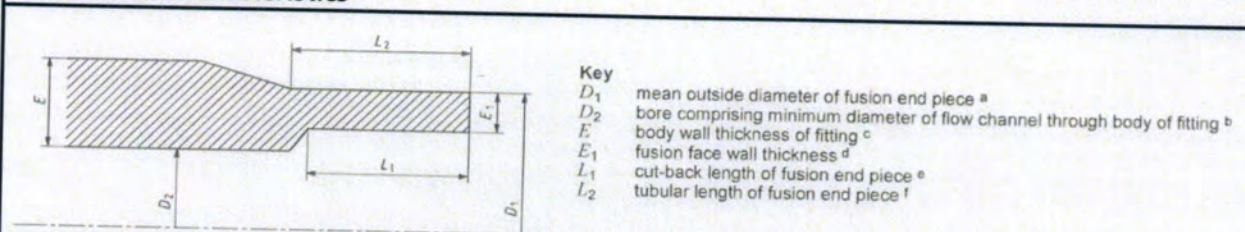
|                             |                              |              |       |        |       |
|-----------------------------|------------------------------|--------------|-------|--------|-------|
| Sampling:<br>>24h after mfg | Mfg time: 15/8/19 17:39      | Conditioning | Temp. | 23±2°C | 23 °C |
|                             | Measurement time: 9/12 08:12 |              | Time  | ≥4h    | 4.5 h |

## TEST RESULT

### Electrical characteristics(At 23°C)

| Test item          | Description     | Test data |      |      |      |      | Result                                     |
|--------------------|-----------------|-----------|------|------|------|------|--------------------------------------------|
|                    |                 | n1        | n2   | n3   | n4   | n5   |                                            |
| Nominal resistance | -10%~+10+0.1Ω   | 6.99      | 6.97 | 7.12 | 7.04 | 7.01 | <input checked="" type="checkbox"/> Accept |
|                    | 6.745 ~ 7.455 Ω |           |      |      |      |      |                                            |

### Geometrical characteristics



| NO. | Test item                                              | Description (mm)                     |                | Test data |       |       |       |       | Result |                                            |
|-----|--------------------------------------------------------|--------------------------------------|----------------|-----------|-------|-------|-------|-------|--------|--------------------------------------------|
|     |                                                        |                                      |                | n1        | n2    | n3    | n4    | n5    |        |                                            |
| 1   | Diameters and lengths<br>Electrofusion saddle fittings | EN 1555-3,<br>EN 12201-3<br>Table 3. | D <sub>1</sub> | 63.0~63.4 | 63.3  | 63.3  | 63.2  | 63.3  | 63.2   | Accept <input type="checkbox"/>            |
|     |                                                        |                                      | D <sub>2</sub> | min 49    | 51.8  | 51.5  | 51.8  | 51.6  | 51.5   |                                            |
|     |                                                        |                                      | L <sub>1</sub> | min 25    | 135.5 | 135.6 | 135.4 | 135.3 | 135.4  |                                            |
|     |                                                        |                                      | L <sub>2</sub> | min 63    | 99.9  | 99.9  | 99.9  | 99.9  | 99.6   |                                            |
|     |                                                        |                                      | E1             | min 5.8   | 6.0   | 6.1   | 5.9   | 6.1   | 6.0    |                                            |
|     |                                                        |                                      | Rn             | max 0.9   | 0.4   | 0.3   | 0.5   | 0.4   | 0.5    | Accept <input checked="" type="checkbox"/> |

REMARK : EN ISO 3126:2005

JUDGEMENT

☒ PASS  
☐ FAIL



# Test report

ISSUE DATE : 2016. 10. 11

| TEST | REVIEW | APPROVAL |
|------|--------|----------|
|      |        |          |

|                      |                                                                                                                                                    |             |                                                                                                            |
|----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|-------------|------------------------------------------------------------------------------------------------------------|
| Test name            | Fittings appearance, colour, marking                                                                                                               |             |                                                                                                            |
| Product              | EF TAPPING TEE                                                                                                                                     | REF         | EN 1555-3:2010, EN 12201-3:2012                                                                            |
| Size DN              | 315 x 90 mm                                                                                                                                        | LOT         | BD1ETT31509H16                                                                                             |
| Production period    | 16. 08. 09                                                                                                                                         | Test date   | 16. 10. 11                                                                                                 |
| Size group           | <input type="checkbox"/> 1 Group: 25~ 63mm<br><input type="checkbox"/> 2 Group: 75~225mm<br><input checked="" type="checkbox"/> 3 Group: 250~630mm | Model       | HE3490-LS                                                                                                  |
|                      |                                                                                                                                                    | Origin      | Boruge                                                                                                     |
|                      |                                                                                                                                                    | Color       | <input type="checkbox"/> Yellow, <input checked="" type="checkbox"/> Black, <input type="checkbox"/> _____ |
|                      |                                                                                                                                                    | SDR(=D/t)   | <input checked="" type="checkbox"/> 11, <input type="checkbox"/> 17.6, <input type="checkbox"/> _____      |
| Nominal pressure(PN) | 16 bar                                                                                                                                             | Designation | <input checked="" type="checkbox"/> PE 100, <input type="checkbox"/> PE 80, <input type="checkbox"/> _____ |
| Production quantity  | 98 PCS                                                                                                                                             |             |                                                                                                            |

## TEST CONDITION (Geometrical characteristics)

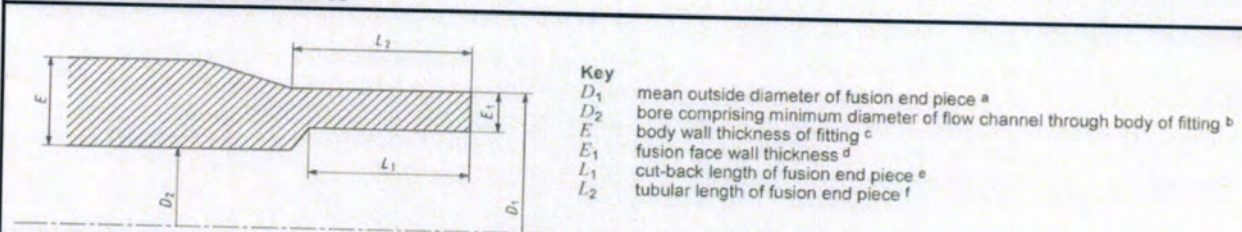
|                             |                              |              |       |        |       |
|-----------------------------|------------------------------|--------------|-------|--------|-------|
| Sampling:<br>>24h after mfg | Mfg time: 15/8/19 17:39      | Conditioning | Temp. | 23±2°C | 23 °C |
|                             | Measurement time: 9/12 08:12 |              | Time  | ≥4h    | 4.5 h |

## TEST RESULT

### Electrical characteristics(At 23°C)

| Test item          | Description     | Test data |      |      |      |      | Result                                     |
|--------------------|-----------------|-----------|------|------|------|------|--------------------------------------------|
|                    |                 | n1        | n2   | n3   | n4   | n5   |                                            |
| Nominal resistance | -10%~+10+0.1Ω   | 2.99      | 3.02 | 3.05 | 3.01 | 2.92 | <input checked="" type="checkbox"/> Accept |
|                    | 2.945 ~ 3.255 Ω |           |      |      |      |      |                                            |

### Geometrical characteristics



| NO. | Test item                                              | Description (mm)                     |                | Test data |       |       |       |       | Result |                        |
|-----|--------------------------------------------------------|--------------------------------------|----------------|-----------|-------|-------|-------|-------|--------|------------------------|
|     |                                                        |                                      |                | n1        | n2    | n3    | n4    | n5    |        |                        |
| 1   | Diameters and lengths<br>Electrofusion saddle fittings | EN 1555-3,<br>EN 12201-3<br>Table 3. | D <sub>1</sub> | 90.0~90.6 | 110.5 | 110.5 | 110.6 | 110.4 | 110.5  | ■ Accept<br>□<br>_____ |
|     |                                                        |                                      | D <sub>2</sub> | min 71    | 73.2  | 73.3  | 73.2  | 72.5  | 72.7   |                        |
|     |                                                        |                                      | L <sub>1</sub> | min 25    | 127.3 | 127.3 | 127.3 | 127.5 | 127.5  |                        |
|     |                                                        |                                      | L <sub>2</sub> | min 79    | 85.0  | 85.0  | 85.0  | 85.2  | 85.2   |                        |
|     |                                                        |                                      | E1             | 8.2~9.2   | 8.3   | 8.7   | 8.6   | 8.4   | 8.3    |                        |
|     |                                                        |                                      | Rn             | max 1.4   | 1.0   | 0.9   | 0.8   | 0.9   | 1.0    | ■ Accept               |

REMARK : EN ISO 3126:2005

JUDGEMENT  
☒ PASS  
☐ FAIL



# Test report

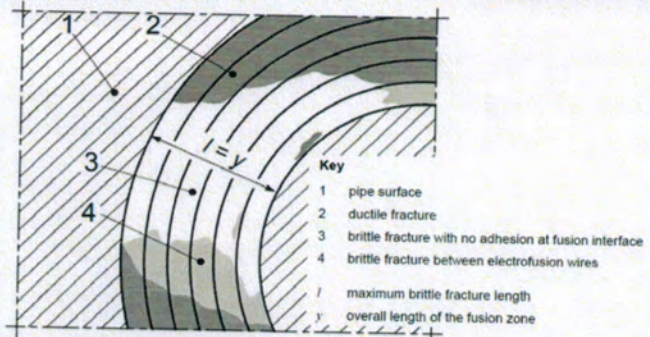
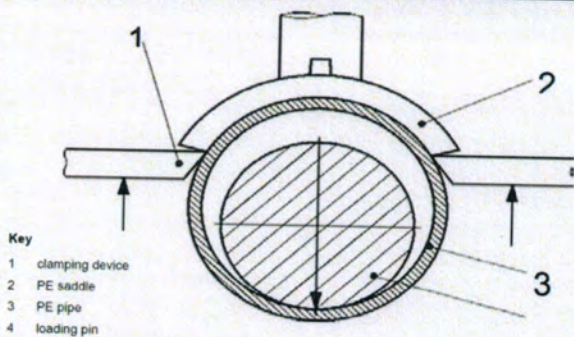
ISSUE DATE : 2016. 10. 11

| TEST | REVIEW | APPROVAL |
|------|--------|----------|
|      |        |          |

|                      |                                                                                                                                                    |           |                                                                                                                           |
|----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|-----------|---------------------------------------------------------------------------------------------------------------------------|
| Test name            | Decohesive resistance                                                                                                                              |           |                                                                                                                           |
| Product              | EF TAPPING TEE                                                                                                                                     | REF       | EN 1555-3:2010, EN 12201-3:2012                                                                                           |
| Size DN              | 63 x 63 mm                                                                                                                                         | Lot       | BD1ETT063063G16                                                                                                           |
| Production period    | 16. 07. 25                                                                                                                                         | Test date | 16. 10. 11                                                                                                                |
| Size group           | <input checked="" type="checkbox"/> 1 Group: 25~ 63mm<br><input type="checkbox"/> 2 Group: 75~225mm<br><input type="checkbox"/> 3 Group: 250~630mm | Material  | Model<br>HE3490-LS                                                                                                        |
|                      |                                                                                                                                                    |           | Origin<br>Boruge                                                                                                          |
|                      |                                                                                                                                                    |           | Color<br><input type="checkbox"/> Yellow, <input checked="" type="checkbox"/> Black, <input type="checkbox"/> _____       |
| Nominal pressure(PN) | 16 bar                                                                                                                                             | Pipe      | SDR(=D/t)<br><input checked="" type="checkbox"/> 11, <input type="checkbox"/> 17.6, <input type="checkbox"/> _____        |
| Production quantity  | 320 PCS                                                                                                                                            |           | Designation<br><input checked="" type="checkbox"/> PE 100, <input type="checkbox"/> PE 80, <input type="checkbox"/> _____ |

Test method : ISO 13956 : 2010

| TEST CONDITION |       |           |            | FUSION DATA |        |
|----------------|-------|-----------|------------|-------------|--------|
| Free length    |       | ≥148mm    | 165 mm     | Resistance  | 6.38 Ω |
| After fusion   | Time  | 12h       | 13 h       | Voltage     | 40 V   |
|                | Temp. | 23 ±2°C   | 23 °C      | Fusion time | 90 sec |
| Test speeds    |       | 100mm/min | 100 mm/min | Temperature | 22 °C  |



## TEST RESULT

| NO.    | Test item                                 | Description     | Test data |    |    |    |    | Result                                                                       |
|--------|-------------------------------------------|-----------------|-----------|----|----|----|----|------------------------------------------------------------------------------|
|        |                                           |                 | n1        | n2 | n3 | n4 | n5 |                                                                              |
| 1      | brittle or ductile                        | ductile         | ductile   | -  | -  | -  | -  | <input checked="" type="checkbox"/> Accept<br><input type="checkbox"/> _____ |
| 2      | $L_d = \frac{l}{y} \times 100 (\%)$       | $L_d \leq 50\%$ | 0%        | -  | -  | -  | -  | <input checked="" type="checkbox"/> Accept<br><input type="checkbox"/> _____ |
| 3      | $A_d = \frac{A}{A_{nom}} \times 100 (\%)$ | $A_d \leq 25\%$ | 0%        | -  | -  | -  | -  | <input checked="" type="checkbox"/> Accept<br><input type="checkbox"/> _____ |
| REMARK |                                           |                 |           |    |    |    |    | JUDGEMENT                                                                    |
|        |                                           |                 |           |    |    |    |    | <input checked="" type="checkbox"/> PASS<br><input type="checkbox"/> FAIL    |



# Test report

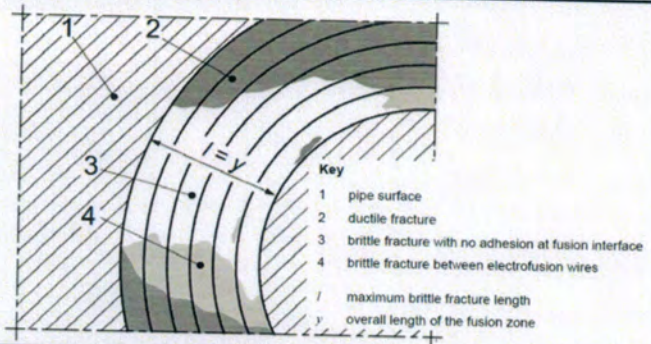
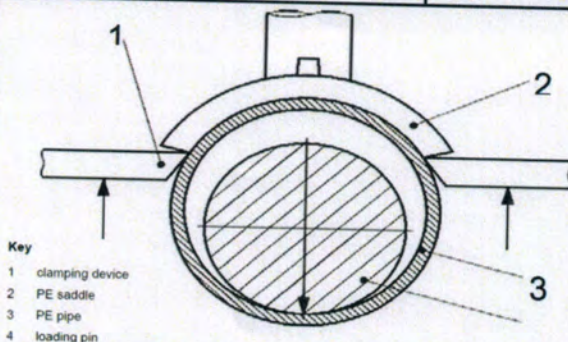
ISSUE DATE : 2016. 10. 11

| TEST | REVIEW | APPROVAL |
|------|--------|----------|
| 郑建明  | 王亚明    | 王亚明      |

|                      |                                                        |           |                                 |
|----------------------|--------------------------------------------------------|-----------|---------------------------------|
| Test name            | Decohesive resistance                                  |           |                                 |
| Product              | EF TAPPING TEE                                         | REF       | EN 1555-3:2010, EN 12201-3:2012 |
| Size DN              | 315 x 90 mm                                            | Lot       | BD1ETT31509H16                  |
| Production period    | 16. 08. 09                                             | Test date | 16. 10. 11                      |
| Size group           | <input type="checkbox"/> 1 Group: 25~ 63mm             | Material  | Model                           |
|                      | <input type="checkbox"/> 2 Group: 75~225mm             |           | Origin                          |
|                      | <input checked="" type="checkbox"/> 3 Group: 250~630mm |           | Color                           |
| Nominal pressure(PN) | tv                                                     | Pipe      | SDR(=D/t)                       |
| Production quantity  | 600 PCS                                                |           | Designation                     |

Test method : ISO 13956 : 2010

| TEST CONDITION |           |         |        | FUSION DATA |         |
|----------------|-----------|---------|--------|-------------|---------|
| Free length    | ≥328mm    | 350     | mm     | Resistance  | 3.199 Ω |
| After fusion   | Time      | 12h     | 13 h   | Voltage     | 40 V    |
|                | Temp.     | 23 ±2°C | 23 °C  | Fusion time | 400 sec |
| Test speeds    | 100mm/min | 100     | mm/min | Temperature | 22 °C   |



## TEST RESULT

| NO. | Test item                                 | Description     | Test data |    |    |    |    | Result                                                                       |
|-----|-------------------------------------------|-----------------|-----------|----|----|----|----|------------------------------------------------------------------------------|
|     |                                           |                 | n1        | n2 | n3 | n4 | n5 |                                                                              |
| 1   | brittle or ductile                        | ductile         | ductile   | -  | -  | -  | -  | <input checked="" type="checkbox"/> Accept<br><input type="checkbox"/> _____ |
| 2   | $L_d = \frac{l}{y} \times 100 (\%)$       | $L_d \leq 50\%$ | 0%        | -  | -  | -  | -  | <input checked="" type="checkbox"/> Accept<br><input type="checkbox"/> _____ |
| 3   | $A_d = \frac{A}{A_{nom}} \times 100 (\%)$ | $A_d \leq 25\%$ | 0%        | -  | -  | -  | -  | <input checked="" type="checkbox"/> Accept<br><input type="checkbox"/> _____ |

REMARK

JUDGEMENT

☒ PASS  
☐ FAIL



# Hydrostatic Strength Test Report

| Designation |       | PE Compound | Manufacturing date |             | Lot Volume(Q'ty) |          |
|-------------|-------|-------------|--------------------|-------------|------------------|----------|
| fitting     | pipe  |             | fitting            | pipe        | fitting          | pipe     |
| EF T/TEE    | PIPE  | HE3490-LS   | 2016               | 2016        | 98 pcs           | 21,000 m |
| 315 X 90    | 315mm |             | 8.9                | 10.2 ~ 10.5 |                  |          |

Lot : BA1ETT315090H16

Injection molding machine No :

| Characteristi                                                                                                                  | Q'ty of Test | Test start date - End date | Tester |
|--------------------------------------------------------------------------------------------------------------------------------|--------------|----------------------------|--------|
| <input type="checkbox"/> 20°C / 100h, <input type="checkbox"/> 80°C / 165h<br><input checked="" type="checkbox"/> 80°C / 1000h | 3 pcs        | 2016.10.12~2016.11.25      | 施益民    |

| Requirements                                    | Test parameters            |                                |         |         | conditioning                                                                                       |        |
|-------------------------------------------------|----------------------------|--------------------------------|---------|---------|----------------------------------------------------------------------------------------------------|--------|
|                                                 | parameter                  | Value                          |         |         | thickness mm                                                                                       | Time h |
| No failure during test period of any test piece | End caps                   | Type a                         | Type a  | Type a  | e min < 3                                                                                          | 1      |
|                                                 | Orientation                | Free                           | Free    | Free    | 3 ≤ e min < 8                                                                                      | 3      |
|                                                 | Number of test pieces      | Shll conform to EN 1555-7:2010 |         |         | 8 ≤ e min < 16                                                                                     | 6      |
|                                                 | Type of test               | Water in water                 |         |         | 16 ≤ e min < 32                                                                                    | 10     |
|                                                 | PE80 circumference stress  | 10.0 Mpa                       | 4.5 Mpa | 4.0 Mpa | e min ≤ 32                                                                                         | 16     |
|                                                 | PE100 circumference stress | 12.0 Mpa                       | 5.4 Mpa | 5.0 Mpa | Sample Type                                                                                        |        |
|                                                 | Test temperature           | 20°C                           | 80°C    | 80°C    | <input type="checkbox"/> Mass production<br><input checked="" type="checkbox"/> Developing product |        |
|                                                 |                            |                                |         |         | Laboratory temperature                                                                             |        |
|                                                 |                            |                                |         |         | 23 °C ±2                                                                                           | 23°C   |

| Test items                                                 |                                          | Sample ( n = 3, c = 0 ) / Measuring instrument : B.C, Precision: 0.01mm |                      |                             |                      |                             |                      |                             |                      |      |  |
|------------------------------------------------------------|------------------------------------------|-------------------------------------------------------------------------|----------------------|-----------------------------|----------------------|-----------------------------|----------------------|-----------------------------|----------------------|------|--|
|                                                            |                                          | Standard                                                                | n1                   |                             | n2                   |                             | n3                   |                             | n4                   |      |  |
| Appearance                                                 |                                          | No exception                                                            | ■ Accept , □ Rejects |                             | ■ Accept , □ Rejects |                             | ■ Accept , □ Rejects |                             | □ Accept , □ Rejects |      |  |
| EF<br>Inside<br>diam<br>eter                               | x                                        | n/a                                                                     |                      |                             |                      |                             |                      |                             |                      |      |  |
|                                                            | x'                                       |                                                                         |                      |                             |                      |                             |                      |                             |                      |      |  |
|                                                            | y                                        |                                                                         |                      |                             |                      |                             |                      |                             |                      |      |  |
|                                                            | y'                                       |                                                                         |                      |                             |                      |                             |                      |                             |                      |      |  |
|                                                            | AVG                                      |                                                                         |                      |                             |                      |                             |                      |                             |                      |      |  |
| R. n                                                       |                                          | n/a                                                                     |                      |                             |                      |                             |                      |                             |                      |      |  |
| Th k                                                       |                                          | n/a                                                                     |                      |                             |                      |                             |                      |                             |                      |      |  |
| Bran<br>chi<br>&<br>PIPE                                   | Distinguish                              | branchi                                                                 | branchi              | pipe                        | branchi              | pipe                        | branchi              | pipe                        | branchi              | pipe |  |
|                                                            | x                                        | 90.0 ~ 90.6                                                             | 90.5                 | 314.5                       | 90.6                 | 314.5                       | 90.7                 | 314.5                       |                      |      |  |
|                                                            | x'                                       |                                                                         | 90.4                 | 314.8                       | 90.3                 | 314.8                       | 90.5                 | 314.8                       |                      |      |  |
|                                                            | y                                        | 315.0~316.9                                                             | 90.3                 | 315.6                       | 90.3                 | 315.6                       | 90.2                 | 315.6                       |                      |      |  |
|                                                            | y'                                       |                                                                         | 90.1                 | 316.7                       | 90.0                 | 316.7                       | 90.0                 | 316.7                       |                      |      |  |
|                                                            | AVG                                      | mm                                                                      | 90.33                | 315.40                      | 90.30                | 315.40                      | 90.35                | 315.40                      |                      |      |  |
|                                                            | R. n                                     | 1.8 / 11.1 mm                                                           | 0.4                  | 2.2                         | 0.6                  | 2.2                         | 0.7                  | 2.2                         |                      |      |  |
|                                                            | Th k                                     | 8.2 / 28.6 mm                                                           | 8.88                 | 30.20                       | 8.93                 | 30.11                       | 8.74                 | 30.02                       |                      |      |  |
|                                                            | Resistance                               | 2.945~3.255 Ω                                                           | 2.998                |                             | 3.122                |                             | 3.055                |                             |                      |      |  |
| Fusion sigan                                               | 400 sec                                  | 400 sec                                                                 |                      | 400 sec                     |                      | 400 sec                     |                      |                             |                      |      |  |
| Length of pipe                                             | min 250mm                                | 1,200mm                                                                 |                      | 1,200mm                     |                      | 1,200mm                     |                      |                             |                      |      |  |
| sample length                                              | -                                        | 2,000mm                                                                 |                      | 2,000mm                     |                      | 2,000mm                     |                      |                             |                      |      |  |
| conditioning                                               | 10h                                      | 10h                                                                     |                      | 10h                         |                      | 10h                         |                      |                             |                      |      |  |
| Tank                                                       | 80°C ±1                                  | 80                                                                      |                      | 80                          |                      | 80                          |                      |                             |                      |      |  |
| Testing pressure                                           | 1.059 MPa                                | 1.059                                                                   |                      | 1.059                       |                      | 1.059                       |                      |                             |                      |      |  |
| Decision                                                   | Will not be a problem<br>for more than h | ■ Accept<br>□ Rejects ( h )                                             |                      | ■ Accept<br>□ Rejects ( h ) |                      | ■ Accept<br>□ Rejects ( h ) |                      | □ Accept<br>□ Rejects ( h ) |                      |      |  |
| Decision                                                   |                                          | ■ Accept □ Rejects                                                      |                      |                             |                      |                             |                      |                             |                      |      |  |
| ° Test Specification : EN 1555 2 : 2010 / EN 1555 2 : 2010 |                                          |                                                                         |                      |                             |                      |                             |                      |                             |                      |      |  |

Test Specification : EN 1555-2 : 2010 / EN 1555-3:2010/ EN 12201-2 :2012/ EN 12201-3 : 2013

Test method : EN ISO 1167-1,2

PIPE materials : PE 80 &amp; PE 100

20°C/100h : PE80=2.0Mpa, PE100=2.48Mpa

80°C/165h : PE80=0.92Mpa, PE100=1.1Mpa

80°C/100h : PE80=0.8Mpa, PE100=1.0Mpa

2016.11.30.

2016.11.30.

YONGGAO CO., LTD



# Sciteq-Hammel A/S

Industrivej 13-15  
6740 Hammel  
Denmark

Attachment NO: 11 on 50  
belongs to Test Report No: CAC-133042-AP4-300-2

## 产品的详细资料

试验号码 201610141  
描述 TUV 315X90mm  
产品编号  
试验型号  
客户

## 压力测试详细资料

操作者  
站 31  
设定压力 10,59 [bar]  
滞后 0,10 [bar]  
警报 0,21 [bar]  
最大压力 10,87 [bar]  
泄漏率 5

## 压力测试结果

总的试验时间 1000:00 小时  
合格时间 1000:00 小时  
当前测试时间 1003:04 小时  
超出公差时间 3:04 小时  
电源故障时间 6:47 小时

## 压力测试温度

注意: 手动输入温度参数  
水箱设定温度 0,00 [°C]

## 试验注解

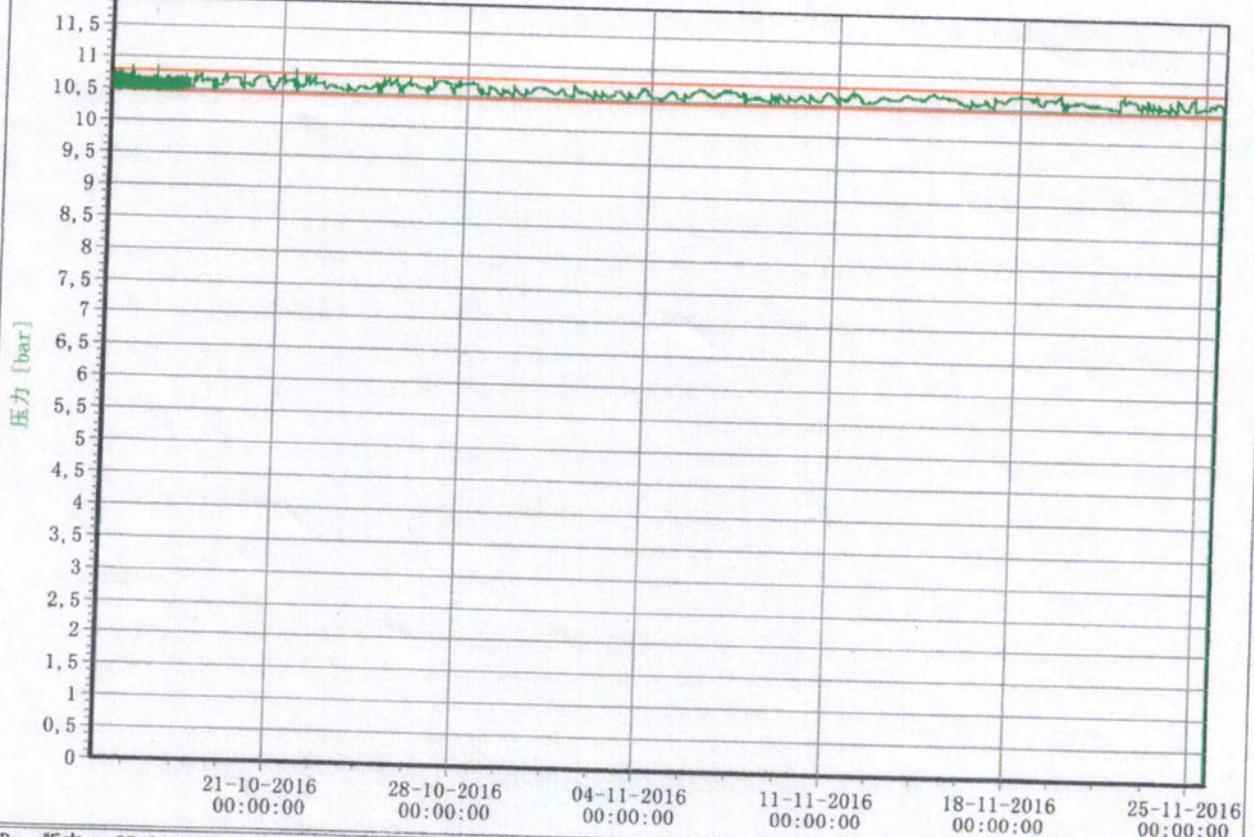
## 日期

试验启动日期 14-10-2016 14:13  
测试最后日期 25-11-2016 16:07  
日期打印 30-11-2016 09:17:10

☐ inspected ☐ reviewed ☒ witnessed  
TRK-0001

30 NOV 2016

## 全部测试



Pc 版本 = 25 01 2016 8.72  
0版本 = 21-05-2015

试验认可

: 日期 . . / . .



# Hydrostatic Strength Test Report

| Designation          |               | PE Compound | Manufacturing date |                     | Lot Volume(Q'ty) |          |
|----------------------|---------------|-------------|--------------------|---------------------|------------------|----------|
| fitting              | pipe          |             | fitting            | pipe                | fitting          | pipe     |
| EF T/TEE<br>110 X 63 | PIPE<br>110mm | HE3490-LS   | 2016<br>7.23       | 2016<br>10.2 ~ 10.5 | 286 pcs          | 48,000 m |

Lot : BC1ETT110063G16

Injection molding machine No :

| Characteristi                                                                                                                     | Q'ty of Test | Test start date - End date | Tester |
|-----------------------------------------------------------------------------------------------------------------------------------|--------------|----------------------------|--------|
| <input type="checkbox"/> 20 °C / 100h, <input type="checkbox"/> 80 °C / 165h<br><input checked="" type="checkbox"/> 80 °C / 1000h | 3 pcs        | 2016.10.12~2016.11.24      | 施益民    |

| Requirements                                    | Test parameters            |                                |         | conditioning           |                                                        |
|-------------------------------------------------|----------------------------|--------------------------------|---------|------------------------|--------------------------------------------------------|
|                                                 | parameter                  | Value                          |         |                        |                                                        |
| No failure during test period of any test piece | End caps                   | Type a                         | Type a  | Type a                 | thickness mm                                           |
|                                                 | Orientation                | Free                           | Free    | Free                   | Time h                                                 |
|                                                 | Number of test pieces      | Shll conform to EN 1555-7:2010 |         |                        | e min < 3                                              |
|                                                 | Type of test               | Water in water                 |         |                        | 3 ≤ e min < 8                                          |
|                                                 | PE80 circumference stress  | 10.0 Mpa                       | 4.5 Mpa | 4.0 Mpa                | 8 ≤ e min < 16                                         |
|                                                 | PE100 circumference stress | 12.0 Mpa                       | 5.4 Mpa | 5.0 Mpa                | 16 ≤ e min < 32                                        |
|                                                 | Test temperature           | 20 °C                          | 80 °C   | 80 °C                  | e min ≤ 32                                             |
|                                                 |                            |                                |         |                        | Sample Type                                            |
|                                                 |                            |                                |         |                        | <input type="checkbox"/> Mass production               |
|                                                 |                            |                                |         |                        | <input checked="" type="checkbox"/> Developing product |
|                                                 |                            |                                |         | Laboratory temperature |                                                        |
|                                                 |                            |                                |         | 23 °C ±2               |                                                        |

| Test items                   |             | Sample ( n = 3, c = 0 ) / Measuring instrument : B.C, Precision: 0.01mm |                             |        |                             |        |                             |        |                             |      |  |
|------------------------------|-------------|-------------------------------------------------------------------------|-----------------------------|--------|-----------------------------|--------|-----------------------------|--------|-----------------------------|------|--|
|                              |             | Standard                                                                | n1                          |        | n2                          |        | n3                          |        | n4                          |      |  |
| Appearance                   |             | No exception                                                            | ■ Accept , □ Rejects        |        | ■ Accept , □ Rejects        |        | ■ Accept , □ Rejects        |        | □ Accept , □ Rejects        |      |  |
| EF<br>Inside<br>diam<br>eter | x           | n/a                                                                     |                             |        |                             |        |                             |        |                             |      |  |
|                              | x'          |                                                                         |                             |        |                             |        |                             |        |                             |      |  |
|                              | y           |                                                                         |                             |        |                             |        |                             |        |                             |      |  |
|                              | y'          |                                                                         |                             |        |                             |        |                             |        |                             |      |  |
|                              | AVG         |                                                                         |                             |        |                             |        |                             |        |                             |      |  |
| R. n                         |             | n/a                                                                     |                             |        |                             |        |                             |        |                             |      |  |
| Th k                         |             | n/a                                                                     |                             |        |                             |        |                             |        |                             |      |  |
| Branchi<br>&<br>PIPE         | Distinguish | branchi                                                                 | branchi                     | pipe   | branchi                     | pipe   | branchi                     | pipe   | branchi                     | pipe |  |
|                              | x           | 63.0 ~ 63.4<br>pipe<br>110.0~110.7<br>mm                                | 63.1                        | 110.1  | 63.4                        | 110.3  | 63.4                        | 110.3  |                             |      |  |
|                              | x'          |                                                                         | 63.3                        | 110.2  | 63.2                        | 110.0  | 63.1                        | 110.1  |                             |      |  |
|                              | y           |                                                                         | 63.4                        | 110.2  | 63.3                        | 110.4  | 63.5                        | 110.4  |                             |      |  |
|                              | y'          |                                                                         | 63.2                        | 110.1  | 63.4                        | 110.3  | 63.2                        | 110.3  |                             |      |  |
|                              | AVG         |                                                                         | 63.25                       | 110.15 | 63.33                       | 110.25 | 63.30                       | 110.28 |                             |      |  |
|                              | R. n        | 1.5 / 2.2 mm                                                            | 0.3                         | 0.1    | 0.2                         | 0.4    | 0.4                         | 0.3    |                             |      |  |
|                              | Th k        | 5.8 / 10.0 mm                                                           | 6.12                        | 10.88  | 6.02                        | 10.85  | 5.98                        | 10.82  |                             |      |  |
| Resistance                   |             | 6.745~7.453 Ω                                                           | 6.999                       |        | 6.985                       |        | 7.025                       |        |                             |      |  |
| Fusion sigan                 |             | 120 sec                                                                 | 120 s                       |        | 120 s                       |        | 120 s                       |        |                             |      |  |
| Length of pipe               |             | min 250mm                                                               | 1000mm                      |        | 1000mm                      |        | 1000mm                      |        |                             |      |  |
| sample length                |             | -                                                                       | 1,500mm                     |        | 1,500mm                     |        | 1,500mm                     |        |                             |      |  |
| conditioning                 |             | 6h                                                                      | 6h                          |        | 6h                          |        | 6h                          |        |                             |      |  |
| Tank                         |             | 80°C ±1                                                                 | 79.9                        |        | 79.9                        |        | 79.9                        |        |                             |      |  |
| Testing pressure             |             | 1.000 MPa                                                               | 1.000                       |        | 1.000                       |        | 1.000                       |        |                             |      |  |
| Decision                     |             | Will not be a problem<br>for more than h                                | ■ Accept<br>□ Rejects ( h ) |        | ■ Accept<br>□ Rejects ( h ) |        | ■ Accept<br>□ Rejects ( h ) |        | □ Accept<br>□ Rejects ( h ) |      |  |
| Decision                     |             |                                                                         | ■ Accept □ Rejects          |        |                             |        |                             |        |                             |      |  |

- Test Specification : EN 1555-2 : 2010 / EN 1555-3:2010/ EN 12201-2 :2012/ EN 12201-3 : 2013
- Test method : EN ISO 1167-1,2
- PIPE materials : PE 80 & PE 100
- 20 °C/100h : PE80=2.0Mpa, PE100=2.48Mpa
- 80 °C/165h : PE80=0.92Mpa, PE100=1.1Mpa
- 80 °C/100h : PE80=0.8Mpa, PE100=1.0Mpa

2016.11.30.

2016.11.30.

YONGGAO CO., LTD



# Test report

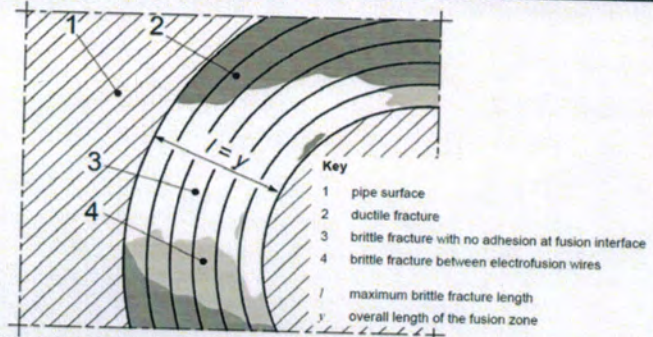
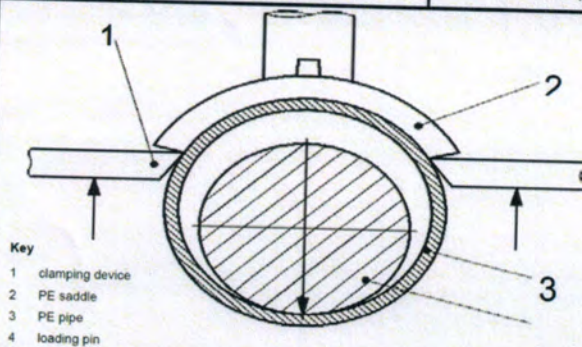
ISSUE DATE : 2016. 10. 11

| TEST | REVIEW | APPROVAL |
|------|--------|----------|
| 郑建刚  | 王康明    | Sh. 501  |

|                      |                                                       |           |                                                                                                                        |
|----------------------|-------------------------------------------------------|-----------|------------------------------------------------------------------------------------------------------------------------|
| Test name            | Decohesive resistance                                 |           |                                                                                                                        |
| Product              | EF TAPPING TEE                                        | REF       | EN 1555-3:2010, EN 12201-3:2012                                                                                        |
| Size DN              | 110 x 63 mm                                           | LOT       | BD1ETT110063G16                                                                                                        |
| Production period    | 16. 07. 23                                            | Test date | 16. 10. 11                                                                                                             |
| Size group           | <input type="checkbox"/> 1 Group: 25~63mm             | Material  | Model HE3490-LS                                                                                                        |
|                      | <input checked="" type="checkbox"/> 2 Group: 75~225mm |           | Origin Boruge                                                                                                          |
|                      | <input type="checkbox"/> 3 Group: 250~630mm           |           | Color <input type="checkbox"/> Yellow, <input checked="" type="checkbox"/> Black, <input type="checkbox"/> _____       |
| Nominal pressure(PN) | 16 bar                                                | Pipe      | SDR(=D/t) <input checked="" type="checkbox"/> 11, <input type="checkbox"/> 17.6, <input type="checkbox"/> _____        |
| Production quantity  | 286 PCS                                               |           | Designation <input checked="" type="checkbox"/> PE 100, <input type="checkbox"/> PE 80, <input type="checkbox"/> _____ |

Test method : ISO 13956 : 2010

| TEST CONDITION |           |            |       | FUSION DATA |         |
|----------------|-----------|------------|-------|-------------|---------|
| Free length    | ≥187mm    | 200 mm     |       | Resistance  | 6.89 Ω  |
| After fusion   | Time      | 12h        | 13 h  | Voltage     | 40 V    |
|                | Temp.     | 23 ±2°C    | 23 °C | Fusion time | 120 sec |
| Test speeds    | 100mm/min | 100 mm/min |       | Temperature | 22 °C   |



## TEST RESULT

| NO. | Test item                                 | Description     | Test data |    |    |    |    | Result                                                                       |
|-----|-------------------------------------------|-----------------|-----------|----|----|----|----|------------------------------------------------------------------------------|
|     |                                           |                 | n1        | n2 | n3 | n4 | n5 |                                                                              |
| 1   | brittle or ductile                        | ductile         | ductile   | -  | -  | -  | -  | <input checked="" type="checkbox"/> Accept<br><input type="checkbox"/> _____ |
| 2   | $L_d = \frac{l}{y} \times 100 (\%)$       | $L_d \leq 50\%$ | 0%        | -  | -  | -  | -  | <input checked="" type="checkbox"/> Accept<br><input type="checkbox"/> _____ |
| 3   | $A_d = \frac{A}{A_{nom}} \times 100 (\%)$ | $A_d \leq 25\%$ | 0%        | -  | -  | -  | -  | <input checked="" type="checkbox"/> Accept<br><input type="checkbox"/> _____ |

REMARK

JUDGEMENT

☒ PASS  
☐ FAIL



## Sciteq-Hammel A/S

Industrivej 13-15  
6740 Hammel  
Denmark

## 产品的详细资料

试验号码 201610134  
描述 TUV 110X63mm  
产品编号  
试验型号  
客户

## 压力测试详细资料

操作者  
站 35  
设定压力 10,00 [bar]  
滞后 0,10 [bar]  
警报 0,20 [bar]  
最大压力 10,81 [bar]  
泄漏率 5

## 压力测试结果

总的试验时间 1000:00 小时  
合格时间 1000:00 小时  
当前测试时间 1001:26 小时  
超出公差时间 1:26 小时  
电源故障时间 8:15 小时

## 压力测试温度

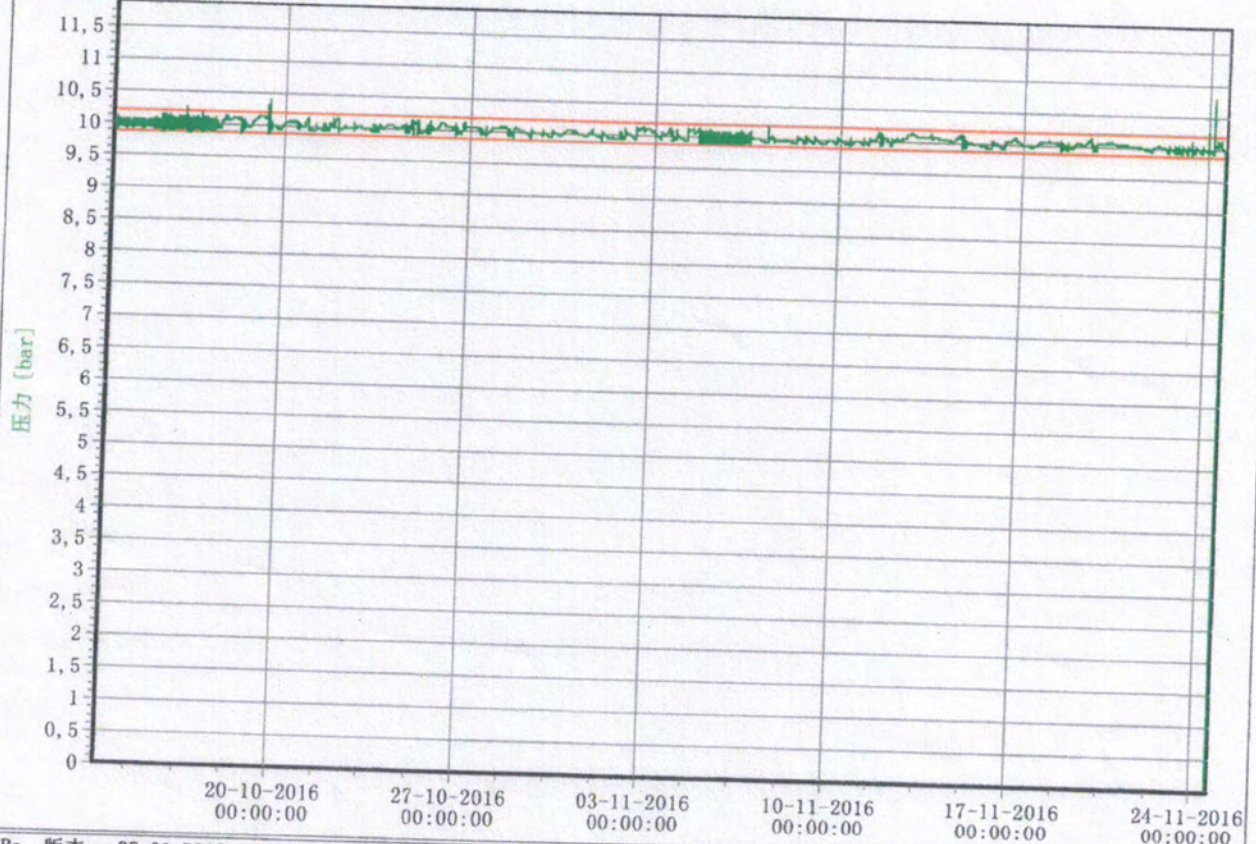
注意: 手动输入温度参数  
水箱设定温度 0,00 [°C]

## 试验注解

## 日期

试验启动日期 13-10-2016 14:34  
测试最后日期 24-11-2016 16:16  
日期打印 30-11-2016 09:17:44

## 全部测试





# Hydrostatic Strength Test Report

| Designation         |           | PE Compound | Manufacturing date |                      | Lot Volume(Q'ty) |          |
|---------------------|-----------|-------------|--------------------|----------------------|------------------|----------|
| fitting             | pipe      |             | fitting            | pipe                 | fitting          | pipe     |
| EF T/TEE<br>63 X 63 | PIPE 63mm | HE3490-LS   | 2016<br>7.25       | 2016<br>10.5 ~ 10.10 | 320 pcs          | 52,000 m |

Lot : BD1ETT063063G16

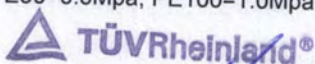
Injection molding machine No :

| Characteristi                                                                                                               | Q'ty of Test | Test start date - End date | Tester |
|-----------------------------------------------------------------------------------------------------------------------------|--------------|----------------------------|--------|
| <input type="checkbox"/> 20℃ / 100h, <input type="checkbox"/> 80℃ / 165h<br><input checked="" type="checkbox"/> 80℃ / 1000h | 3 pcs        | 2016.10.12~2016.11.24      | 施益民    |

| Requirements                                    | Test parameters            |                                |         |         | conditioning                                                                                       |        |
|-------------------------------------------------|----------------------------|--------------------------------|---------|---------|----------------------------------------------------------------------------------------------------|--------|
|                                                 | parameter                  | Value                          |         |         | thickness mm                                                                                       | Time h |
| No failure during test period of any test piece | End caps                   | Type a                         | Type a  | Type a  | e min < 3                                                                                          | 1      |
|                                                 | Orientation                | Free                           | Free    | Free    | 3 ≤ e min < 8                                                                                      | 3      |
|                                                 | Number of test pieces      | Shll conform to EN 1555-7:2010 |         |         | 8 ≤ e min < 16                                                                                     | 6      |
|                                                 | Type of test               | Water in water                 |         |         | 16 ≤ e min < 32                                                                                    | 10     |
|                                                 | PE80 circumference stress  | 10.0 Mpa                       | 4.5 Mpa | 4.0 Mpa | e min ≤ 32                                                                                         | 16     |
|                                                 | PE100 circumference stress | 12.0 Mpa                       | 5.4 Mpa | 5.0 Mpa | Sample Type                                                                                        |        |
|                                                 | Test temperature           | 20℃                            | 80℃     | 80℃     | <input type="checkbox"/> Mass production<br><input checked="" type="checkbox"/> Developing product |        |
|                                                 |                            |                                |         |         | Laboratory temperature                                                                             |        |
|                                                 |                            |                                |         |         | 23 °C ±2                                                                                           | 23 °C  |
|                                                 |                            |                                |         |         |                                                                                                    |        |

| Test items                                                 |             | Sample ( n = 3, c = 0 ) / Measuring instrument : B.C, Precision: 0.01mm |                             |       |                             |       |                             |       |                             |  |  |
|------------------------------------------------------------|-------------|-------------------------------------------------------------------------|-----------------------------|-------|-----------------------------|-------|-----------------------------|-------|-----------------------------|--|--|
|                                                            |             | Standard                                                                | n1                          |       | n2                          |       | n3                          |       | n4                          |  |  |
| Appearance                                                 |             | No exception                                                            | ■ Accept , □ Rejects        |       | ■ Accept , □ Rejects        |       | ■ Accept , □ Rejects        |       | □ Accept , □ Rejects        |  |  |
| EF<br>Inside<br>diam<br>eter                               | x           | n/a                                                                     |                             |       |                             |       |                             |       |                             |  |  |
|                                                            | x'          |                                                                         |                             |       |                             |       |                             |       |                             |  |  |
|                                                            | y           |                                                                         |                             |       |                             |       |                             |       |                             |  |  |
|                                                            | y'          |                                                                         |                             |       |                             |       |                             |       |                             |  |  |
| eter                                                       |             | AVG                                                                     |                             |       |                             |       |                             |       |                             |  |  |
| R. n                                                       |             | n/a                                                                     |                             |       |                             |       |                             |       |                             |  |  |
| Th k                                                       |             | n/a                                                                     |                             |       |                             |       |                             |       |                             |  |  |
| Branchi<br>&<br>PIPE                                       | Distinguish | 63.0 ~ 63.4<br><br>mm                                                   | branchi                     | pipe  | branchi                     | pipe  | branchi                     | pipe  | branchi pipe                |  |  |
|                                                            | x           |                                                                         | 63.3                        | 63.2  | 63.3                        | 63.1  | 63.4                        | 63.3  |                             |  |  |
|                                                            | x'          |                                                                         | 63.3                        | 63.2  | 63.3                        | 63.3  | 63.4                        | 63.2  |                             |  |  |
|                                                            | y           |                                                                         | 63.3                        | 63.3  | 63.4                        | 63.4  | 63.3                        | 63.1  |                             |  |  |
|                                                            | y'          |                                                                         | 63.4                        | 63.4  | 63.4                        | 63.4  | 63.4                        | 63.4  |                             |  |  |
|                                                            | AVG         |                                                                         | 63.33                       | 63.28 | 63.35                       | 63.30 | 63.38                       | 63.25 |                             |  |  |
|                                                            | R. n        | 1.5 mm                                                                  | 0.1                         | 0.2   | 0.1                         | 0.3   | 0.1                         | 0.3   |                             |  |  |
|                                                            | Th k        | 5.8~6.5 mm                                                              | 6.20                        | 6.12  | 6.10                        | 6.08  | 6.15                        | 6.10  |                             |  |  |
| Resistance                                                 |             | 6.175~6.825 Ω                                                           | 6.223                       |       | 6.342                       |       | 6.388                       |       |                             |  |  |
| Fusion sigan                                               |             | 90 sec                                                                  | 90s                         |       | 90s                         |       | 90s                         |       |                             |  |  |
| Length of pipe                                             |             | min 250mm                                                               | 1000mm                      |       | 1000mm                      |       | 1000mm                      |       |                             |  |  |
| sample length                                              |             | -                                                                       | 1,500mm                     |       | 1,500mm                     |       | 1,500mm                     |       |                             |  |  |
| conditioning                                               |             | 3h                                                                      | 3h                          |       | 3h                          |       | 3h                          |       |                             |  |  |
| Tank                                                       |             | 80°C ±1                                                                 | 79.9                        |       | 79.9                        |       | 79.9                        |       |                             |  |  |
| Testing pressure                                           |             | 1.014 MPa                                                               | 1.014                       |       | 1.014                       |       | 1.014                       |       |                             |  |  |
| Decision                                                   |             | Will not be a problem<br>for more than h                                | ■ Accept<br>□ Rejects ( h ) |       | ■ Accept<br>□ Rejects ( h ) |       | ■ Accept<br>□ Rejects ( h ) |       | □ Accept<br>□ Rejects ( h ) |  |  |
| Decision                                                   |             |                                                                         | ■ Accept □ Rejects          |       |                             |       |                             |       |                             |  |  |
| ° Test Specification : EN 1555 2 : 2010 / EN 1555 2 : 2010 |             |                                                                         |                             |       |                             |       |                             |       |                             |  |  |

- Test Specification : EN 1555-2 : 2010 / EN 1555-3:2010/ EN 12201-2 :2012/ EN 12201-3 : 2013
- Test method : EN ISO 1167-1,2
- PIPE materials : PE 80 & PE 100
- 20℃/100h : PE80=2.0Mpa, PE100=2.48Mpa
- 80℃/165h : PE80=0.92Mpa, PE100=1.1Mpa
- 80℃/100h : PE80=0.8Mpa, PE100=1.0Mpa



2016.11.30.

2016.11.30

YONGGAO CO., LTD





## Sciteq-Hammel A/S

Industrivej 13-15  
6740 Hammel  
Denmark

## 产品的详细资料

|      |             |
|------|-------------|
| 试验号码 | 201610135   |
| 描述   | TUV 63X63mm |
| 产品编号 |             |
| 试验型号 |             |
| 客户   |             |

## 压力测试详细资料

|      |              |
|------|--------------|
| 操作者  |              |
| 站    | 37           |
| 设定压力 | 10, 14 [bar] |
| 滞后   | 0, 10 [bar]  |
| 警报   | 0, 20 [bar]  |
| 最大压力 | 10, 92 [bar] |
| 泄漏率  | 5            |

## 压力测试结果

|        |            |
|--------|------------|
| 总的试验时间 | 1000:00 小时 |
| 合格时间   | 1000:00 小时 |
| 当前测试时间 | 1000:30 小时 |
| 超出公差时间 | 0:30 小时    |
| 电源故障时间 | 8:12 小时    |

## 压力测试温度

|              |            |
|--------------|------------|
| 注意: 手动输入温度参数 |            |
| 水箱设定温度       | 0, 00 [°C] |

## 试验注解

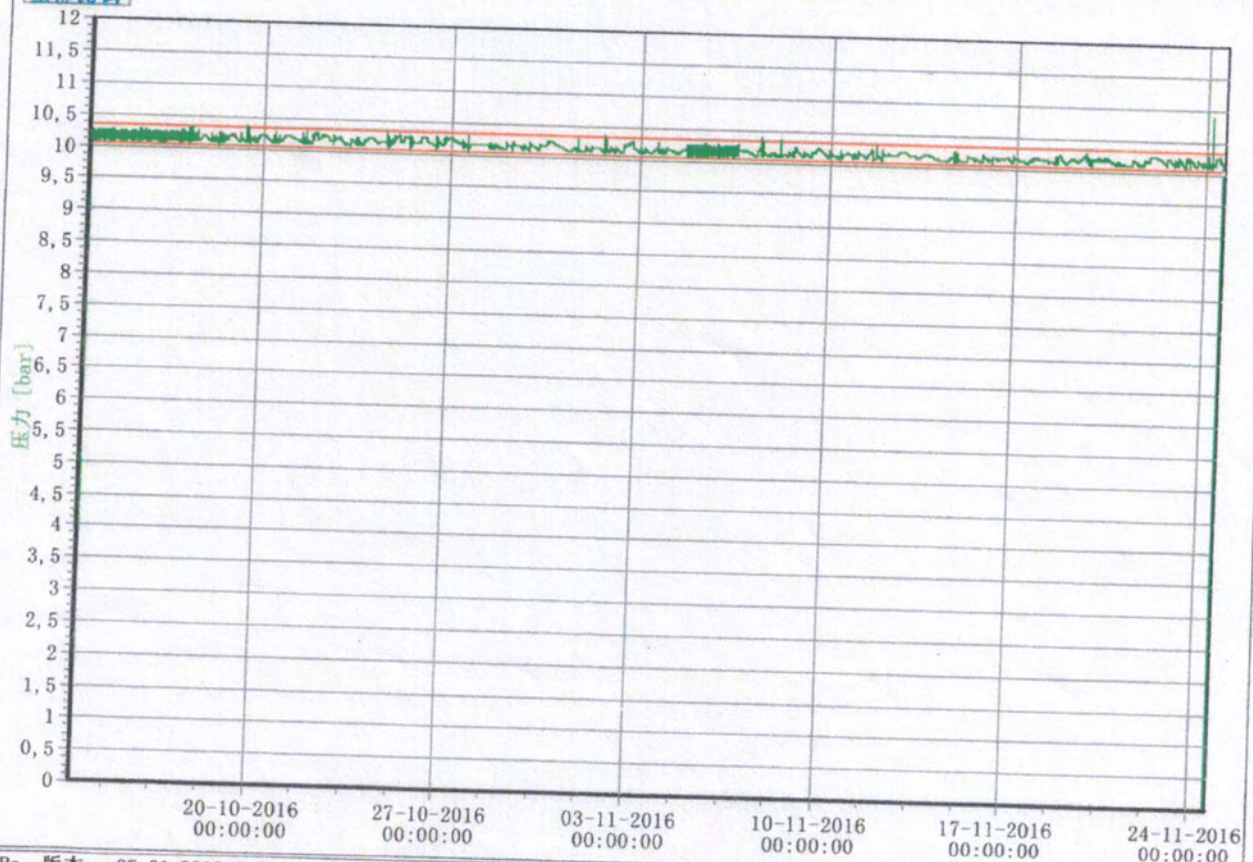
## 日期

|        |                     |
|--------|---------------------|
| 试验启动日期 | 13-10-2016 14:54    |
| 测试最后日期 | 24-11-2016 15:39    |
| 日期打印   | 30-11-2016 09:18:14 |


☐ Inspected ☐ reviewed ☒ witnessed  
TRK-0001

30 NOV 2016

## 全部测试



Pc 版本 = 25 01 2016 8.72

0版本 = 21-05-2015

试验认可

: 日期 . . / . .



# Hydrostatic Strength Test Report

| Designation |       | PE Compound | Manufacturing date |             | Lot Volume(Q'ty) |          |
|-------------|-------|-------------|--------------------|-------------|------------------|----------|
| fitting     | pipe  |             | fitting            | pipe        | fitting          | pipe     |
| EF T/TEE    | PIPE  | HE3490-LS   | 2016               | 2016        | 98 pcs           | 21,000 m |
| 315 X 90    | 315mm |             | 8.9                | 10.2 ~ 10.5 |                  |          |

Lot : BA1ETT315090H16

Injection molding machine No :

| Characteristi                                                                                                                  | Q'ty of Test | Test start date - End date | Tester |
|--------------------------------------------------------------------------------------------------------------------------------|--------------|----------------------------|--------|
| <input type="checkbox"/> 20°C / 100h, <input checked="" type="checkbox"/> 80°C / 165h<br><input type="checkbox"/> 80°C / 1000h | 3 pcs        | 2016.10.12~2016.10.21      | 施益民    |

| Requirements                                    | Test parameters            |                                |         |         | conditioning                                                                                       |        |
|-------------------------------------------------|----------------------------|--------------------------------|---------|---------|----------------------------------------------------------------------------------------------------|--------|
|                                                 | parameter                  | Value                          |         |         | thickness mm                                                                                       | Time h |
| No failure during test period of any test piece | End caps                   | Type a                         | Type a  | Type a  | e min < 3                                                                                          | 1      |
|                                                 | Orientation                | Free                           | Free    | Free    | 3 ≤ e min < 8                                                                                      | 3      |
|                                                 | Number of test pieces      | Shll conform to EN 1555-7:2010 |         |         | 8 ≤ e min < 16                                                                                     | 6      |
|                                                 |                            |                                |         |         | 16 ≤ e min < 32                                                                                    | 10     |
|                                                 | Type of test               | Water in water                 |         |         | e min ≤ 32                                                                                         | 16     |
|                                                 | PE80 circumference stress  | 10.0 Mpa                       | 4.5 Mpa | 4.0 Mpa | Sample Type                                                                                        |        |
|                                                 | PE100 circumference stress | 12.0 Mpa                       | 5.4 Mpa | 5.0 Mpa | <input type="checkbox"/> Mass production<br><input checked="" type="checkbox"/> Developing product |        |
|                                                 | Test temperature           | 20°C                           | 80°C    | 80°C    | Laboratory temperature                                                                             |        |
|                                                 |                            |                                |         |         | 23 °C ±2                                                                                           | 23°C   |

| Test items                   |             | Sample ( n = 3, c = 0 ) / Measuring instrument : B.C, Precision: 0.01mm |                                                                                      |        |                                                                                      |        |                                                                                      |        |                                                                           |
|------------------------------|-------------|-------------------------------------------------------------------------|--------------------------------------------------------------------------------------|--------|--------------------------------------------------------------------------------------|--------|--------------------------------------------------------------------------------------|--------|---------------------------------------------------------------------------|
|                              |             | Standard                                                                | n1                                                                                   |        | n2                                                                                   |        | n3                                                                                   |        | n4                                                                        |
| Appearance                   |             | No exception                                                            | <input checked="" type="checkbox"/> Accept, <input type="checkbox"/> Rejects         |        | <input checked="" type="checkbox"/> Accept, <input type="checkbox"/> Rejects         |        | <input checked="" type="checkbox"/> Accept, <input type="checkbox"/> Rejects         |        | <input type="checkbox"/> Accept, <input type="checkbox"/> Rejects         |
| EF<br>Inside<br>diam<br>eter | x           | n/a                                                                     |                                                                                      |        |                                                                                      |        |                                                                                      |        |                                                                           |
|                              | x'          |                                                                         |                                                                                      |        |                                                                                      |        |                                                                                      |        |                                                                           |
|                              | y           |                                                                         |                                                                                      |        |                                                                                      |        |                                                                                      |        |                                                                           |
|                              | y'          |                                                                         |                                                                                      |        |                                                                                      |        |                                                                                      |        |                                                                           |
|                              | AVG         |                                                                         |                                                                                      |        |                                                                                      |        |                                                                                      |        |                                                                           |
| R. n                         |             | n/a                                                                     |                                                                                      |        |                                                                                      |        |                                                                                      |        |                                                                           |
| Th k                         |             | n/a                                                                     |                                                                                      |        |                                                                                      |        |                                                                                      |        |                                                                           |
| Branchi<br>&<br>PIPE         | Distinguish | branchi                                                                 | branchi                                                                              | pipe   | branchi                                                                              | pipe   | branchi                                                                              | pipe   | branchi pipe                                                              |
|                              | x           | 90.0 ~ 90.6                                                             | 90.5                                                                                 | 314.5  | 90.6                                                                                 | 314.5  | 90.7                                                                                 | 314.5  |                                                                           |
|                              | x'          |                                                                         | 90.4                                                                                 | 314.8  | 90.3                                                                                 | 314.8  | 90.5                                                                                 | 314.8  |                                                                           |
|                              | y           | pipe                                                                    | 90.3                                                                                 | 315.6  | 90.3                                                                                 | 315.6  | 90.2                                                                                 | 315.6  |                                                                           |
|                              | y'          | 315.0~316.9                                                             | 90.1                                                                                 | 316.7  | 90.0                                                                                 | 316.7  | 90.0                                                                                 | 316.7  |                                                                           |
|                              | AVG         | mm                                                                      | 90.33                                                                                | 315.40 | 90.30                                                                                | 315.40 | 90.35                                                                                | 315.40 |                                                                           |
|                              | R. n        | 1.8 / 11.1 mm                                                           | 0.4                                                                                  | 2.2    | 0.6                                                                                  | 2.2    | 0.7                                                                                  | 2.2    |                                                                           |
|                              | Th k        | 8.2 / 28.6 mm                                                           | 8.88                                                                                 | 30.20  | 8.93                                                                                 | 30.11  | 8.74                                                                                 | 30.02  |                                                                           |
| Resistance                   |             | 2.945~3.255 Ω                                                           | 2.999                                                                                |        | 3.125                                                                                |        | 3.089                                                                                |        |                                                                           |
| Fusion sigan                 |             | 400 sec                                                                 | 400 sec                                                                              |        | 400 sec                                                                              |        | 400 sec                                                                              |        |                                                                           |
| Length of pipe               |             | min 250mm                                                               | 1,200mm                                                                              |        | 1,200mm                                                                              |        | 1,200mm                                                                              |        |                                                                           |
| sample length                |             | -                                                                       | 2,000mm                                                                              |        | 2,000mm                                                                              |        | 2,000mm                                                                              |        |                                                                           |
| conditioning                 |             | 10h                                                                     | 10h                                                                                  |        | 10h                                                                                  |        | 10h                                                                                  |        |                                                                           |
| Tank                         |             | 80°C ±1                                                                 | 80                                                                                   |        | 80                                                                                   |        | 80                                                                                   |        |                                                                           |
| Testing pressure             |             | 1.08 MPa                                                                | 2.43                                                                                 |        | 2.43                                                                                 |        | 2.43                                                                                 |        |                                                                           |
| Decision                     |             | Will not be a problem for more than h                                   | <input checked="" type="checkbox"/> Accept<br><input type="checkbox"/> Rejects ( h ) |        | <input checked="" type="checkbox"/> Accept<br><input type="checkbox"/> Rejects ( h ) |        | <input checked="" type="checkbox"/> Accept<br><input type="checkbox"/> Rejects ( h ) |        | <input type="checkbox"/> Accept<br><input type="checkbox"/> Rejects ( h ) |
| Decision                     |             |                                                                         | <input checked="" type="checkbox"/> Accept                                           |        | <input type="checkbox"/> Rejects                                                     |        |                                                                                      |        |                                                                           |

- Test Specification : EN 1555-2 : 2010 / EN 1555-3:2010/ EN 12201-2 :2012/ EN 12201-3 : 2013
- Test method : EN ISO 1167-1,2
- PIPE materials : PE 80 & PE 100
- 20°C/100h : PE80=2.0Mpa, PE100=2.48Mpa
- 80°C/165h : PE80=0.92Mpa, PE100=1.1Mpa
- 80°C/100h : PE80=0.8Mpa, PE100=1.0Mpa

2016.11.30.

2016.11.30.

YONGGAO CO., LTD.



## Sciteq-Hammel A/S

Industrivej 13-15  
6740 Hammel  
Denmark

## 产品的详细资料

试验号码 201610141  
描述 TUV 315X90mm  
产品编号  
试验型号  
客户

## 压力测试详细资料

操作者  
站 34  
设定压力 10,80 [bar]  
滞后 0,11 [bar]  
警报 0,22 [bar]  
最大压力 11,07 [bar]  
泄漏率 5

## 压力测试结果

总的试验时间 165:00 小时  
合格时间 165:00 小时  
当前测试时间 175:39 小时  
超出公差时间 10:39 小时  
电源故障时间 2:31 小时

## 压力测试温度

注意: 手动输入温度参数  
水箱设定温度 0,00 [度]

## 试验注解

## 日期

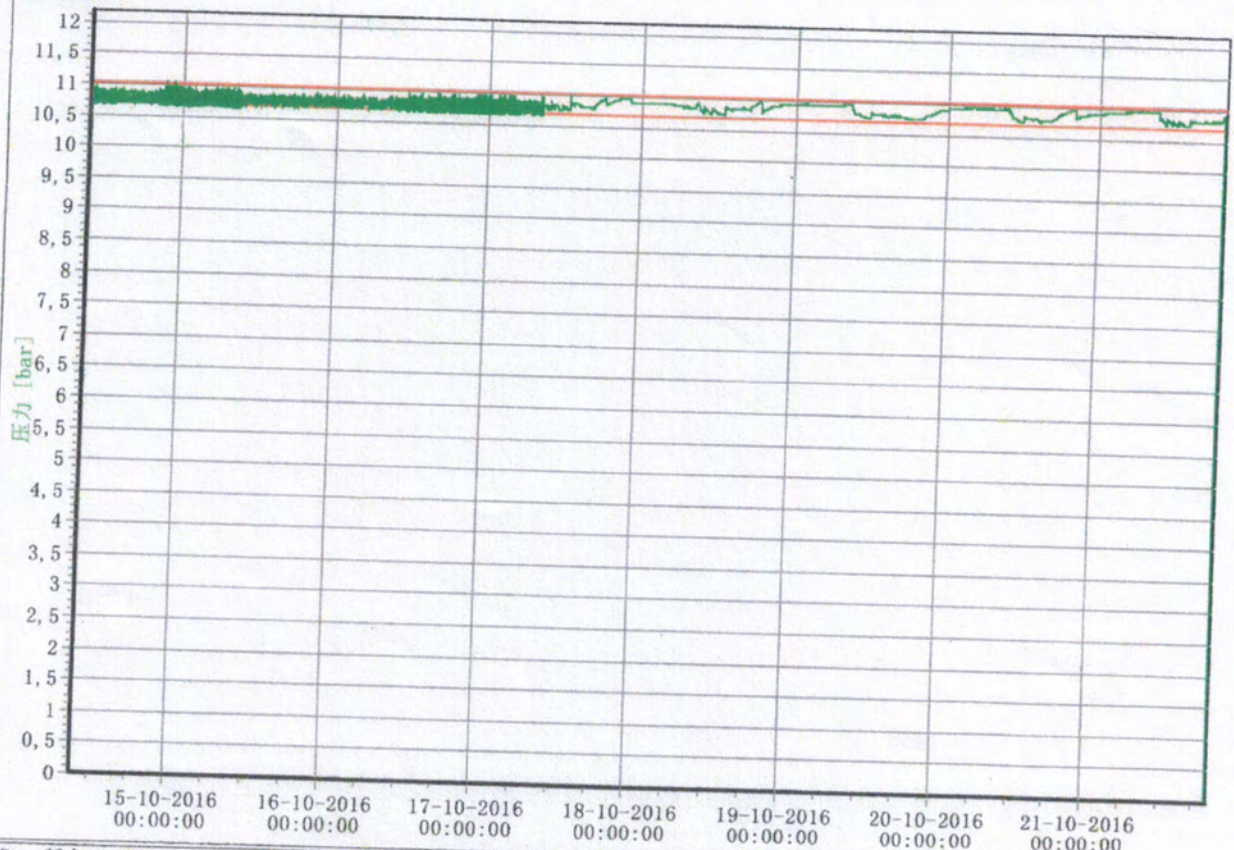
试验启动日期 14-10-2016 09:32  
测试最后日期 21-10-2016 19:44  
日期打印 30-11-2016 09:17:26



☐ inspected ☐ reviewed ☒ witnessed  
TRK-0001

30 NOV 2016

## 全部测试



Pc 版本 = 25 01 2016 8.72  
0版本 = 21-05-2015

试验认可

: 日期 . . . / . . .



# Hydrostatic Strength Test Report

| Designation |       | PE Compound | Manufacturing date |             | Lot Volume(Q'ty) |          |
|-------------|-------|-------------|--------------------|-------------|------------------|----------|
| fitting     | pipe  |             | fitting            | pipe        | fitting          | pipe     |
| EF T/TEE    | PIPE  | HE3490-LS   | 2016               | 2016        | 286 pcs          | 48,000 m |
| 110 X 63    | 110mm |             | 7.23               | 10.2 ~ 10.5 |                  |          |

Lot : BC1ETT110063G16

Injection molding machine No :

| Characteristi                                                                                                                  | Q'ty of Test | Test start date - End date | Tester |
|--------------------------------------------------------------------------------------------------------------------------------|--------------|----------------------------|--------|
| <input type="checkbox"/> 20°C / 100h, <input checked="" type="checkbox"/> 80°C / 165h<br><input type="checkbox"/> 80°C / 1000h | 3 pcs        | 2016.10.12~2016.10.21      | 施益民    |

| Requirements                                    | Test parameters            |                                |         |         | conditioning                                                                                       |        |
|-------------------------------------------------|----------------------------|--------------------------------|---------|---------|----------------------------------------------------------------------------------------------------|--------|
|                                                 | parameter                  | Value                          |         |         | thickness mm                                                                                       | Time h |
| No failure during test period of any test piece | End caps                   | Type a                         | Type a  | Type a  | e min < 3                                                                                          | 1      |
|                                                 | Orientation                | Free                           | Free    | Free    | 3 ≤ e min < 8                                                                                      | 3      |
|                                                 | Number of test pieces      | Shll conform to EN 1555-7:2010 |         |         | 8 ≤ e min < 16                                                                                     | 6      |
|                                                 |                            |                                |         |         | 16 ≤ e min < 32                                                                                    | 10     |
|                                                 | Type of test               | Water in water                 |         |         | e min ≤ 32                                                                                         | 16     |
|                                                 | PE80 circumference stress  | 10.0 Mpa                       | 4.5 Mpa | 4.0 Mpa | Sample Type                                                                                        |        |
|                                                 | PE100 circumference stress | 12.0 Mpa                       | 5.4 Mpa | 5.0 Mpa | <input type="checkbox"/> Mass production<br><input checked="" type="checkbox"/> Developing product |        |
|                                                 | Test temperature           | 20°C                           | 80°C    | 80°C    | Laboratory temperature                                                                             |        |
|                                                 |                            |                                |         |         | 23 °C ±2                                                                                           | 23°C   |

| Test items       |             | Sample ( n = 3, c = 0 ) / Measuring instrument : B.C, Precision: 0.01mm |                             |        |                             |        |                             |        |                             |      |  |
|------------------|-------------|-------------------------------------------------------------------------|-----------------------------|--------|-----------------------------|--------|-----------------------------|--------|-----------------------------|------|--|
|                  |             | Standard                                                                | n1                          |        | n2                          |        | n3                          |        | n4                          |      |  |
| Appearance       |             | No exception                                                            | ■ Accept, □ Rejects         |        | ■ Accept, □ Rejects         |        | ■ Accept, □ Rejects         |        | □ Accept, □ Rejects         |      |  |
| EF               | x           | n/a                                                                     |                             |        |                             |        |                             |        |                             |      |  |
|                  | x'          |                                                                         |                             |        |                             |        |                             |        |                             |      |  |
|                  | y           |                                                                         |                             |        |                             |        |                             |        |                             |      |  |
|                  | y'          |                                                                         |                             |        |                             |        |                             |        |                             |      |  |
|                  | AVG         |                                                                         |                             |        |                             |        |                             |        |                             |      |  |
| R. n             |             | n/a                                                                     |                             |        |                             |        |                             |        |                             |      |  |
| Thk              |             | n/a                                                                     |                             |        |                             |        |                             |        |                             |      |  |
| Branchi & PIPE   | Distinguish | branchi                                                                 | branchi                     | pipe   | branchi                     | pipe   | branchi                     | pipe   | branchi                     | pipe |  |
|                  | x           | 63.0 ~ 63.4                                                             | 63.1                        | 110.1  | 63.4                        | 110.3  | 63.4                        | 110.3  |                             |      |  |
|                  | x'          | pipe                                                                    | 63.3                        | 110.2  | 63.2                        | 110.0  | 63.1                        | 110.1  |                             |      |  |
|                  | y           | 110.0~110.7                                                             | 63.4                        | 110.2  | 63.3                        | 110.4  | 63.5                        | 110.4  |                             |      |  |
|                  | y'          |                                                                         | 63.2                        | 110.1  | 63.4                        | 110.3  | 63.2                        | 110.3  |                             |      |  |
|                  | AVG         | mm                                                                      | 63.25                       | 110.15 | 63.33                       | 110.25 | 63.30                       | 110.28 |                             |      |  |
|                  | R. n        | 1.5 / 2.2 mm                                                            | 0.3                         | 0.1    | 0.2                         | 0.4    | 0.4                         | 0.3    |                             |      |  |
|                  | Thk         | 5.8 / 10.0 mm                                                           | 6.12                        | 10.88  | 6.02                        | 10.85  | 5.98                        | 10.82  |                             |      |  |
| Resistance       |             | 6.745~7.453 Ω                                                           | 6.999                       |        | 6.985                       |        | 7.025                       |        |                             |      |  |
| Fusion sigan     |             | 120 sec                                                                 | 120 s                       |        | 120 s                       |        | 120 s                       |        |                             |      |  |
| Length of pipe   |             | min 250mm                                                               | 1000mm                      |        | 1000mm                      |        | 1000mm                      |        |                             |      |  |
| sample length    |             | -                                                                       | 1,500mm                     |        | 1,500mm                     |        | 1,500mm                     |        |                             |      |  |
| conditioning     |             | 6h                                                                      | 6h                          |        | 6h                          |        | 6h                          |        |                             |      |  |
| Tank             |             | 80°C ±1                                                                 | 80                          |        | 80                          |        | 80                          |        |                             |      |  |
| Testing pressure |             | 1.080 MPa                                                               | 1.08                        |        | 1.08                        |        | 1.08                        |        |                             |      |  |
| Decision         |             | Will not be a problem for more than h                                   | ■ Accept<br>□ Rejects ( h ) |        | ■ Accept<br>□ Rejects ( h ) |        | ■ Accept<br>□ Rejects ( h ) |        | □ Accept<br>□ Rejects ( h ) |      |  |
| Decision         |             |                                                                         | ■ Accept                    |        | □ Rejects                   |        |                             |        |                             |      |  |

- Test Specification : EN 1555-2 : 2010 / EN 1555-3:2010/ EN 12201-2 :2012/ EN 12201-3 : 2013
- Test method : EN ISO 1167-1,2
- PIPE materials : PE 80 & PE 100
- 20°C/100h : PE80=2.0Mpa, PE100=2.48Mpa
- 80°C/165h : PE80=0.92Mpa, PE100=1.1Mpa
- 80°C/100h : PE80=0.8Mpa, PE100=1.0Mpa

2016.11.30.

2016.11.30.

YONGGAO CO.,LTD





## Sciteq-Hammel A/S

Industrivej 13-15  
6740 Hammel  
Denmark

## 产品的详细资料

试验号码 201610148  
描述 TUV 110X63mm  
产品编号  
试验型号  
客户

## 压力测试详细资料

操作者  
站 36  
设定压力 10,80 [bar]  
滞后 0,11 [bar]  
警报 0,22 [bar]  
最大压力 11,12 [bar]  
泄漏率 5

## 压力测试结果

总的试验时间 165:00 小时  
合格时间 165:00 小时  
当前测试时间 165:08 小时  
超出公差时间 0:08 小时  
电源故障时间 1:36 小时

## 压力测试温度

注意: 手动输入温度参数  
水箱设定温度

0,00 [°C]

## 试验注解

## 日期

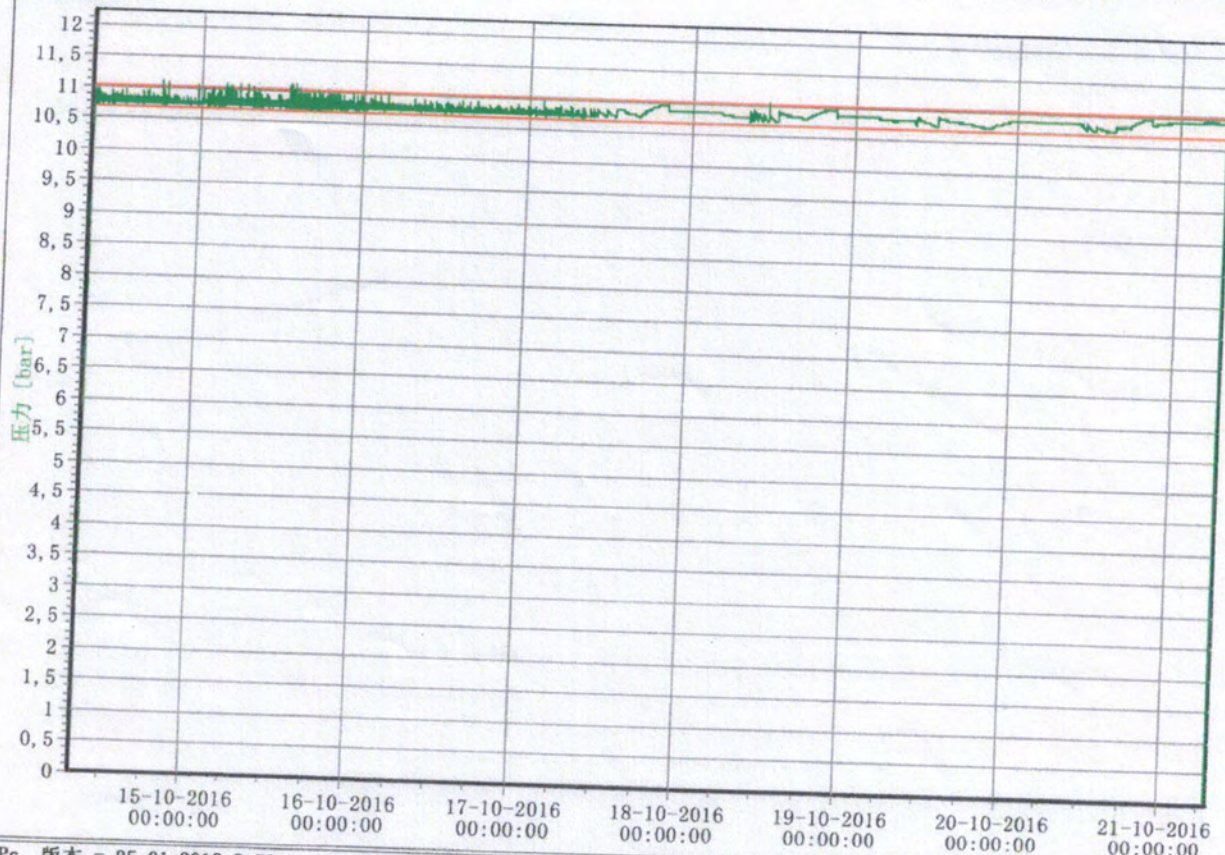
试验启动日期 14-10-2016 08:08  
测试最后日期 21-10-2016 06:53  
日期打印 30-11-2016 09:17:58



☐ Inspected ☐ reviewed ☐ witnessed  
TRK-0001

30 NOV 2016

## 全部测试



Pc 版本 = 25 01 2016 8.72

0版本 = 21-05-2015

试验认可

:

日期 . . / . .



# Hydrostatic Strength Test Report

| Designation         |           | PE Compound | Manufacturing date |                      | Lot Volume(Q'ty) |          |
|---------------------|-----------|-------------|--------------------|----------------------|------------------|----------|
| fitting             | pipe      |             | fitting            | pipe                 | fitting          | pipe     |
| EF T/TEE<br>63 X 63 | PIPE 63mm | HE3490-LS   | 2016<br>7.25       | 2016<br>10.5 ~ 10.10 | 320 pcs          | 52,000 m |

Lot : BD1ETT063063G16

Injection molding machine No :

| Characteristi                                                                                                               | Q'ty of Test | Test start date - End date | Tester |
|-----------------------------------------------------------------------------------------------------------------------------|--------------|----------------------------|--------|
| <input type="checkbox"/> 20℃ / 100h, <input checked="" type="checkbox"/> 80℃ / 165h<br><input type="checkbox"/> 80℃ / 1000h | 3 pcs        | 2016.10.12~2016.10.21      | 施益民    |

| Requirements                                    | Test parameters            |                                |         | conditioning |                                                        |
|-------------------------------------------------|----------------------------|--------------------------------|---------|--------------|--------------------------------------------------------|
|                                                 | parameter                  | Value                          |         |              |                                                        |
| No failure during test period of any test piece | End caps                   | 100h                           | 165h    | 1000h        | thickness mm                                           |
|                                                 |                            | Type a                         | Type a  | Type a       | e min < 3                                              |
|                                                 | Orientation                | Free                           | Free    | Free         | 3 ≤ e min < 8                                          |
|                                                 |                            |                                |         |              | 8 ≤ e min < 16                                         |
|                                                 |                            |                                |         |              | 16 ≤ e min < 32                                        |
|                                                 |                            |                                |         |              | e min ≤ 32                                             |
|                                                 | Number of test pieces      | Shll conform to EN 1555-7:2010 |         |              | Time h                                                 |
|                                                 | Type of test               | Water in water                 |         |              |                                                        |
|                                                 | PE80 circumference stress  | 10.0 Mpa                       | 4.5 Mpa | 4.0 Mpa      |                                                        |
|                                                 | PE100 circumference stress | 12.0 Mpa                       | 5.4 Mpa | 5.0 Mpa      |                                                        |
|                                                 | Test temperature           | 20℃                            | 80℃     | 80℃          |                                                        |
|                                                 |                            |                                |         |              | Sample Type                                            |
|                                                 |                            |                                |         |              | <input type="checkbox"/> Mass production               |
|                                                 |                            |                                |         |              | <input checked="" type="checkbox"/> Developing product |
|                                                 |                            |                                |         |              | Laboratory temperature                                 |
|                                                 |                            |                                |         |              | 23 °C ±2                                               |
|                                                 |                            |                                |         |              | 23℃                                                    |

| Test items       |             | Sample ( n = 3, c = 0 ) / Measuring instrument : B.C, Precision: 0.01mm |                             |       |                             |       |                             |       |                             |      |  |
|------------------|-------------|-------------------------------------------------------------------------|-----------------------------|-------|-----------------------------|-------|-----------------------------|-------|-----------------------------|------|--|
|                  |             | Standard                                                                | n1                          |       | n2                          |       | n3                          |       | n4                          |      |  |
| Appearance       |             | No exception                                                            | ■ Accept , □ Rejects        |       | ■ Accept , □ Rejects        |       | ■ Accept , □ Rejects        |       | □ Accept , □ Rejects        |      |  |
| EF               | x           | n/a                                                                     |                             |       |                             |       |                             |       |                             |      |  |
| Inside           | x'          |                                                                         |                             |       |                             |       |                             |       |                             |      |  |
| diam             | y           |                                                                         |                             |       |                             |       |                             |       |                             |      |  |
| eter             | y'          |                                                                         |                             |       |                             |       |                             |       |                             |      |  |
|                  | AVG         |                                                                         |                             |       |                             |       |                             |       |                             |      |  |
| R. n             |             | n/a                                                                     |                             |       |                             |       |                             |       |                             |      |  |
| Thk              |             | n/a                                                                     |                             |       |                             |       |                             |       |                             |      |  |
| Branchi & PIPE   | Distinguish | 63.0 ~ 63.4 mm                                                          | branchi                     | pipe  | branchi                     | pipe  | branchi                     | pipe  | branchi                     | pipe |  |
|                  | x           |                                                                         | 63.3                        | 63.2  | 63.3                        | 63.1  | 63.4                        | 63.3  |                             |      |  |
|                  | x'          |                                                                         | 63.3                        | 63.2  | 63.3                        | 63.3  | 63.4                        | 63.2  |                             |      |  |
|                  | y           |                                                                         | 63.3                        | 63.3  | 63.4                        | 63.4  | 63.3                        | 63.1  |                             |      |  |
|                  | y'          |                                                                         | 63.4                        | 63.4  | 63.4                        | 63.4  | 63.4                        | 63.4  |                             |      |  |
|                  | AVG         |                                                                         | 63.33                       | 63.28 | 63.35                       | 63.30 | 63.38                       | 63.25 |                             |      |  |
|                  | R. n        | 1.5 mm                                                                  | 0.1                         | 0.2   | 0.1                         | 0.3   | 0.1                         | 0.3   |                             |      |  |
| Thk              |             | 5.8~6.5 mm                                                              | 6.20                        | 6.12  | 6.10                        | 6.08  | 6.15                        | 6.10  |                             |      |  |
| Resistance       |             | 6.175~6.825 Ω                                                           | 6.221                       |       | 6.236                       |       | 6.296                       |       |                             |      |  |
| Fusion sigan     |             | 90 sec                                                                  | 90s                         |       | 90s                         |       | 90s                         |       |                             |      |  |
| Length of pipe   |             | min 250mm                                                               | 1000mm                      |       | 1000mm                      |       | 1000mm                      |       |                             |      |  |
| sample length    |             | -                                                                       | 1,500mm                     |       | 1,500mm                     |       | 1,500mm                     |       |                             |      |  |
| conditioning     |             | 3h                                                                      | 3h                          |       | 3h                          |       | 3h                          |       |                             |      |  |
| Tank             |             | 80°C ±1                                                                 | 80                          |       | 80                          |       | 80                          |       |                             |      |  |
| Testing pressure |             | 1.100 MPa                                                               | 1.100                       |       | 1.100                       |       | 1.100                       |       |                             |      |  |
| Decision         |             | Will not be a problem for more than h                                   | ■ Accept<br>□ Rejects ( h ) |       | ■ Accept<br>□ Rejects ( h ) |       | ■ Accept<br>□ Rejects ( h ) |       | □ Accept<br>□ Rejects ( h ) |      |  |
| Decision         |             |                                                                         | ■ Accept      □ Rejects     |       |                             |       |                             |       |                             |      |  |

- Test Specification : EN 1555-2 : 2010 / EN 1555-3:2010/ EN 12201-2 :2012/ EN 12201-3 : 2013
- Test method : EN ISO 1167-1,2
- PIPE materials : PE 80 & PE 100
- 20℃/100h : PE80=2.0Mpa, PE100=2.48Mpa
- 80℃/165h : PE80=0.92Mpa, PE100=1.1Mpa
- 80℃/100h : PE80=0.8Mpa, PE100=1.0Mpa

2016.11.30.

2016.11.30.

YONGGAO CO., LTD.





## Sciteq-Hammel A/S

Industrivej 13-15  
6740 Hammel  
Denmark

## 产品的详细资料

试验号码 201610136  
描述 TUV 63X63mm  
产品编号  
试验型号  
客户

## 压力测试详细资料

操作者  
站 38  
设定压力 11,00 [bar]  
滞后 0,11 [bar]  
警报 0,22 [bar]  
最大压力 11,24 [bar]  
泄漏率 5

## 压力测试结果

总的试验时间 165:00 小时  
合格时间 165:00 小时  
当前测试时间 165:08 小时  
超出公差时间 0:08 小时  
电源故障时间 14:40 小时

## 压力测试温度

注意: 手动输入温度参数  
水箱设定温度 0,00 [度]

## 试验注解

## 日期

试验启动日期 13-10-2016 15:00  
测试最后日期 21-10-2016 02:50  
日期打印 30-11-2016 09:18:28



☐ Inspected ☐ reviewed ☒ Witnessed  
TRK-0001

30 NOV 2016

## 全部测试



Pc 版本 = 25 01 2016 8.72  
0版本 = 21-05-2015

试验认可

: 日期 . . / . .



# Hydrostatic Strength Test Report

| Designation |       | PE Compound | Manufacturing date |             | Lot Volume(Q'ty) |          |
|-------------|-------|-------------|--------------------|-------------|------------------|----------|
| fitting     | pipe  |             | fitting            | pipe        | fitting          | pipe     |
| EF T/TEE    | PIPE  | HE3490-LS   | 2016               | 2016        | 98 pcs           | 21,000 m |
| 315 X 90    | 315mm |             | 8.9                | 10.2 ~ 10.5 |                  |          |

Lot : BA1ETT315090H16

Injection molding machine No :

| Characteristi                                                                                                                  | Q'ty of Test | Test start date - End date | Tester |
|--------------------------------------------------------------------------------------------------------------------------------|--------------|----------------------------|--------|
| <input checked="" type="checkbox"/> 20°C / 100h, <input type="checkbox"/> 80°C / 165h<br><input type="checkbox"/> 80°C / 1000h | 3 pcs        | 2016.10.12~2016.10.18      | 施益民    |

| Requirements                                    | Test parameters            |                                |         |         | conditioning                                                                                       |        |
|-------------------------------------------------|----------------------------|--------------------------------|---------|---------|----------------------------------------------------------------------------------------------------|--------|
|                                                 | parameter                  | Value                          |         |         | thickness mm                                                                                       | Time h |
| No failure during test period of any test piece | End caps                   | Type a                         | Type a  | Type a  | e min < 3                                                                                          | 1      |
|                                                 | Orientation                | Free                           | Free    | Free    | 3 ≤ e min < 8                                                                                      | 3      |
|                                                 | Number of test pieces      | Shll conform to EN 1555-7:2010 |         |         | 8 ≤ e min < 16                                                                                     | 6      |
|                                                 |                            |                                |         |         | 16 ≤ e min < 32                                                                                    | 10     |
|                                                 | Type of test               | Water in water                 |         |         | e min ≤ 32                                                                                         | 16     |
|                                                 | PE80 circumference stress  | 10.0 Mpa                       | 4.5 Mpa | 4.0 Mpa | Sample Type                                                                                        |        |
|                                                 | PE100 circumference stress | 12.0 Mpa                       | 5.4 Mpa | 5.0 Mpa | <input type="checkbox"/> Mass production<br><input checked="" type="checkbox"/> Developing product |        |
|                                                 | Test temperature           | 20°C                           | 80°C    | 80°C    | Laboratory temperature                                                                             |        |
|                                                 |                            |                                |         |         | 23 °C ±2                                                                                           | 23°C   |

| Test items       |                                       | Sample ( n = 3, c = 0 ) / Measuring instrument : B.C, Precision: 0.01mm |                     |        |                     |        |                     |        |                     |      |  |
|------------------|---------------------------------------|-------------------------------------------------------------------------|---------------------|--------|---------------------|--------|---------------------|--------|---------------------|------|--|
|                  |                                       | Standard                                                                | n1                  |        | n2                  |        | n3                  |        | n4                  |      |  |
| Appearance       |                                       | No exception                                                            | ■ Accept, □ Rejects |        | ■ Accept, □ Rejects |        | ■ Accept, □ Rejects |        | □ Accept, □ Rejects |      |  |
| EF               | x                                     | n/a                                                                     |                     |        |                     |        |                     |        |                     |      |  |
| Inside           | x'                                    |                                                                         |                     |        |                     |        |                     |        |                     |      |  |
| diam             | y                                     |                                                                         |                     |        |                     |        |                     |        |                     |      |  |
| eter             | y'                                    |                                                                         |                     |        |                     |        |                     |        |                     |      |  |
|                  | AVG                                   |                                                                         |                     |        |                     |        |                     |        |                     |      |  |
| R. n             |                                       | n/a                                                                     |                     |        |                     |        |                     |        |                     |      |  |
| Thk              |                                       | n/a                                                                     |                     |        |                     |        |                     |        |                     |      |  |
| Branchi & PIPE   | Distinguish                           | branchi                                                                 | branchi             | pipe   | branchi             | pipe   | branchi             | pipe   | branchi             | pipe |  |
|                  | x                                     | 90.0 ~ 90.6                                                             | 90.5                | 314.5  | 90.6                | 314.5  | 90.7                | 314.5  |                     |      |  |
|                  | x'                                    | pipe                                                                    | 90.4                | 314.8  | 90.3                | 314.8  | 90.5                | 314.8  |                     |      |  |
|                  | y                                     |                                                                         | 90.3                | 315.6  | 90.3                | 315.6  | 90.2                | 315.6  |                     |      |  |
|                  | y'                                    |                                                                         | 90.1                | 316.7  | 90.0                | 316.7  | 90.0                | 316.7  |                     |      |  |
|                  | AVG                                   | 315.0~316.9 mm                                                          | 90.33               | 315.40 | 90.30               | 315.40 | 90.35               | 315.40 |                     |      |  |
|                  | R. n                                  | 1.8 / 11.1 mm                                                           | 0.4                 | 2.2    | 0.6                 | 2.2    | 0.7                 | 2.2    |                     |      |  |
|                  | Thk                                   | 8.2 / 28.6 mm                                                           | 8.88                | 30.20  | 8.93                | 30.11  | 8.74                | 30.02  |                     |      |  |
| Resistance       |                                       | 2.945~3.255 Ω                                                           | 2.999               |        | 3.125               |        | 3.089               |        |                     |      |  |
| Fusion sign      |                                       | 400 sec                                                                 | 400 sec             |        | 400 sec             |        | 400 sec             |        |                     |      |  |
| Length of pipe   |                                       | min 250mm                                                               | 1,200mm             |        | 1,200mm             |        | 1,200mm             |        |                     |      |  |
| sample length    |                                       | -                                                                       | 2,000mm             |        | 2,000mm             |        | 2,000mm             |        |                     |      |  |
| conditioning     |                                       | 10h                                                                     | 10h                 |        | 10h                 |        | 10h                 |        |                     |      |  |
| Tank             |                                       | 20°C ±1                                                                 | 19.8                |        | 19.8                |        | 19.8                |        |                     |      |  |
| Testing pressure |                                       | 2.43 MPa                                                                | 2.43                |        | 2.43                |        | 2.43                |        |                     |      |  |
| Decision         | Will not be a problem for more than h |                                                                         | ■ Accept            |        | ■ Accept            |        | ■ Accept            |        | □ Accept            |      |  |
|                  |                                       |                                                                         | □ Rejects ( h )     |        | □ Rejects ( h )     |        | □ Rejects ( h )     |        | □ Rejects ( h )     |      |  |
| Decision         |                                       |                                                                         | ■ Accept            |        | □ Rejects           |        |                     |        |                     |      |  |

- Test Specification : EN 1555-2 : 2010 / EN 1555-3:2010/ EN 12201-2 :2012/ EN 12201-3 : 2013
- Test method : EN ISO 1167-1,2
- PIPE materials : PE 80 & PE 100
- 20°C/100h : PE80=2.0Mpa, PE100=2.48Mpa
- 80°C/165h : PE80=0.92Mpa, PE100=1.1Mpa
- 80°C/100h : PE80=0.8Mpa, PE100=1.0Mpa

2016.11.30.

2016.11.30.

YONGGAO CO., LTD





# Sciteq-Hammel A/S

Industrivej 13-15  
6740 Hammel  
Denmark

Attachment NO: 23 04 50  
belongs to Test Report No: C0C-1330 42884-300-2

## 产品的详细资料

试验号码 201610121  
描述 T/TEE 315X90  
产品编号  
试验型号  
客户

## 压力测试详细资料

操作者  
站 3  
设定压力 24, 30 [bar]  
滞后 0, 24 [bar]  
警报 0, 49 [bar]  
最大压力 25, 66 [bar]  
泄漏率 5

## 压力测试结果

总的试验时间 100:00 小时  
合格时间 100:00 小时  
当前测试时间 100:09 小时  
超出公差时间 0:09 小时  
电源故障时间 0:00 小时

## 压力测试温度

注意: 手动输入温度参数  
水箱设定温度 0, 00 [° C]

## 试验注解

## 日期

试验启动日期 13-10-2016 13:47  
测试最后日期 17-10-2016 17:56  
日期打印 18-10-2016 14:47:26



☐ Inspected ☐ reviewed ☒ witnessed  
TRK-0001

30 NOV 2016

## 全部测试



Pc 版本 = 25 01 2016 8.72

0版本 = 11-11-2014

试验认可

: 日期 . . / . .



# Hydrostatic Strength Test Report

| Designation |       | PE Compound | Manufacturing date |             | Lot Volume(Q'ty) |          |
|-------------|-------|-------------|--------------------|-------------|------------------|----------|
| fitting     | pipe  |             | fitting            | pipe        | fitting          | pipe     |
| EF T/TEE    | PIPE  | HE3490-LS   | 2016               | 2016        | 286 pcs          | 48,000 m |
| 110 X 63    | 110mm |             | 7.23               | 10.2 ~ 10.5 |                  |          |

Lot : BC1ETT110063G16

Injection molding machine No :

| Characteristi                                                                                                                  | Q'ty of Test | Test start date - End date | Tester |
|--------------------------------------------------------------------------------------------------------------------------------|--------------|----------------------------|--------|
| <input checked="" type="checkbox"/> 20°C / 100h, <input type="checkbox"/> 80°C / 165h<br><input type="checkbox"/> 80°C / 1000h | 3 pcs        | 2016.10.12~2016.10.18      | 施益民    |

| Requirements                                    | Test parameters            |                                |         |         | conditioning                                                                                       |        |
|-------------------------------------------------|----------------------------|--------------------------------|---------|---------|----------------------------------------------------------------------------------------------------|--------|
|                                                 | parameter                  | Value                          |         |         | thickness mm                                                                                       | Time h |
| No failure during test period of any test piece | End caps                   | Type a                         | Type a  | Type a  | e min < 3                                                                                          | 1      |
|                                                 | Orientation                | Free                           | Free    | Free    | 3 ≤ e min < 8                                                                                      | 3      |
|                                                 | Number of test pieces      | Shll conform to EN 1555-7:2010 |         |         | 8 ≤ e min < 16                                                                                     | 6      |
|                                                 |                            |                                |         |         | 16 ≤ e min < 32                                                                                    | 10     |
|                                                 | Type of test               | Water in water                 |         |         | e min ≤ 32                                                                                         | 16     |
|                                                 | PE80 circumference stress  | 10.0 Mpa                       | 4.5 Mpa | 4.0 Mpa | Sample Type                                                                                        |        |
|                                                 | PE100 circumference stress | 12.0 Mpa                       | 5.4 Mpa | 5.0 Mpa | <input type="checkbox"/> Mass production<br><input checked="" type="checkbox"/> Developing product |        |
|                                                 | Test temperature           | 20°C                           | 80°C    | 80°C    | Laboratory temperature                                                                             |        |
|                                                 |                            |                                |         |         | 23 °C ±2                                                                                           | 23°C   |

| Test items       |                                       | Sample ( n = 3, c = 0 ) / Measuring instrument : B.C, Precision: 0.01mm |                             |        |                             |        |                             |        |                             |      |  |
|------------------|---------------------------------------|-------------------------------------------------------------------------|-----------------------------|--------|-----------------------------|--------|-----------------------------|--------|-----------------------------|------|--|
|                  |                                       | Standard                                                                | n1                          |        | n2                          |        | n3                          |        | n4                          |      |  |
| Appearance       |                                       | No exception                                                            | ■ Accept, □ Rejects         |        | ■ Accept, □ Rejects         |        | ■ Accept, □ Rejects         |        | □ Accept, □ Rejects         |      |  |
| EF               | x                                     | n/a                                                                     |                             |        |                             |        |                             |        |                             |      |  |
| Inside           | x'                                    |                                                                         |                             |        |                             |        |                             |        |                             |      |  |
| diam             | y                                     |                                                                         |                             |        |                             |        |                             |        |                             |      |  |
| eter             | y'                                    |                                                                         |                             |        |                             |        |                             |        |                             |      |  |
|                  | AVG                                   |                                                                         |                             |        |                             |        |                             |        |                             |      |  |
| R. n             |                                       | n/a                                                                     |                             |        |                             |        |                             |        |                             |      |  |
| Th k             |                                       | n/a                                                                     |                             |        |                             |        |                             |        |                             |      |  |
| Branchi & PIPE   | Distinguish                           | branchi                                                                 | branchi                     | pipe   | branchi                     | pipe   | branchi                     | pipe   | branchi                     | pipe |  |
|                  | x                                     | 63.0 ~ 63.4                                                             | 63.1                        | 110.1  | 63.4                        | 110.3  | 63.4                        | 110.3  |                             |      |  |
|                  | x'                                    |                                                                         | 63.3                        | 110.2  | 63.2                        | 110.0  | 63.1                        | 110.1  |                             |      |  |
|                  | y                                     | pipe                                                                    | 63.4                        | 110.2  | 63.3                        | 110.4  | 63.5                        | 110.4  |                             |      |  |
|                  | y'                                    | 110.0~110.7                                                             | 63.2                        | 110.1  | 63.4                        | 110.3  | 63.2                        | 110.3  |                             |      |  |
|                  | AVG                                   | mm                                                                      | 63.25                       | 110.15 | 63.33                       | 110.25 | 63.30                       | 110.28 |                             |      |  |
|                  | R. n                                  | 1.5 / 2.2 mm                                                            | 0.3                         | 0.1    | 0.2                         | 0.4    | 0.4                         | 0.3    |                             |      |  |
|                  | Th k                                  | 5.8 / 10.0 mm                                                           | 6.12                        | 10.88  | 6.02                        | 10.85  | 5.98                        | 10.82  |                             |      |  |
| Resistance       |                                       | 6.745~7.453 Ω                                                           | 6.999                       |        | 6.985                       |        | 7.025                       |        |                             |      |  |
| Fusion sigan     |                                       | 120 sec                                                                 | 120 s                       |        | 120 s                       |        | 120 s                       |        |                             |      |  |
| Length of pipe   |                                       | min 250mm                                                               | 1000mm                      |        | 1000mm                      |        | 1000mm                      |        |                             |      |  |
| sample length    |                                       | -                                                                       | 1,500mm                     |        | 1,500mm                     |        | 1,500mm                     |        |                             |      |  |
| conditioning     |                                       | 6h                                                                      | 6h                          |        | 6h                          |        | 6h                          |        |                             |      |  |
| Tank             |                                       | 20°C ±1                                                                 | 19.8                        |        | 19.8                        |        | 19.8                        |        |                             |      |  |
| Testing pressure |                                       | 2.43 MPa                                                                | 2.43                        |        | 2.43                        |        | 2.43                        |        |                             |      |  |
| Decision         | Will not be a problem for more than h |                                                                         | ■ Accept<br>□ Rejects ( h ) |        | ■ Accept<br>□ Rejects ( h ) |        | ■ Accept<br>□ Rejects ( h ) |        | □ Accept<br>□ Rejects ( h ) |      |  |
| Decision         |                                       |                                                                         | ■ Accept                    |        | □ Rejects                   |        |                             |        |                             |      |  |

- Test Specification : EN 1555-2 : 2010 / EN 1555-3:2010/ EN 12201-2 :2012/ EN 12201-3 : 2013
- Test method : EN ISO 1167-1,2
- PIPE materials : PE 80 & PE 100
- 20°C/100h : PE80=2.0Mpa, PE100=2.48Mpa
- 80°C/165h : PE80=0.92Mpa, PE100=1.1Mpa
- 80°C/100h : PE80=0.8Mpa, PE100=1.0Mpa

YONGGAO CO.,LTD





# Sciteq-Hammel A/S

Industrivej 13-15  
6740 Hammel  
Denmark



Attachment NO: 25 01 50  
belongs to Test Report No: C0C-183042-004-300-2

## 产品的详细资料

试验号码 20161012  
描述 T/TEE110X63  
产品编号  
试验型号  
客户

## 压力测试详细资料

操作者  
站 4  
设定压力 24, 30 [bar]  
滞后 0, 24 [bar]  
警报 0, 49 [bar]  
最大压力 25, 23 [bar]  
泄漏率 5

## 压力测试结果

总的试验时间 100:00 小时  
合格时间 100:00 小时  
当前测试时间 100:04 小时  
超出公差时间 0:04 小时  
电源故障时间 0:00 小时

## 压力测试温度

注意: 手动输入温度参数  
水箱设定温度 0,00 [° C]

## 试验注解

## 日期

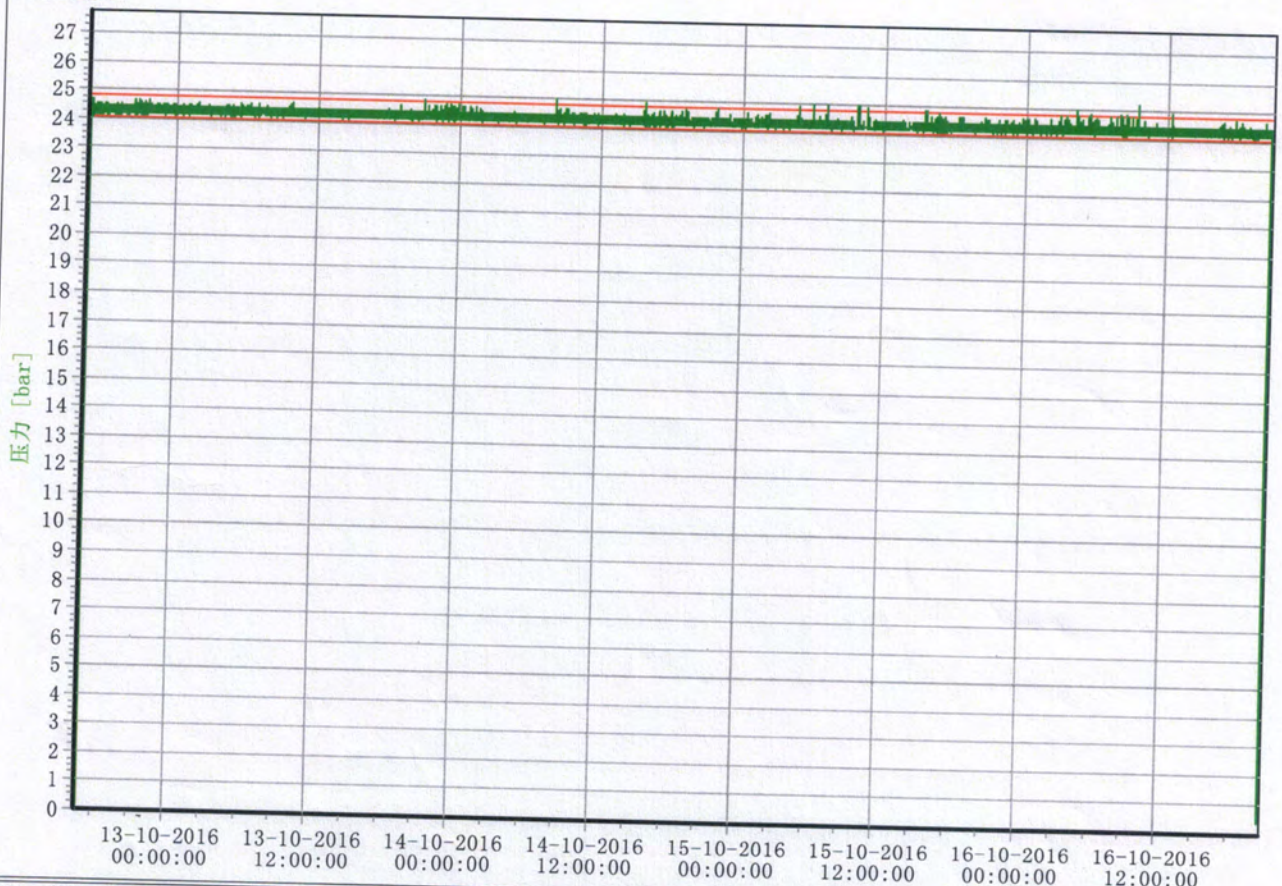
试验启动日期 12-10-2016 16:43  
测试最后日期 16-10-2016 20:47  
日期打印 18-10-2016 14:48:41



☐ Inspected ☐ reviewed ☒ Witnessed  
TRK-0001

30 NOV 2016

## 全部测试



Pc 版本 = 25 01 2016 8.72

0版本 = 11-11-2014

试验认可

: 日期 . . / . .



# Hydrostatic Strength Test Report

| Designation         |           | PE Compound | Manufacturing date |                      | Lot Volume(Q'ty) |          |
|---------------------|-----------|-------------|--------------------|----------------------|------------------|----------|
| fitting             | pipe      |             | fitting            | pipe                 | fitting          | pipe     |
| EF T/TEE<br>63 X 63 | PIPE 63mm | HE3490-LS   | 2016<br>7.25       | 2016<br>10.5 ~ 10.10 | 320 pcs          | 52,000 m |

Lot : BD1ETT063063G16

Injection molding machine No :

| Characteristi                                                                                                                  | Q'ty of Test | Test start date - End date | Tester |
|--------------------------------------------------------------------------------------------------------------------------------|--------------|----------------------------|--------|
| <input checked="" type="checkbox"/> 20°C / 100h, <input type="checkbox"/> 80°C / 165h<br><input type="checkbox"/> 80°C / 1000h | 3 pcs        | 2016.10.12~2016.10.18      | 施益民    |

| Requirements                                    | Test parameters            |                                |         |         | conditioning                                                                                       |        |
|-------------------------------------------------|----------------------------|--------------------------------|---------|---------|----------------------------------------------------------------------------------------------------|--------|
|                                                 | parameter                  | Value                          |         |         | thickness mm                                                                                       | Time h |
| No failure during test period of any test piece | End caps                   | Type a                         | Type a  | Type a  | e min < 3                                                                                          | 1      |
|                                                 | Orientation                | Free                           | Free    | Free    | 3 ≤ e min < 8                                                                                      | 3      |
|                                                 | Number of test pieces      | Shll conform to EN 1555-7:2010 |         |         | 8 ≤ e min < 16                                                                                     | 6      |
|                                                 |                            |                                |         |         | 16 ≤ e min < 32                                                                                    | 10     |
|                                                 | Type of test               | Water in water                 |         |         | e min ≤ 32                                                                                         | 16     |
|                                                 | PE80 circumference stress  | 10.0 Mpa                       | 4.5 Mpa | 4.0 Mpa | Sample Type                                                                                        |        |
|                                                 | PE100 circumference stress | 12.0 Mpa                       | 5.4 Mpa | 5.0 Mpa | <input type="checkbox"/> Mass production<br><input checked="" type="checkbox"/> Developing product |        |
|                                                 | Test temperature           | 20°C                           | 80°C    | 80°C    | Laboratory temperature                                                                             |        |
|                                                 |                            |                                |         |         | 23 °C ±2                                                                                           | 23°C   |

| Test items                                        |             | Sample ( n = 3, c = 0 ) / Measuring instrument : B.C, Precision: 0.01mm |                             |       |                             |       |                             |      |                             |      |  |
|---------------------------------------------------|-------------|-------------------------------------------------------------------------|-----------------------------|-------|-----------------------------|-------|-----------------------------|------|-----------------------------|------|--|
|                                                   |             | Standard                                                                | n1                          |       | n2                          |       | n3                          |      | n4                          |      |  |
| Appearance                                        |             | No exception                                                            | ■ Accept , □ Rejects        |       | ■ Accept , □ Rejects        |       | ■ Accept , □ Rejects        |      | □ Accept , □ Rejects        |      |  |
| EF<br>Inside<br>diam<br>eter                      | x           | n/a                                                                     |                             |       |                             |       |                             |      |                             |      |  |
|                                                   | x'          |                                                                         |                             |       |                             |       |                             |      |                             |      |  |
|                                                   | y           |                                                                         |                             |       |                             |       |                             |      |                             |      |  |
|                                                   | y'          |                                                                         |                             |       |                             |       |                             |      |                             |      |  |
| AVG                                               |             |                                                                         |                             |       |                             |       |                             |      |                             |      |  |
| R. n                                              |             | n/a                                                                     |                             |       |                             |       |                             |      |                             |      |  |
| Th k                                              |             | n/a                                                                     |                             |       |                             |       |                             |      |                             |      |  |
| Branchi<br>&<br>PIPE                              | Distinguish | 63.0 ~ 63.4<br><br>mm                                                   | branchi                     | pipe  | branchi                     | pipe  | branchi                     | pipe | branchi                     | pipe |  |
|                                                   | x           |                                                                         | 63.3                        | 63.2  | 63.3                        | 63.1  | 63.4                        | 63.3 |                             |      |  |
|                                                   | x'          |                                                                         | 63.3                        | 63.2  | 63.3                        | 63.3  | 63.4                        | 63.2 |                             |      |  |
|                                                   | y           |                                                                         | 63.3                        | 63.3  | 63.4                        | 63.4  | 63.3                        | 63.1 |                             |      |  |
|                                                   | y'          |                                                                         | 63.4                        | 63.4  | 63.4                        | 63.4  | 63.4                        | 63.4 |                             |      |  |
|                                                   | AVG         | 63.33                                                                   | 63.28                       | 63.35 | 63.30                       | 63.38 | 63.25                       |      |                             |      |  |
|                                                   | R. n        | 1.5 mm                                                                  | 0.1                         | 0.2   | 0.1                         | 0.3   | 0.1                         | 0.3  |                             |      |  |
| Th k                                              |             | 5.8~6.5 mm                                                              | 6.20                        | 6.12  | 6.10                        | 6.08  | 6.15                        | 6.10 |                             |      |  |
| Resistance                                        |             | 6.175~6.825 Ω                                                           | 6.225                       |       | 6.282                       |       | 6.395                       |      |                             |      |  |
| Fusion sigan                                      |             | 90 sec                                                                  | 90s                         |       | 90s                         |       | 90s                         |      |                             |      |  |
| Length of pipe                                    |             | min 250mm                                                               | 1000mm                      |       | 1000mm                      |       | 1000mm                      |      |                             |      |  |
| sample length                                     |             | -                                                                       | 1,500mm                     |       | 1,500mm                     |       | 1,500mm                     |      |                             |      |  |
| conditioning                                      |             | 3h                                                                      | 3h                          |       | 3h                          |       | 3h                          |      |                             |      |  |
| Tank                                              |             | 20°C ±1                                                                 | 19.8                        |       | 19.8                        |       | 19.8                        |      |                             |      |  |
| Testing pressure                                  |             | 2.43 MPa                                                                | 2.433                       |       | 2.433                       |       | 2.433                       |      |                             |      |  |
| Decision                                          |             | Will not be a problem<br>for more than h                                | ■ Accept<br>□ Rejects ( h ) |       | ■ Accept<br>□ Rejects ( h ) |       | ■ Accept<br>□ Rejects ( h ) |      | □ Accept<br>□ Rejects ( h ) |      |  |
| Decision                                          |             |                                                                         | ■ Accept □ Rejects          |       |                             |       |                             |      |                             |      |  |
| * Test Specification : EN 1555 2 - 2010 / EN 1555 |             |                                                                         |                             |       |                             |       |                             |      |                             |      |  |

- Test Specification : EN 1555-2 : 2010 / EN 1555-3:2010/ EN 12201-2 :2012/ EN 12201-3 : 2013
- Test method : EN ISO 1167-1,2
- PIPE materials : PE 80 & PE 100
- 20°C/100h : PE80=2.0Mpa, PE100=2.48Mpa
- 80°C/165h : PE80=0.92Mpa, PE100=1.1Mpa
- 80°C/100h : PE80=0.8Mpa, PE100=1.0Mpa

2016.11.30.

2016.11.30.

YONGGAO CO.,LTD





## 产品的详细资料

试验号码 20161012  
描述 T/TEE63X63  
产品编号  
试验型号  
客户

## 压力测试详细资料

操作者  
站 1  
设定压力 24, 30 [bar]  
滞后 0, 24 [bar]  
警报 0, 49 [bar]  
最大压力 24, 71 [bar]  
泄漏率 5

## 压力测试结果

总的试验时间 100:00 小时  
合格时间 100:00 小时  
当前测试时间 100:09 小时  
超出公差时间 0:09 小时  
电源故障时间 0:00 小时

## 压力测试温度

水箱编号 4  
最大温度 0, 00 [° C]  
最小温度 0, 00 [° C]

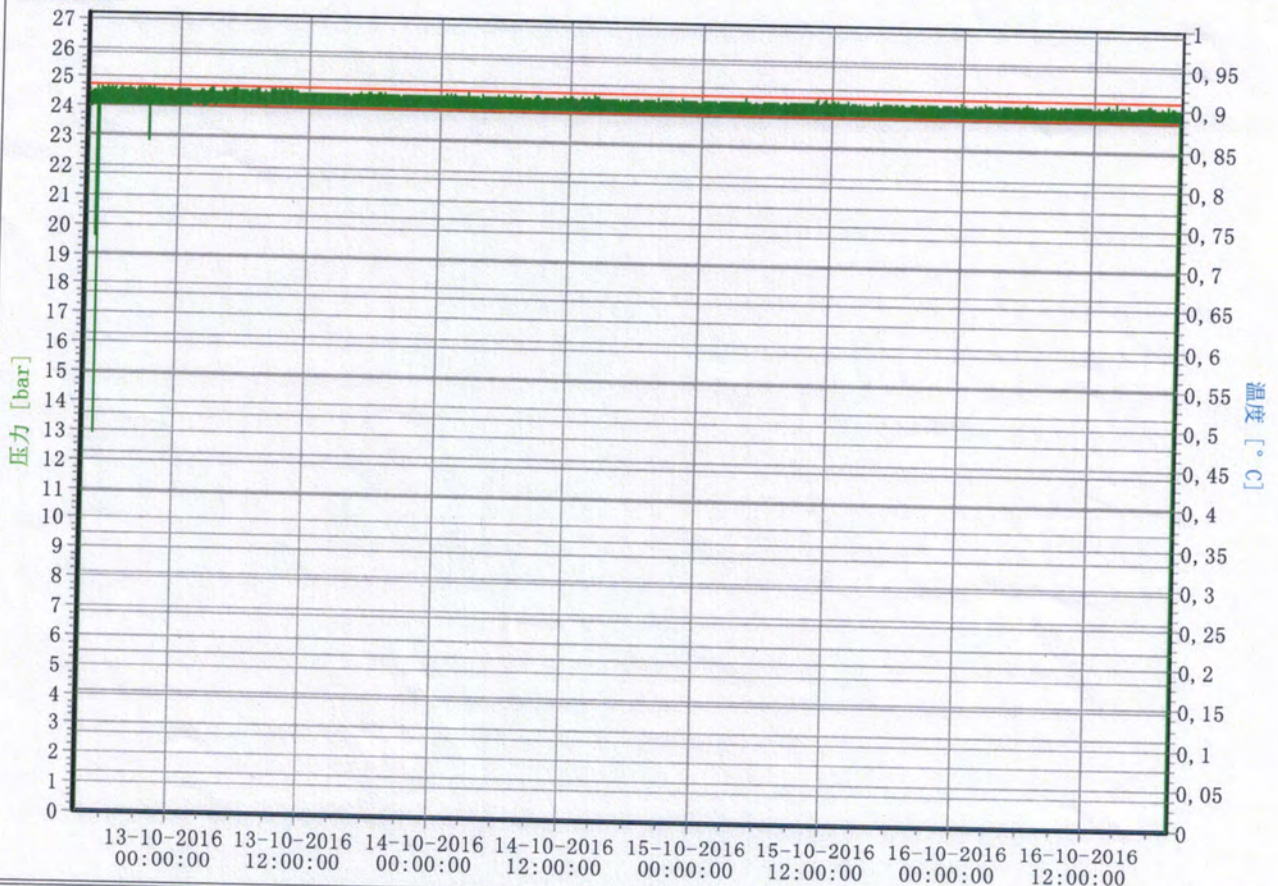
## 试验注解

## 日期

试验启动日期 12-10-2016 15:46  
测试最后日期 16-10-2016 19:56  
日期打印 18-10-2016 14:46:01

30 NOV 2016

## 全部测试



Pc 版本 = 25 01 2016 8.72

0版本 = 11-11-2014

试验认可

: 日期 . . / . .



# Melt mass-flow rate Test Report

|                     |                         |                |             |              |              |
|---------------------|-------------------------|----------------|-------------|--------------|--------------|
| Test item           | EF TAPPING TEE 63×63mm  | Materials DATA | HE3490-LS   | LOT NO       | 1316074      |
| Production time     | 2016/7/25               | PE CLASS       | PE100       | Quantity lot | 320 PCS      |
| Test date           | 2016/10/11              | Color          | Black       | Tester       | Zhibo Huang  |
| Test specifications | EN 12201-3:2011+A1:2012 | Test method    | EN ISO 1133 | Humiture     | 23.3 °C 53 % |

| Records                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |        |        |        |                   |               |                         |                 |  |  | Requirement of standard                                                                                                                                                                                                                                                                                                                                                                                            | Conclusion    |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|--------|--------|-------------------|---------------|-------------------------|-----------------|--|--|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| <p>Main test equipment: Testing Machine of MFR<br/>Model: GT-7100-MIBH No. Of apparatus: YQ069<br/>Procedure: Cut 2mm<sup>3</sup> ~ 5mm<sup>3</sup> from a pipe around 3.0 g as test samples. Test temperature 190 °C, Load 5.0kg, interval of each cutting 120 s. Keep three segments and measure their average weight.<br/>Equation 1: <math>MFR(\theta, mnom) = (tref \cdot m) / t</math>; Equation 2: Change rate <math>G = (MFR1 - MFR2) / MFR2</math>.<br/><math>\theta</math> —Test temperature, °C; mnom — Load, kg; m—average weight of the segments, g; tref —Reference time (10min), s (600s); t—interval of each cutting<br/>MFR: Melt mass-flow rate, g/10min; MFR1: Melt mass-flow rate of the sample; MFR2: Melt mass-flow rate of the raw material;</p> |        |        |        |                   |               |                         |                 |  |  | <p>MFR of the sample should be less than 20% of the raw material MFR</p> <p>Materials Data<br/>(Lot: 1316074)<br/>(0.22 g/10min)</p> <p> TÜVRheinland®</p> <p><input type="checkbox"/> Inspected <input checked="" type="checkbox"/> reviewed <input checked="" type="checkbox"/> witnessed<br/>TRK-0001</p> <p>11 OCT 2016</p> | qualification |
| Weight of the segments (g)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |        |        |        | Average value (g) | MFR (g/10min) | Average value (g/10min) | Change rate (%) |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                    |               |
| sample 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 0.0413 | 0.0400 | 0.0398 | 0.0404            | 0.200         | 0.21                    | 4.5             |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                    |               |
| sample 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 0.0416 | 0.0419 | 0.0420 | 0.0418            | 0.209         |                         |                 |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                    |               |
| sample 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 0.0426 | 0.0470 | 0.0419 | 0.0438            | 0.218         |                         |                 |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                    |               |
| sample 4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | /      | /      | /      | /                 | /             |                         |                 |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                    |               |
| sample 5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | /      | /      | /      | /                 | /             |                         |                 |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                    |               |
| Remark :                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |        |        |        |                   |               |                         |                 |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                    |               |

Tester : 张蒙

Approval :

*[Signature]*

Test date : 2016.10.11





# Melt mass-flow rate Test Report

|                     |                         |                |             |              |              |
|---------------------|-------------------------|----------------|-------------|--------------|--------------|
| Test item           | EF TAPPING TEE 110×63mm | Materials DATA | HE3490-LS   | LOT NO       | 1316074      |
| Production time     | 2016/7/23               | PE CLASS       | PE100       | Quantity lot | 286 PCS      |
| Test date           | 2016/10/11              | Color          | Black       | Tester       | Zhibo Huang  |
| Test specifications | EN 12201-2:2011+A1:2013 | Test method    | EN ISO 1133 | Humiture     | 23.3 °C 53 % |

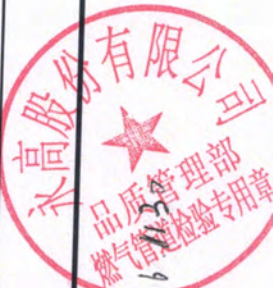
| Records                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |        |        |        |                   |               |                         |                 |  |  | Requirement of standard | Conclusion |  |  |  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                        |               |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|--------|--------|-------------------|---------------|-------------------------|-----------------|--|--|-------------------------|------------|--|--|--|--|--|--|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| <p>Main test equipment: Testing Machine of MFR<br/>Model: GT-7100-MIBH No. Of apparatus: YQ069<br/>Procedure: Cut 2mm<sup>3</sup> ~ 5mm<sup>3</sup> from a pipe around 3.0 g as test samples. Test temperature 190°C,<br/>Load 5.0kg, interval of each cutting 120 s. Keep three segments and measure their average weight.<br/>Equation 1: <math>MFR(\theta, mnom) = (tref \cdot m) / t</math>; Equation 2: Change rate <math>G = (MFR1 - MFR2) / MFR2</math>.<br/><math>\theta</math> —Test temperature, °C; mnom — Load, kg; m—average weight of the segments, g; tref —Reference time (10min), s (600s); t—interval of each cutting<br/>MFR: Melt mass-flow rate, g/10min; MFR1: Melt mass-flow rate of the sample; MFR2: Melt mass-flow rate of the raw material;</p> |        |        |        |                   |               |                         |                 |  |  |                         |            |  |  |  |  |  |  | MFR of the sample should be less than 20% of the raw material MFR<br><br>Materials Data<br>(Lot: 1316074)<br>(0.22 g/10min)<br><br><br><input type="checkbox"/> Inspected <input checked="" type="checkbox"/> Reviewed <input checked="" type="checkbox"/> Witnessed<br>TRK-0001<br><br>11 OCT 2016 | qualification |
| Weight of the segments (g)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |        |        |        | Average value (g) | MFR (g/10min) | Average value (g/10min) | Change rate (%) |  |  |                         |            |  |  |  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                        |               |
| sample 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 0.0435 | 0.0426 | 0.0430 | 0.0431            | 0.218         | 0.22                    | 0               |  |  |                         |            |  |  |  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                        |               |
| sample 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 0.0439 | 0.0434 | 0.0435 | 0.0436            | 0.218         |                         |                 |  |  |                         |            |  |  |  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                        |               |
| sample 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 0.0439 | 0.0440 | 0.0436 | 0.0438            | 0.218         |                         |                 |  |  |                         |            |  |  |  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                        |               |
| sample 4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | /      | /      | /      | /                 | /             |                         |                 |  |  |                         |            |  |  |  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                        |               |
| sample 5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | /      | /      | /      | /                 | /             |                         |                 |  |  |                         |            |  |  |  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                        |               |
| Remark :                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |        |        |        |                   |               |                         |                 |  |  |                         |            |  |  |  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                        |               |

Tester : 张蒙

Approval :

01/10/16

Test date : 2016/10/30





# Melt mass-flow rate Test Report

|                     |                         |                |             |              |              |
|---------------------|-------------------------|----------------|-------------|--------------|--------------|
| Test item           | EF TAPPING TEE 315*90mm | Materials DATA | HE3490-LS   | LOT NO       | 1316074      |
| Production time     | 2016/8/9                | PE CLASS       | PE100       | Quantity lot | 98 PCS       |
| Test date           | 2016/10/11              | Color          | Black       | Tester       | Zhibo Huang  |
| Test specifications | EN 12201-2:2011+A1:2013 | Test method    | EN ISO 1133 | Humiture     | 23.3 °C 53 % |

| Records                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |        |                   |               |                         |                 |      |     |  |  | Requirement of standard                                                                                                                                                                                                                                                                                           | Conclusion |               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|-------------------|---------------|-------------------------|-----------------|------|-----|--|--|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|---------------|
| <p>Main test equipment: Testing Machine of MFR<br/>Model: GT-7100-MIBH No. Of apparatus: YQ069<br/>Procedure: Cut 2mm<sup>3</sup> ~ 5mm<sup>3</sup> from a pipe around 3.0g as test samples. Test temperature 190°C, Load 5.0kg, interval of each cutting 120 s. Keep three segments and measure their average weight.<br/>Equation 1: <math>MFR(\theta, mnom) = (tref \cdot m) / t</math>; Equation 2: Change rate <math>G = (MFR1 - MFR2) / MFR2</math>.<br/>0 — Test temperature, °C; mnom — Load, kg; m — average weight of the segments, g; tref — Reference time (10min), s (600s); t — interval of each cutting<br/>MFR: Melt mass-flow rate, g/10min; MFR1: Melt mass-flow rate of the sample; MFR2: Melt mass-flow rate of the raw material;</p> |        |                   |               |                         |                 |      |     |  |  | <p>MFR of the sample should be less than 20% of the raw material MFR</p> <p>Materials Data<br/>(Lot: 1316074)<br/>(0.22 g/10min)</p> <p><b>TÜVRheinland®</b><br/><input type="checkbox"/> Inspected <input checked="" type="checkbox"/> reviewed <input checked="" type="checkbox"/> Witnessed<br/>1 OCT 2016</p> |            | qualification |
| Weight of the segments (g)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |        | Average value (g) | MFR (g/10min) | Average value (g/10min) | Change rate (%) |      |     |  |  |                                                                                                                                                                                                                                                                                                                   |            |               |
| sample 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 0.0460 | 0.0459            | 0.0463        | 0.0461                  | 0.231           | 0.23 | 4.5 |  |  |                                                                                                                                                                                                                                                                                                                   |            |               |
| sample 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 0.0462 | 0.0462            | 0.0476        | 0.0467                  | 0.233           |      |     |  |  |                                                                                                                                                                                                                                                                                                                   |            |               |
| sample 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 0.0467 | 0.0457            | 0.0451        | 0.0458                  | 0.228           |      |     |  |  |                                                                                                                                                                                                                                                                                                                   |            |               |
| sample 4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | /      | /                 | /             | /                       | /               |      |     |  |  |                                                                                                                                                                                                                                                                                                                   |            |               |
| sample 5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | /      | /                 | /             | /                       | /               |      |     |  |  |                                                                                                                                                                                                                                                                                                                   |            |               |
| Remark:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |        |                   |               |                         |                 |      |     |  |  |                                                                                                                                                                                                                                                                                                                   |            |               |

Tester: 张敬

Approval:

Test date: 2016.10.30





# Oxidation induction time (O.I.T) Test Report

|                     |                         |                |                  |              |              |
|---------------------|-------------------------|----------------|------------------|--------------|--------------|
| Test item           | EF TAPPING TEE 63*63mm  | Materials DATA | HE3490-LS        | LOT NO       | 1316074      |
| Production time     | 2016/7/25               | PE CLASS       | PE100            | Quantity lot | 320 PCS      |
| Test date           | 2016/10/12              | Color          | Black            | Tester       | Zhibo Huang  |
| Test specifications | EN 12201-3:2011+A1:2012 | Test method    | ISO 11357-6:2008 | Humiture     | 23.3 °C 53 % |

| Records                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                     |          |  | Requirement of standard                           | Conclusion                                                                                                                                                                                                                                                                              |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|----------|--|---------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Materials Lot : ( 1316074 )</p> <p>Main test equipment: differential scanning calorimeter(DSC) Model: Q20 Model of Equipment: YQ013</p> <p>Procedure: Cut sample whose diameter is less than that of the cylinder and weight is 15±0.5mg from the arc segment. Regulate the flow of oxygen and nitrogen to <u>50</u> cm<sup>3</sup>/min. at the speed of <u>20</u> °C/min to raise the temperature to <u>200</u> °C, than maintain this constant temperature and record the thermal curves.</p> |                     |          |  | <p>≥20min</p> <p>Average value:</p> <p>&gt;35</p> | <p>qualification</p> <div><p>12 OCT 2016</p><p><input type="checkbox"/> Inspected <input checked="" type="checkbox"/> reviewed <input checked="" type="checkbox"/> witnessed</p><p>TRK-000</p></div> |
| n=3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Weight of sample, g | OIT, min |  |                                                   |                                                                                                                                                                                                                                                                                         |
| sample 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 0.0151              | >35      |  |                                                   |                                                                                                                                                                                                                                                                                         |
| sample 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 0.0152              | >35      |  |                                                   |                                                                                                                                                                                                                                                                                         |
| sample 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 0.0151              | >35      |  |                                                   |                                                                                                                                                                                                                                                                                         |
| sample 4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | /                   | /        |  |                                                   |                                                                                                                                                                                                                                                                                         |
| sample 5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | /                   | /        |  |                                                   |                                                                                                                                                                                                                                                                                         |
| Remark :                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                     |          |  |                                                   |                                                                                                                                                                                                                                                                                         |

Note: “/” means items do not need testing. “√” in “□” standards for conforming to the standard requirement while “×” standards

Tester: 张蒙 Approval: 2016.11.30 Test date: 2016.11.30

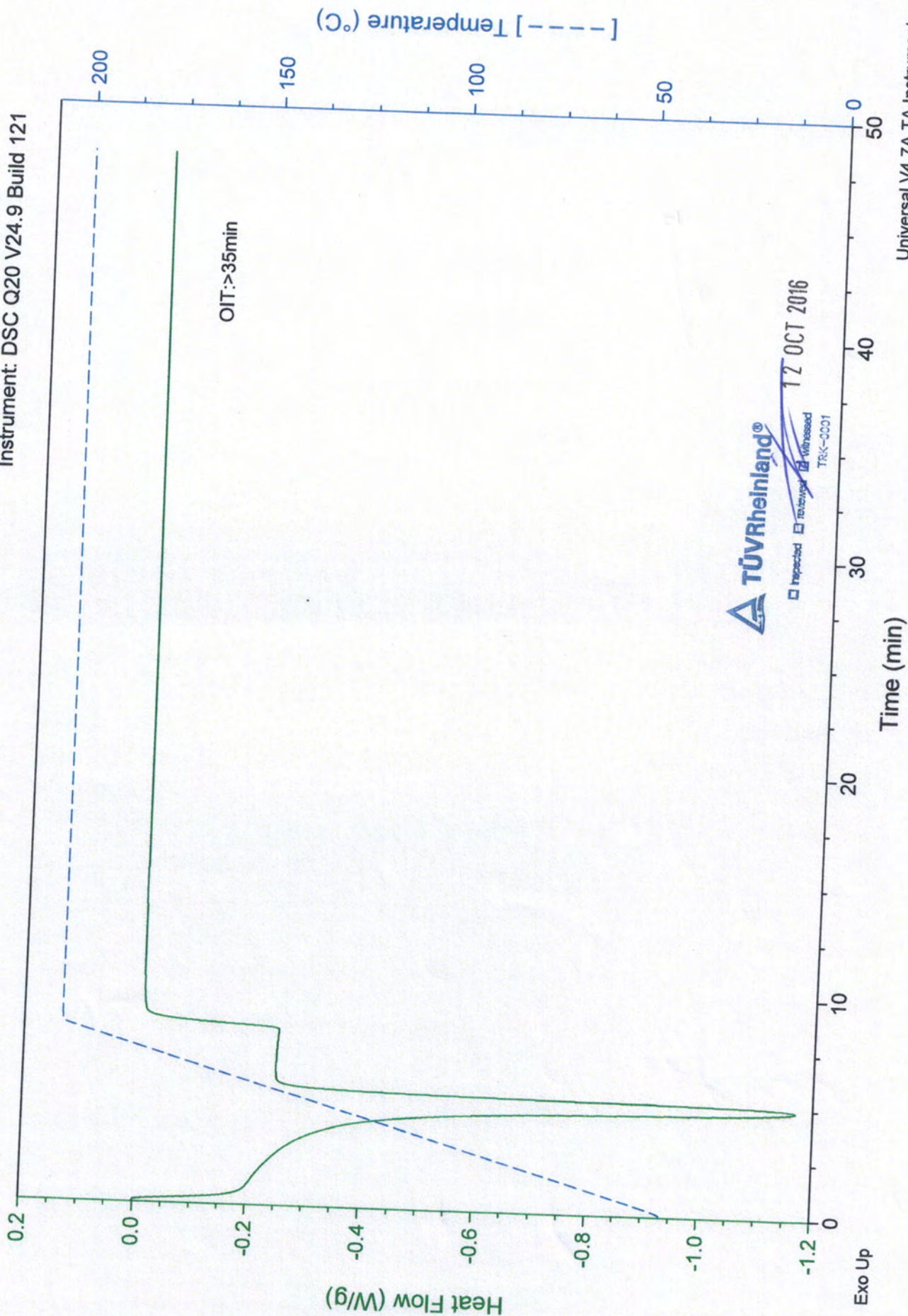




Sample: PE-63X63 SDR11-1316149  
Size: 15.1000 mg  
Method: OIT

# DSC

Attachment NO: 32-0450  
belongs to Test Report No: EOC-1330 VAAK-300-2  
File: C:\201610\PE-63X63 SDR11-1316149.003  
Operator: xx  
Run Date: 12-Oct-2016 17:32  
Instrument: DSC Q20 V24.9 Build 121



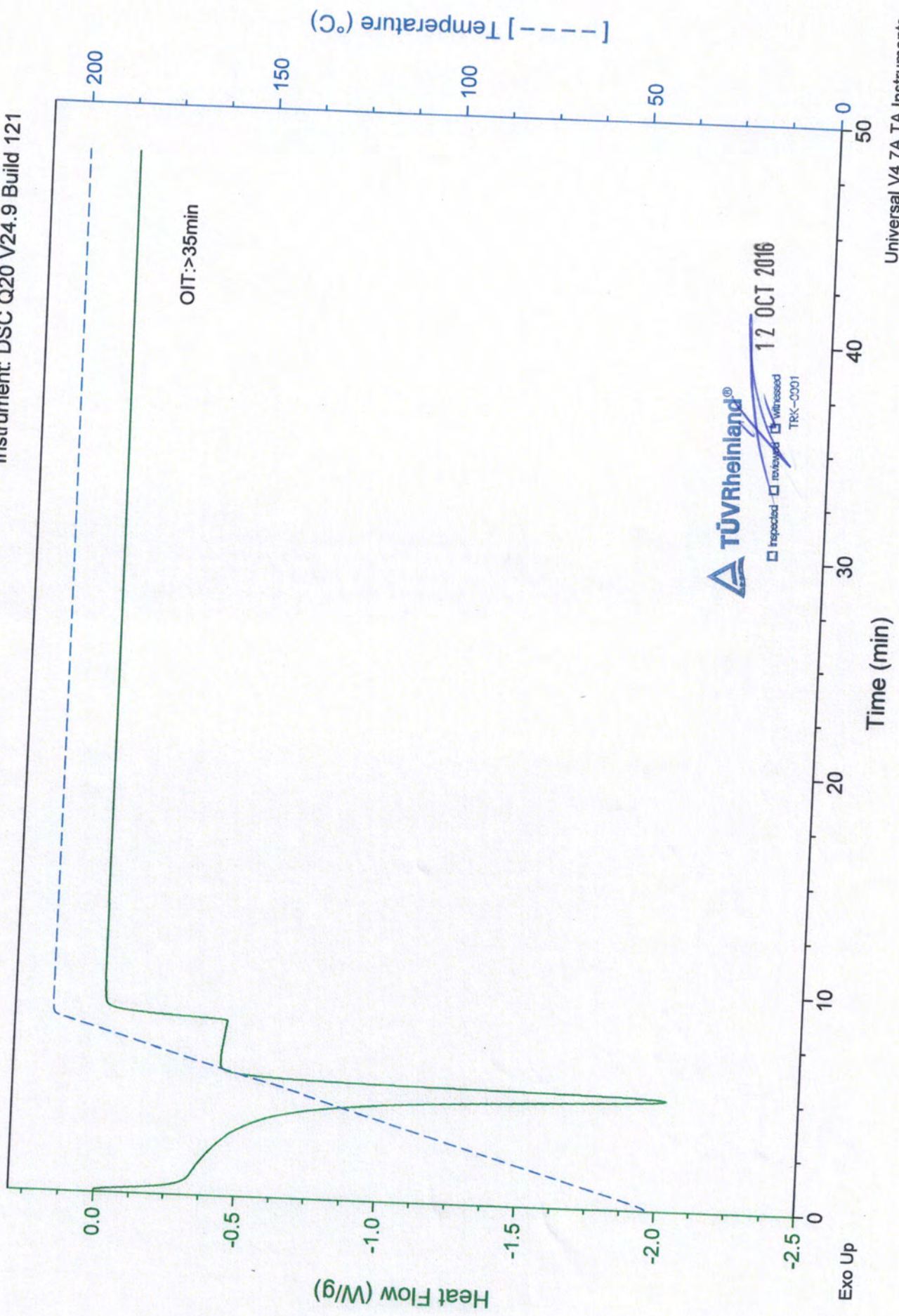


Sample: PE-63X63 SDR11-1316149  
Size: 15.2000 mg  
Method: OIT

# DSC



Attachment NO: 33 of 50  
belongs to Test Report No: C-1304284-300-2  
File: C:\... \201610\PE-63X63 SDR11-1316149.002  
Operator: xx  
Run Date: 12-Oct-2016 16:35  
Instrument: DSC Q20 V24.9 Build 121



TÜVRheinland®  
12 OCT 2016  
Inspected ☒ Retested ☒ Witnessed ☒  
TRK-0001

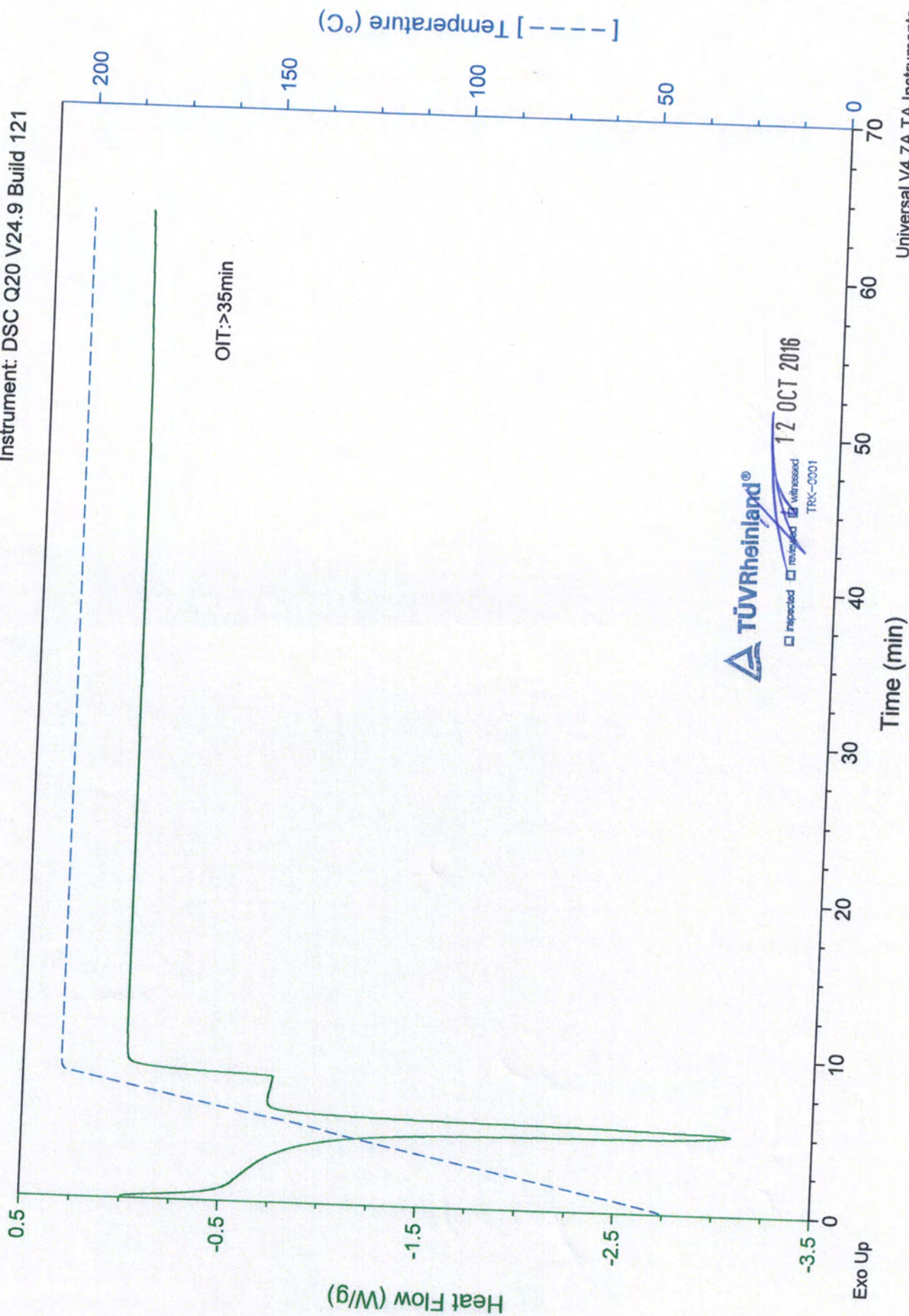


Sample: PE-63X63 SDR11-1316149  
Size: 15.1000 mg  
Method: OIT

## DSC



Attachment NO: 34 JF 50  
belongs to Test Report No: QOC-133042044-30-2  
File: C:\...\201610\PE-63X63 SDR11-1316149.001  
Operator: xx  
Run Date: 12-Oct-2016 09:42  
Instrument: DSC Q20 V24.9 Build 121





# Test Report

|                     |                         |                |                  |              |             |
|---------------------|-------------------------|----------------|------------------|--------------|-------------|
| Test item           | EF TAPPING TEE 110×63mm | Materials DATA | HE3490-LS        | LOT NO       | 1316074     |
| Production time     | 2016/7/23               | PE CLASS       | PE100            | Quantity lot | 286 PCS     |
| Test date           | 2016/10/12              | Color          | Black            | Tester       | Zhibo Huang |
| Test specifications | EN 12201-3:2011+A1:2012 | Test method    | ISO 11357-6:2008 | Humiture     | 23.3 °C     |

| Records                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                     |          | Requirement of standard                                                                                                                                                                                                                                                                        | Conclusion    |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| <p>Materials Lot : ( 1316074 )</p> <p>Main test equipment: differential scanning calorimeter(DSC)      Model: Q20      Model of Equipment: YQ013</p> <p>Procedure: Cut sample whose diameter is less than that of the cylinder and weight is <math>15 \pm 0.5\text{mg}</math> from the arc segment. Regulate the flow of oxygen and nitrogen to <u>50</u> <math>\text{cm}^3/\text{min}</math>.<br/>at the speed of <u>20</u> <math>^\circ\text{C}/\text{min}</math> to raise the temperature to <u>200</u> <math>^\circ\text{C}</math>, than maintain this constant temperature and record the thermal curves.</p> |                     |          |                                                                                                                                                                                                                                                                                                |               |
| n=3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Weight of sample, g | OIT, min | $\geq 20\text{min}$                                                                                                                                                                                                                                                                            | qualification |
| sample 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 0.0150              | >35      |                                                                                                                                                                                                                                                                                                |               |
| sample 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 0.0152              | >35      |                                                                                                                                                                                                                                                                                                |               |
| sample 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 0.0151              | >35      |                                                                                                                                                                                                                                                                                                |               |
| sample 4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | /                   | /        |                                                                                                                                                                                                                                                                                                |               |
| sample 5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | /                   | /        |                                                                                                                                                                                                                                                                                                |               |
| <p>Average value:</p> <p>&gt;35</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                     |          |                                                                                                                                                                                                                                                                                                |               |
| <p>Remark :</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                     |          |  <p>12 OCT 2016</p> <p> <input type="checkbox"/> Inspected                       <input type="checkbox"/> reviewed                       <input checked="" type="checkbox"/> Witnessed                 </p> |               |

Note: "/" means items do not need testing. "√" in "□" standards for conforming to the standard requirement while "×" standards

Tester: 张蒙 Approval: 张蒙 Test date: 2011.11.11

Test date :

9/12

Approval :

34

Tester :

requirement while



Sample: PE-110X63 SDR11-1316149  
Size: 15.1000 mg  
Method: OIT

## DSC



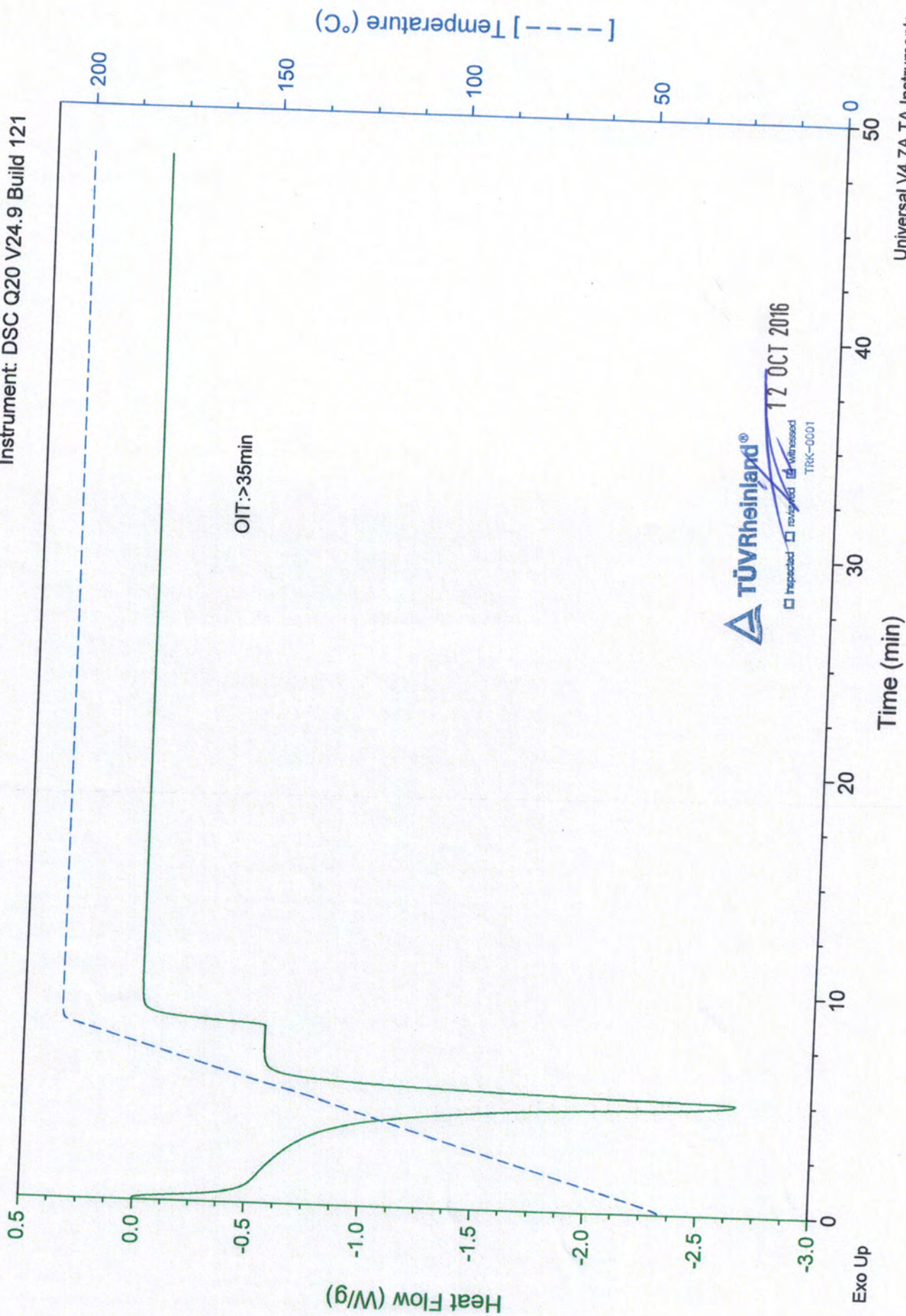
Attachment NO: 36 of 50

belongs to Test Report No: CAC-133042-SR-300-2

File: C:\...\201610\PE-110X63 SDR11-1316149.003  
Operator: xx

Run Date: 12-Oct-2016 15:39

Instrument: DSC Q20 V24.9 Build 121

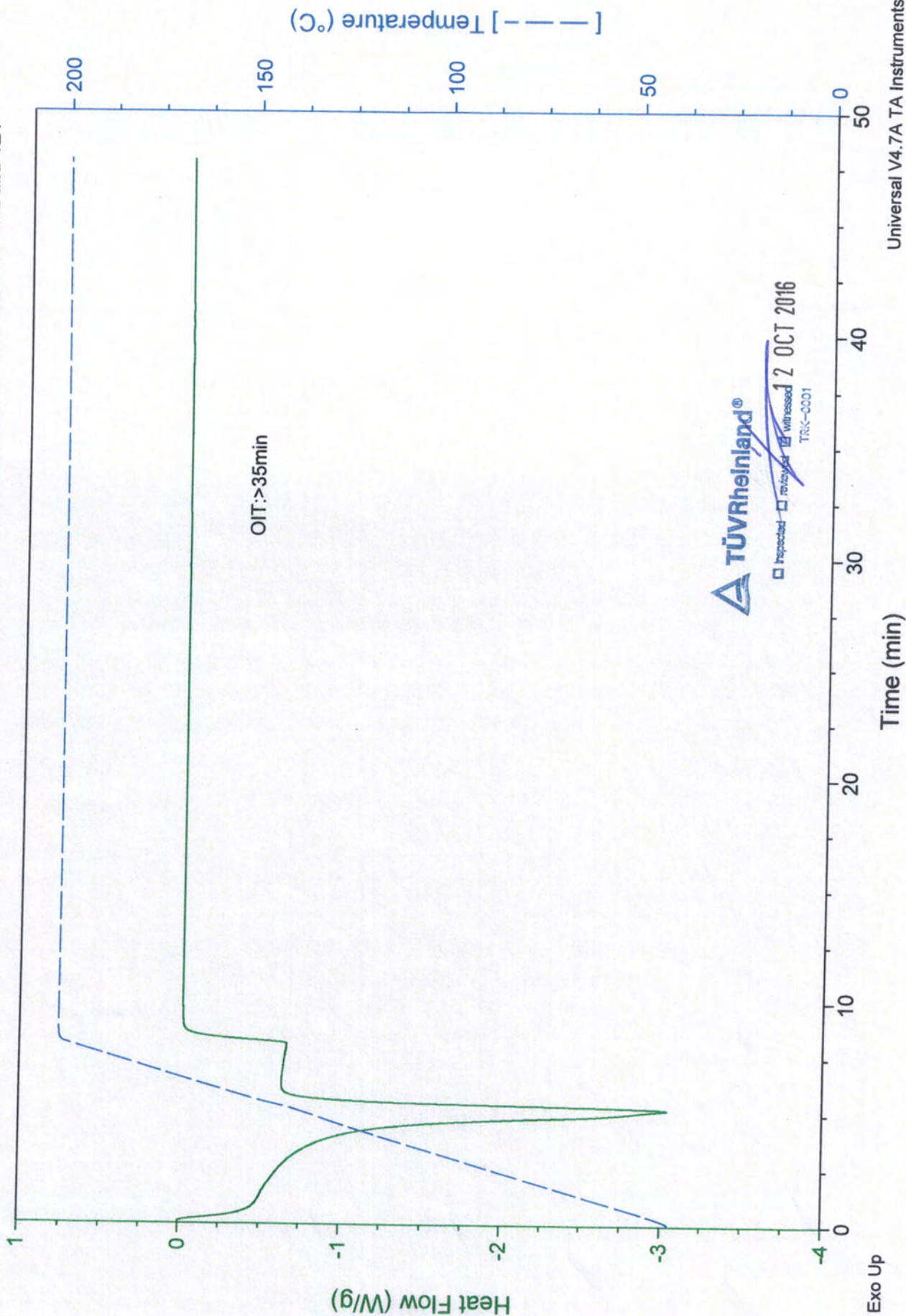




Attachment NO: 37 of 50  
 belongs to Test Report No: C0C-13304284-300-2  
 File: C:\...\201610\PE-110X63 SDR11-1316149.002  
 Operator: xx  
 Run Date: 12-Oct-2016 12:54  
 Instrument: DSC Q20 V24.9 Build 121

# DSC

Sample: PE-110X63 SDR11-1316149  
 Size: 15.2000 mg  
 Method: OIT





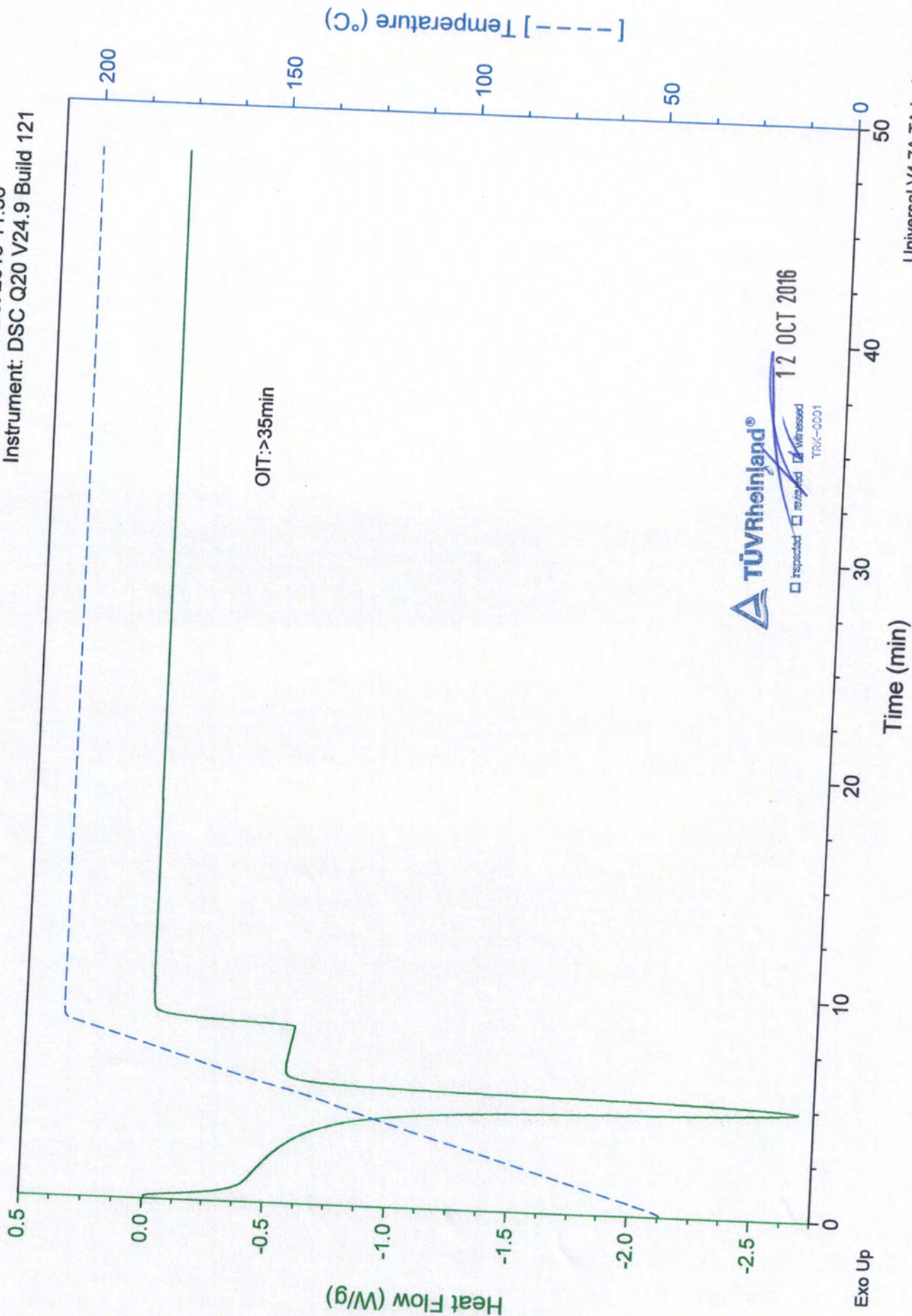
Sample: PE-110X63 SDR11-1316149  
Size: 15.0000 mg  
Method: OIT

## DSC



Attachment NO: 30 075 50  
belongs to Test Report No: OC-13304284-300-2  
File: C:\...V201610\PE-110X63 SDR11-1316149.001  
Operator: xx

Run Date: 12-Oct-2016 11:56  
Instrument: DSC Q20 V24.9 Build 121





# Oxidation induction time(O.I.T) Test Report

|                     |                         |                |                  |              |              |
|---------------------|-------------------------|----------------|------------------|--------------|--------------|
| Test item           | EF TAPPING TEE 315×90mm | Materials DATA | HE3490-LS        | LOT NO       | 1316074      |
| Production time     | 2016/8/9                | PE CLASS       | PE100            | Quantity lot | 98 PCS       |
| Test date           | 2016/10/12              | Color          | Black            | Tester       | Zhibo Huang  |
| Test specifications | EN 12201-2:2011+A1:2013 | Test method    | ISO 11357-6:2008 | Humiture     | 23.3 °C 53 % |

| Records                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                     |          |                |  | Requirement of standard                                                                                                                                                                                                                         | Conclusion |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|----------|----------------|--|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|
| <p>Materials Lot : ( 1316074 )</p> <p>Main test equipment: differential scanning calorimeter(DSC) Model: Q20 Model of Equipment: YQ013</p> <p>Procedure: Cut sample whose diameter is less than that of the cylinder and weight is <math>15 \pm 0.5</math>mg from the arc segment. Regulate the flow of oxygen and nitrogen to <math>50 \text{ cm}^3/\text{min}</math>. at the speed of <math>20 \text{ }^\circ\text{C}/\text{min}</math> to raise the temperature to <math>200 \text{ }^\circ\text{C}</math>, than maintain this constant temperature and record the thermal curves.</p> |                     |          |                |  |                                                                                                                                                                                                                                                 |            |
| n=                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Weight of sample, g | OIT, min | Average value: |  |                                                                                                                                                                                                                                                 |            |
| sample 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 0.0150              | >35      | >35            |  |                                                                                                                                                                                                                                                 |            |
| sample 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 0.0153              | >35      |                |  |                                                                                                                                                                                                                                                 |            |
| sample 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 0.0152              | >35      |                |  |                                                                                                                                                                                                                                                 |            |
| sample 4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | /                   | /        |                |  |                                                                                                                                                                                                                                                 |            |
| sample 5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | /                   | /        |                |  |                                                                                                                                                                                                                                                 |            |
| Remark :                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                     |          |                |  | <br><input type="checkbox"/> Inspected <input checked="" type="checkbox"/> reviewed <input checked="" type="checkbox"/> Witnessed<br>TRK-0001<br>12 OCT 2016 |            |

Note: “/” means items do not need testing. “√” in “□” standards for conforming to the standard requirement while “×” standards

Approval :

Test date : 2016.11.30





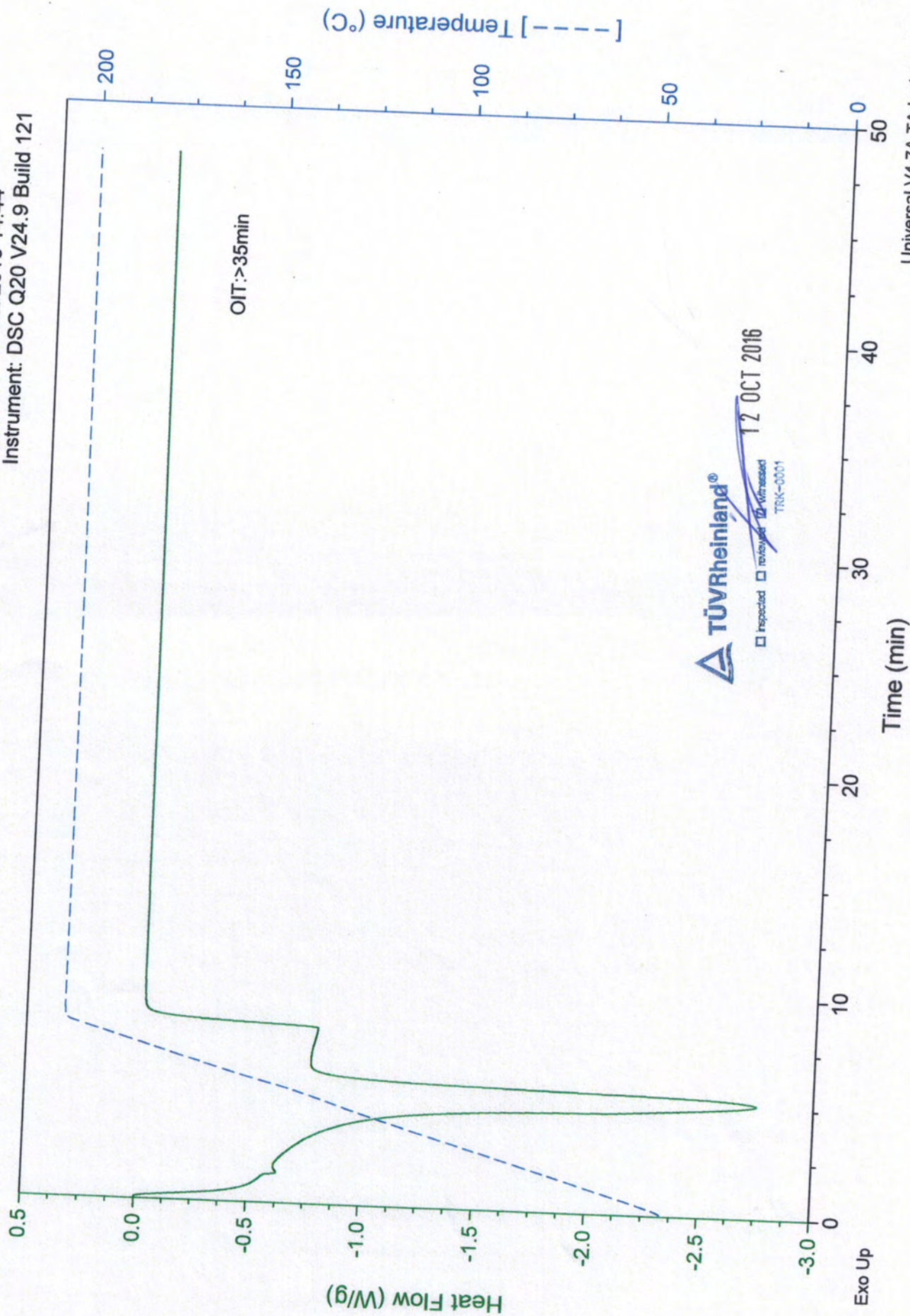
Sample: PE-315X90 SDR11-1316095  
Size: 15.2000 mg  
Method: OIT

## DSC



Attachment NO: 40 OF 50  
belongs to Test Report No: OC-13304284-300-2  
File: C:\... \201610\PE-315X90 SDR11-1316095.003  
Operator: xx

Run Date: 12-Oct-2016 14:44  
Instrument: DSC Q20 V24.9 Build 121



12 OCT 2016

☐ Inspected ☐ reviewed ☒ Witnessed  
TRK-0001



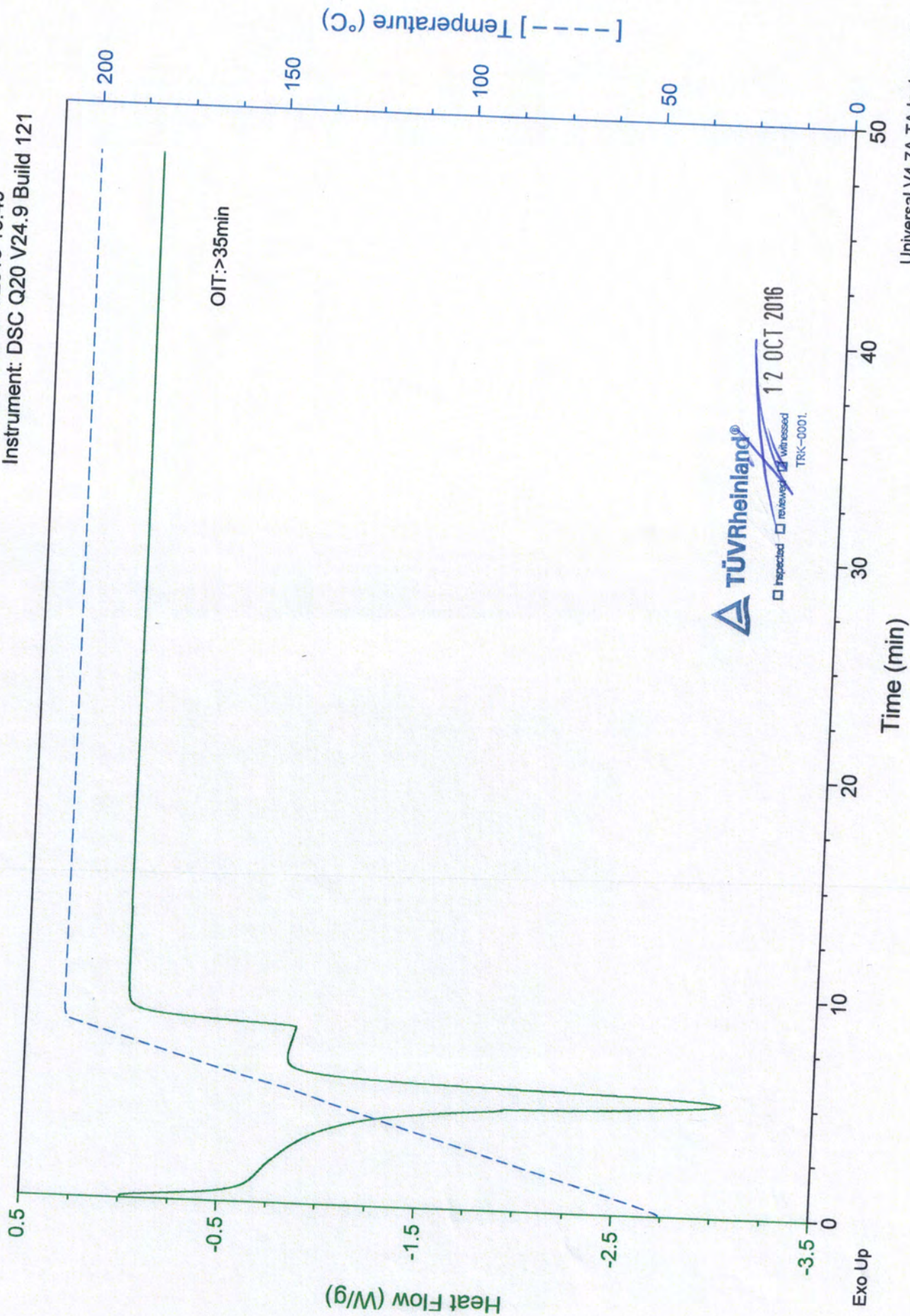
Sample: PE-315X90 SDR11-1316095  
Size: 15.3000 mg  
Method: OIT

## DSC



Attachment NO: 4 of 50  
belongs to Test Report No: CAC-133042-001-300-2  
File: C:\201610\PE-315X90 SDR11-1316095.002  
Operator: xx

Run Date: 12-Oct-2016 13:49  
Instrument: DSC Q20 V24.9 Build 121





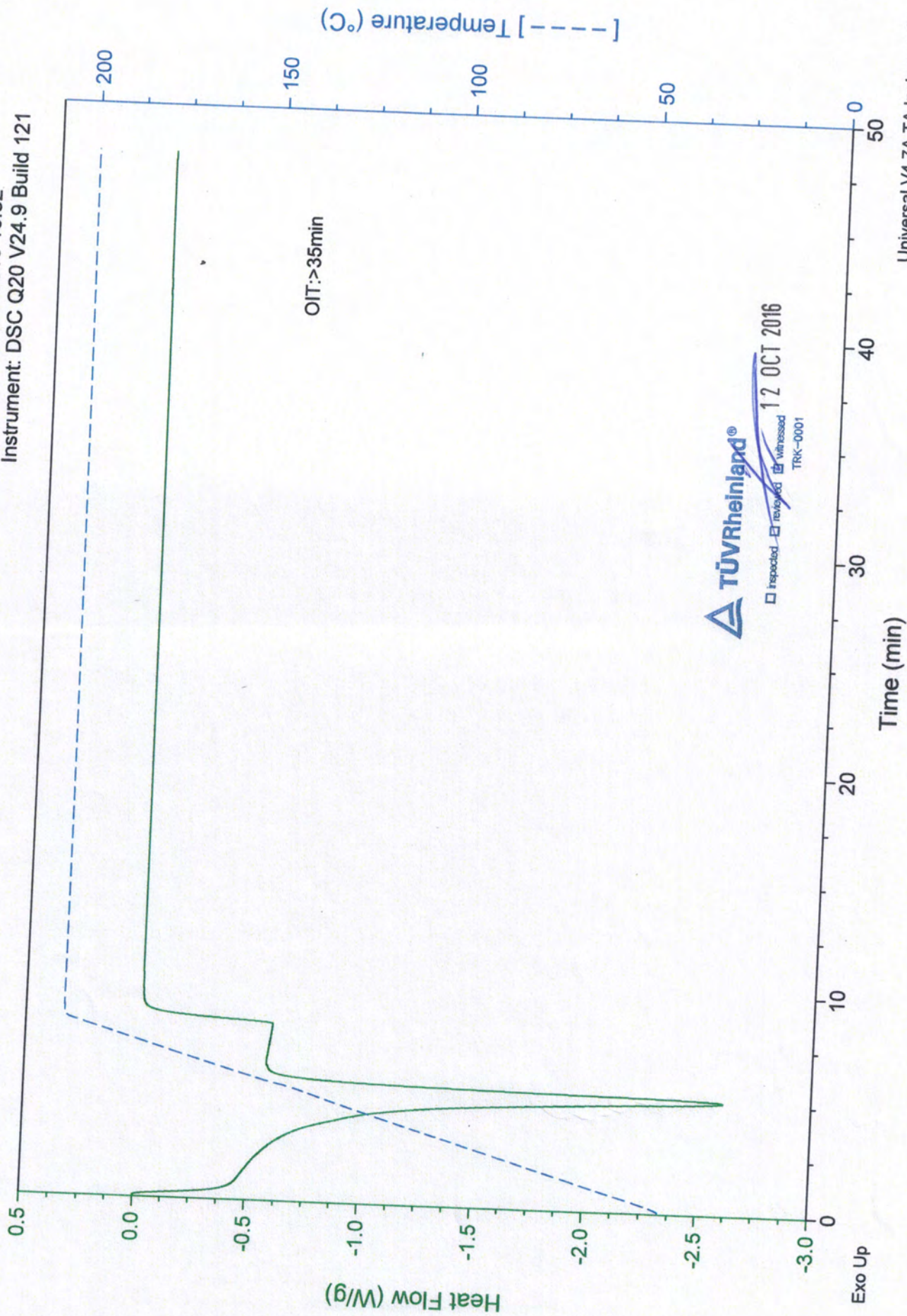
Sample: PE-315X90 SDR11-1316095  
Size: 15.0000 mg  
Method: OIT

## DSC



Attachment NO: 42-07550  
belongs to Test Report No: CoC-1330 Y2016-300-2

File: C:\...\201610PE-315X90 SDR11-1316095.001  
Operator: xx  
Run Date: 12-Oct-2016 10:52  
Instrument: DSC Q20 V24.9 Build 121



12 OCT 2016

☐ Inspected ☒ Released ☒ Witnessed  
TRK-0001



**CERTIFICATE OF ANALYSIS**

To Whom it May Concern

**Product** HE3490LS **Date** 23.05.2016 **Your Reference** VH160522 **Our Reference** 5200517323 **Packaging** Bags

|                                 |         |                       |            |          |               |
|---------------------------------|---------|-----------------------|------------|----------|---------------|
| Batch                           | 1316074 | Production date       | 26.02.2016 | Quantity | 99,000.000 KG |
| Property                        |         | Reference Test Method | Unit       | Value    |               |
| Melt Flow Rate(190°C/5.0kg)     |         | B192 (ISO-1133)       | g/10 min   | 0.22     |               |
| Density                         |         | B292 (ISO-1183)       | kg/m³      | 960      |               |
| Carbon Black Content            |         | B184 (ISO-6964)       | %          | 2.18     |               |
| Disp/Carbon Black               |         | B154 (ISO-18553)      |            | 0.5      |               |
| Oxidation Induction Time(210°C) |         | B162 (ISO-11357)      | min        | 42       |               |
| Moisture Content                |         | B187 (ISO-15512)      | ppm        | 20       |               |
| Total Volatiles                 |         | B185 (EN12099)        | ppm        | 230      |               |

BORSAFE HE3490LS HD POLYETHYLENE

This Certificate conforms to EN 10204, Inspection Certificate 3.1

u B Kholifa

Khaled Dhalei  
Laboratory Manager

Abu Dhabi Polymers Company Limited







# CHINA ENVIRONMENTAL LABELLING PRODUCT CERTIFICATE

Certificate No.: CEC 014 61000337-2--2

Applicant  
**YONGGAO CO., LTD.**

Address: No.2 Daixi Road, Huangyan Economic Development Zone,  
Taizhou, Zhejiang, China

Manufacturer: **YONGGAO CO., LTD.**

Address: No.2 Daixi Road, Huangyan Economic Development Zone,  
Taizhou, Zhejiang, China

Factory: **YONGGAO CO., LTD.**

Address: No.2 Daixi Road, Huangyan Economic Development Zone,  
Taizhou, Zhejiang, China

Plastic pipes for construction Products Comply with  
**HJ/T 226-2005** Technical Requirement for Environmental Labelling Product  
Issued By Ministry of Environment Protection of P.R. China

Trademark, Name, Model of Certificated Products with Compliance:

ERA 公元 Brand

PVC-U PIPES AND FITTINGS FOR DRAINAGE:  $\Phi 50\text{mm}$  -  $\Phi 400\text{mm}$ ;

PVC-U PRESSURE PIPES AND FITTINGS:  $\Phi 20\text{mm}$  -  $\Phi 250\text{mm}$ ;

PE-RT PIPES AND FITTINGS:  $\Phi 20\text{mm}$  -  $\Phi 110\text{mm}$ ;

PVC-U INSULATING ELECTRICAL PIPES AND FITTINGS:  $\Phi 16\text{mm}$  -  $\Phi 75\text{mm}$

Certification Mode: Type Test + On Site Audit + Surveillance Audit

China Environmental Labelling Product Certification System Complies with GB/T24024:2001 idt ISO14024:1999

The Validity of the Certificate should be Maintained with the Surveillance by the Issued Certification Body

Date of Issue: June 3, 2014

Date of Expiry: June 2, 2017

Date of Replacement: July 16, 2015

Authorization: Ministry of Environment Protection of P.R. China

Issued by:

TÜVRheinland®

☒ Inspected ☒ reviewed ☐ witnessed  
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The expiry of this certification will be to one year later since the valid date issued  
and be re-valid just with the security feature of annual surveillance together.

Security Features of  
Annual Surveillance



The First  
Surveillance

The Second  
Surveillance

The Third  
Surveillance

China Environmental United (Beijing)  
Certification Center Co., Ltd.  
No.1, Yuhui South Road, Chaoyang District, Beijing, China  
<http://www.mepcec.com>





2015000585E

National Test Center of  
Polymer & Building Materials



中国认可  
检测  
TESTING  
CNAS L1049

Address: No. 14, Beisanhuandonglu, Chaoyang district, Beijing, China Post Code: 100013  
Tel: +86(0)1064208747, +86(0)1064200694, +86(0)1064224642, +86(0)1059202479  
Fax: +86(0)1059202784, +86(0)1084290301 Web site: www.plastic-test.net

No.2017(G)03122

CUSTOMER:

Yonggao Co., Ltd.

SAMPLES FOR TESTING

Name:

PE Tapping Tee

Manufacturer:

Yonggao Co., Ltd.

Brand:

ERA®

Appearance:

Black

$d_n 63 \times 63$

DATE OF RECEIPT:

2016-11-05

ISSUE DATE:

2017-03-20

THIS REPORT COMPRISES 2 PAGES



inspected reviewed witnessed  
TRK-0001

29 MAR 2017

DIRECTOR:

张若奇

CHECK:

潘颖





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Polymer & Building Materials中国认可  
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TESTING  
CNAS L1049

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Fax: +86(0)1059202784, +86(0)1084290301 Web site: www.plastic-test.net

## TESTING RESULTS

No. 2017(G)03122

| No. | Test Item                              | Requirement          | Result |
|-----|----------------------------------------|----------------------|--------|
| /   | Impact resistance of tapping tees (0℃) | No failure, no leaks | Pass   |

Note: The samples of the product referred to in this report have been tested in accordance with the standard of EN 12201-3:2011+A1:2012 "Plastics piping systems for water supply, and for drainage and sewerage under pressure --Polyethylene (PE)--Part 3: Fittings".

(THE PART BELOW IS BLANK)



Test: 胡法 武志军





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Fax: +86(0)1059202784, +86(0)1084290301 Web site: www.plastic-test.net

No.2017(G)03123

CUSTOMER:

Yonggao Co., Ltd.

SAMPLES FOR TESTING

Name:

PE Tapping Tee

Manufacturer:

Yonggao Co., Ltd.

Brand:

ERA®

Appearance:

Black

$d_n 110 \times 63$

DATE OF RECEIPT:

2016-11-05

ISSUE DATE:

2017-03-20

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TRK-0001

29 MAR 2017

DIRECTOR:

*[Signature]*

CHECK:

*[Signature]*





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National Test Center of

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Fax: +86(0)1059202784, +86(0)1084290301 Web site: www.plastic-test.net

### TESTING RESULTS

No. 2017(G)03123

| No. | Test Item                              | Requirement          | Result |
|-----|----------------------------------------|----------------------|--------|
| /   | Impact resistance of tapping tees (0℃) | No failure, no leaks | Pass   |

Note: The samples of the product referred to in this report have been tested in accordance with the standard of EN 12201-3:2011+A1:2012 "Plastics piping systems for water supply, and for drainage and sewerage under pressure --Polyethylene (PE)--Part 3: Fittings".

(THE PART BELOW IS BLANK)







2015000585E

National Test Center of

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Fax: +86(0)1059202784, +86(0)1084290301 Web site: www.plastic-test.net

No.2017(G)03124

CUSTOMER:

Yonggao Co., Ltd.

SAMPLES FOR TESTING

Name:

PE Tapping Tee

Manufacturer:

Yonggao Co., Ltd.

Brand:

ERA®

Appearance:

Black

$d_n 315 \times 90$

DATE OF RECEIPT:

2016-11-05

ISSUE DATE:

2017-03-20

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☐ Inspected ☒ Reviewed ☒ Witnessed  
TRK-0001

29 MAR 2017

DIRECTOR:

张若奇

CHECK:

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2015000585E

National Test Center of  
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TESTING  
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Fax: +86(0)1059202784, +86(0)1084290301 Web site: www.plastic-test.net

## TESTING RESULTS

No. 2017(G)03124

| No.                                                                                                                                                                                                                                                                     | Test Item                               | Requirement          | Result |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------|----------------------|--------|
| /                                                                                                                                                                                                                                                                       | Impact resistance of tapping tees (0°C) | No failure, no leaks | Pass   |
| Note: The samples of the product referred to in this report have been tested in accordance with the standard of EN 12201-3:2011+A1:2012 "Plastics piping systems for water supply, and for drainage and sewerage under pressure --Polyethylene (PE)--Part 3: Fittings". |                                         |                      |        |

(THE PART BELOW IS BLANK)



Inspected [ ] reviewed [ ] witnessed [ ]  
TRK-0001

29 MAR 2017

Test: 胡法 武志军



# CERTIFICATE OF CONFORMITY

Hersteller - Manufacturer - Fabricant - Produttore:

**YONGGAO Co., Ltd**No.2 Daixi Road, Huagyan Economics Development Zone  
Taizhou, 318020, Zhejiang, China

Page 1/1

Prüfgegenstand - Article - Produit - Prodotto:

**Plastic piping systems for the supply of gaseous fuels- Polyethylene(PE) Part 3 : Fittings**Prüfgrundlagen/Anforderungen - Technical specifications/Requirements - Spécifications techniques/Exigences - Norme di controllo/Requisiti: **EN 1555-3 (Ed. 2010+A1:2012)**Werkstoff - Material - Matière - Materiale: entsprechend - according to - suivant - secondo : **EN 1555-3** Ausgabe - Edition - edizione: **Aug. 2013**

\*Max. Operating Pressure : 5 Bar(C=4.0), 10 Bar(C=2.0)

Kennzeichnung - Marking - Marquage - Punzonatura

Manufacturer's name,

Material designation, Intended use "Gas"

Size, This designation EN 1555

Permissible variations

Herstellerzeichen - Brand of the manufacturer -

Marque du fabricant - Marchio del produttore: **ERA**

Stempel des Sachverständigen - Inspector's stamp -

Poinçon de l'expert - Punzone dell'ispettore: **N/A**Umfang der Lieferung - Extent of delivery - Liste descriptive - Descrizione della fornitura:  
According to PD CEN/TS 1555-7 : 2013

| Pos.-Nr.<br>Item No<br>No poste<br>No. pos. | Stückzahl<br>No of pieces<br>Qte<br>Numero pezzi | Gegenstand<br>Article - Désignation du produit -<br>Tipo di prodotto (mm)                     | Schmelze-Nr.<br>Heat No<br>No de coulée<br>No di colata | Probe-Nr.<br>Test No.<br>No d' éprouvette<br>No di prova |
|---------------------------------------------|--------------------------------------------------|-----------------------------------------------------------------------------------------------|---------------------------------------------------------|----------------------------------------------------------|
| 63×63 mm                                    | See the test report for the each test            | General description<br>1. Group 1 : dn < 75 mm<br>2. Fitting type : Electrofusion Tapping Tee | See the specimen list                                   | See the test report for the each test                    |
| 110×63 mm                                   | "                                                | 1. Group 2 : 75 ≤ dn < 250 mm<br>2. Fitting type : Electrofusion Tapping Tee                  | "                                                       | "                                                        |
| 315×90 mm                                   | "                                                | 1. Group 3 : 250 ≤ dn ≤ 630 mm<br>2. Fitting type : Electrofusion Tapping Tee                 | "                                                       | "                                                        |

\*Fitting Group(A) includes the following fitting types ;

Electrofusion couplers, electrofusion 45° elbows, electrofusion 90° elbows, electrofusion tees, electrofusion reducers, electrofusion end caps, etc

Die gestellten Anforderungen sind lt. Anlagen erfüllt. - The requirements are fulfilled as per annex - Les conditions imposées sont satisfaites suivant annexes.- I risultati sono conformi ai requisiti richiesti come da allegati.

- Anlagen: 1) Test results  
(Annexes) 2) Test reports acc. To EN 1555-3 :  
Report No. 133042884-300-1  
(Allegati) 3) The specimen list for EN 1555-3  
4) Raw material test report  
5) Calibration report for test equipment

Ort - Place - Lieu - Località  
Changwon, Rep.of KoreaDatum - Date - Data  
29 March, 2017Der Sachverständige - The inspector  
L'expert - L'ispettore

H.D.PARK

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Precisely Right.



## TEST RESULTS

## Annex 1

Page

1/1

There are 11 kinds of test in EN 1555-3.  
All test result for each fittings size are as following.

| Required Test *                                   | Size groups of fittings ( unit : mm ) |                 |                 |
|---------------------------------------------------|---------------------------------------|-----------------|-----------------|
|                                                   | Electofusion Tapping Tee              |                 |                 |
|                                                   | 63×63(Group1)                         | 110×63 (Group2) | 315×63 (Group3) |
| Hydrosatic strength (20 °C,100h)                  | O                                     | O               | O               |
| Hydrosatic strength (80 °C,165h)                  | O                                     | O               | O               |
| Hydrosatic strength (80 °C,1000h)                 | O                                     | O               | O               |
| Evaluation of ductility of fusion joint interface | O                                     | O               | O               |
| Impact resistance                                 | O                                     | O               | O               |
| Pressure drop                                     | O                                     | O               | O               |
| Oxidation induction time<br>( Thermal stability ) | O                                     | O               | O               |
| Melt mass-flow rate<br>(MFR)                      | O                                     | O               | O               |
| Geomertrical characteristics                      | O                                     | O               | O               |
| Electrical characteristics                        | O                                     | O               | O               |
| General characteristics                           | O                                     | O               | O               |

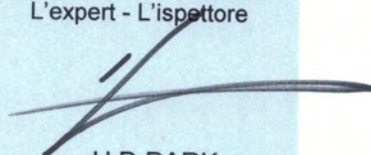
- Note 1) \* : Required test. for each test method is the test order of EN 1555-3.  
 2) \*\* : Not Applicable  
 3) \*\*\* : By checking the test result of the manufacturer  
 4) O : Accepted

Ort - Place - Lieu - Località  
Changwon, Rep.of Korea

Datum - Date - Data  
29. March, 2017

Der Sachverständige - The inspector  
L'expert - L'ispettore



  
H.D.PARK



# Speciemen list EN 1555-3

| NO | Characteristic                                       | size group 1<br>dn<75 | size group 2<br>75≤dn<250 | size group 3<br>250≤dn≤630 <,710 |
|----|------------------------------------------------------|-----------------------|---------------------------|----------------------------------|
|    |                                                      | 63 x 63 mm            | 110 x 63 mm               | 315 x 90 mm                      |
| 1  | Appearance                                           | 5                     | 5                         | 5                                |
| 2  | Colour                                               | 5                     | 5                         | 5                                |
| 3  | Electrical characteristics                           | 5                     | 5                         | 5                                |
| 4  | Geometrical characteristics                          | 5                     | 5                         | 5                                |
| 5  | Hydrostatic strength (20°C, 100 h)                   | 3                     | 3                         | 3                                |
| 6  | Hydrostatic strength (80°C, 165 h)                   | 3                     | 3                         | 3                                |
| 7  | Hydrostatic strength (80°C, 1 000 h)                 | 3                     | 3                         | 3                                |
| 8  | Evaluation of ductility of<br>fusion joint interface | 1                     | 1                         | 1                                |
| 9  | Impact resistance                                    | 1                     | 1                         | 1                                |
| 10 | Pressure drop                                        | 1                     | 1                         | 1                                |
| 11 | Oxidation induction time<br>(Thermal stability)      | 1                     | 1                         | 1                                |
| 12 | Melt mass-flow rate (MFR)                            | 1                     | 1                         | 1                                |
| 13 | Marking                                              | 5                     | 5                         | 5                                |



☐ inspected 
 ☒ reviewed 
 ☐ witnessed  
 TRK-0001

11 OCT 2016



# Test report

ISSUE DATE : 2016. 10. 11

| TEST | REVIEW | APPROVAL   |
|------|--------|------------|
|      |        | J. Y. Gong |

|                      |                                                                                                                                                    |             |                                                                                                            |
|----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|-------------|------------------------------------------------------------------------------------------------------------|
| Test name            | Fittings appearance, colour, marking                                                                                                               |             |                                                                                                            |
| Product              | EF TAPPING TEE                                                                                                                                     | REF         | EN 1555-3:2010+A1:2012                                                                                     |
| Size DN              | 63 x 63 mm                                                                                                                                         | LOT         | BD1ETT063063G16                                                                                            |
| Production period    | 16. 07. 25                                                                                                                                         | Test date   | 16. 10. 11                                                                                                 |
| Size group           | <input checked="" type="checkbox"/> 1 Group: 25~ 63mm<br><input type="checkbox"/> 2 Group: 75~225mm<br><input type="checkbox"/> 3 Group: 250~630mm | Model       | HE3490-LS                                                                                                  |
|                      |                                                                                                                                                    | Origin      | Boruge                                                                                                     |
|                      |                                                                                                                                                    | Color       | <input type="checkbox"/> Yellow, <input checked="" type="checkbox"/> Black, <input type="checkbox"/> _____ |
|                      |                                                                                                                                                    | SDR(=D/t)   | <input checked="" type="checkbox"/> 11, <input type="checkbox"/> 17.6, <input type="checkbox"/> _____      |
| Nominal pressure(PN) | 16 bar                                                                                                                                             | Designation | <input checked="" type="checkbox"/> PE 100, <input type="checkbox"/> PE 80, <input type="checkbox"/> _____ |
| Production quantity  | 320 PCS                                                                                                                                            |             |                                                                                                            |

## TEST RESULT

### Appearance

| Description |                                       | Test data |    |    |    |    | Result                                                                       |
|-------------|---------------------------------------|-----------|----|----|----|----|------------------------------------------------------------------------------|
|             |                                       | n1        | n2 | n3 | n4 | n5 |                                                                              |
| Surfaces    | Smooth & clean                        | OK        | OK | OK | OK | OK | <input checked="" type="checkbox"/> Accept<br><input type="checkbox"/> _____ |
|             | No scoring, cavities or other defects | OK        | OK | OK | OK | OK |                                                                              |
| Component   | No damage or other defects            | OK        | OK | OK | OK | OK |                                                                              |

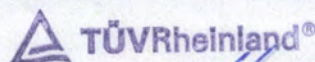
### Colour

| Description                                                                      |  | Test data |       |       |       |       | Result                                                                       |
|----------------------------------------------------------------------------------|--|-----------|-------|-------|-------|-------|------------------------------------------------------------------------------|
|                                                                                  |  | n1        | n2    | n3    | n4    | n5    |                                                                              |
| The colour of the PE parts of fittings shall be either black, yellow, or orange. |  | black     | black | black | black | black | <input checked="" type="checkbox"/> Accept<br><input type="checkbox"/> _____ |

### Marking

| Description                               |                                     | Test data       |    |    |    |    | Result                                     |
|-------------------------------------------|-------------------------------------|-----------------|----|----|----|----|--------------------------------------------|
|                                           |                                     | n1              | n2 | n3 | n4 | n5 |                                            |
| Manufacturer's name and/or trademark      |                                     | ERA             |    |    |    |    | ■ Accept<br><input type="checkbox"/> _____ |
| Nominal outside diameter(s) of pipe, dn   |                                     | dn 63 x 63      |    |    |    |    |                                            |
| Material and designation                  |                                     | PE100           |    |    |    |    |                                            |
| Design application series (ie design SDR) |                                     | SDR 11          |    |    |    |    |                                            |
| Manufacturer's information                | Production year & month             | 16. 07          |    |    |    |    | ■ Accept<br><input type="checkbox"/> _____ |
|                                           | Manufacturer producing code         | BD1ETT063063G16 |    |    |    |    |                                            |
| Label or individual bag                   | Number of the System Standard       | EN 1555-2       |    |    |    |    | ■ Accept<br><input type="checkbox"/> _____ |
|                                           | Applicable SDR fusion range of pipe | SDR 9 - 11      |    |    |    |    |                                            |
|                                           | Intended use                        | GAS             |    |    |    |    |                                            |
|                                           | Nominal pressure(For water)         |                 |    |    |    |    |                                            |

REMARK


☐ inspected ☐ reviewed ☒ witnessed  
TRK-0001

11 OCT 2016

JUDGEMENT

☒ PASS☐ FAIL



# Test report

ISSUE DATE : 2016. 10. 11

| TEST | REVIEW | APPROVAL |
|------|--------|----------|
| 郑建林  | 毛高其    | 5.7.600  |

|                      |                                                                                                                                                    |             |                                                                                                            |
|----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|-------------|------------------------------------------------------------------------------------------------------------|
| Test name            | Fittings appearance, colour, marking                                                                                                               |             |                                                                                                            |
| Product              | EF TAPPING TEE                                                                                                                                     | REF         | EN 1555-3:2010+A1:2012                                                                                     |
| Size DN              | 110 x 63 mm                                                                                                                                        | LOT         | BD1ETT110063G16                                                                                            |
| Production period    | 16. 07. 23                                                                                                                                         | Test date   | 16. 10. 11                                                                                                 |
| Size group           | <input type="checkbox"/> 1 Group: 25~ 63mm<br><input checked="" type="checkbox"/> 2 Group: 75~225mm<br><input type="checkbox"/> 3 Group: 250~630mm | Model       | HE3490-LS                                                                                                  |
|                      |                                                                                                                                                    | Origin      | Boruge                                                                                                     |
|                      |                                                                                                                                                    | Color       | <input type="checkbox"/> Yellow, <input checked="" type="checkbox"/> Black, <input type="checkbox"/> _____ |
|                      |                                                                                                                                                    | SDR(=D/t)   | <input checked="" type="checkbox"/> 11, <input type="checkbox"/> 17.6, <input type="checkbox"/> _____      |
| Nominal pressure(PN) | 16 bar                                                                                                                                             | Designation | <input checked="" type="checkbox"/> PE 100, <input type="checkbox"/> PE 80, <input type="checkbox"/> _____ |
| Production quantity  | 286 PCS                                                                                                                                            |             |                                                                                                            |

## TEST RESULT

### Appearance

| Description |                                       | Test data |    |    |    |    | Result                                                                       |
|-------------|---------------------------------------|-----------|----|----|----|----|------------------------------------------------------------------------------|
|             |                                       | n1        | n2 | n3 | n4 | n5 |                                                                              |
| Surfaces    | Smooth & clean                        | OK        | OK | OK | OK | OK | <input checked="" type="checkbox"/> Accept<br><input type="checkbox"/> _____ |
|             | No scoring, cavities or other defects | OK        | OK | OK | OK | OK |                                                                              |
| Component   | No damage or other defects            | OK        | OK | OK | OK | OK |                                                                              |

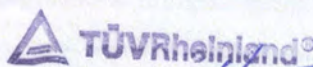
### Colour

| Description                                                                      |  | Test data |       |       |       |       | Result                                                                       |
|----------------------------------------------------------------------------------|--|-----------|-------|-------|-------|-------|------------------------------------------------------------------------------|
|                                                                                  |  | n1        | n2    | n3    | n4    | n5    |                                                                              |
| The colour of the PE parts of fittings shall be either black, yellow, or orange. |  | black     | black | black | black | black | <input checked="" type="checkbox"/> Accept<br><input type="checkbox"/> _____ |

### Marking

| Description                               |                                     | Test data       |    |    |    |    | Result                                     |
|-------------------------------------------|-------------------------------------|-----------------|----|----|----|----|--------------------------------------------|
|                                           |                                     | n1              | n2 | n3 | n4 | n5 |                                            |
| Manufacturer's name and/or trademark      |                                     | ERA             |    |    |    |    | ■ Accept<br><input type="checkbox"/> _____ |
| Nominal outside diameter(s) of pipe, dn   |                                     | dn 110 x 63     |    |    |    |    |                                            |
| Material and designation                  |                                     | PE100           |    |    |    |    |                                            |
| Design application series (ie design SDR) |                                     | SDR 11          |    |    |    |    |                                            |
| Manufacturer's information                | Production year & month             | 16. 07          |    |    |    |    | ■ Accept<br><input type="checkbox"/> _____ |
|                                           | Manufacturer producing code         | BD1ETT110063G16 |    |    |    |    |                                            |
| Label or individual bag                   | Number of the System Standard       | EN 1555-2       |    |    |    |    | ■ Accept<br><input type="checkbox"/> _____ |
|                                           | Applicable SDR fusion range of pipe | SDR 9 - 11      |    |    |    |    |                                            |
|                                           | Intended use                        | GAS             |    |    |    |    |                                            |
|                                           | Nominal pressure(For water)         |                 |    |    |    |    |                                            |

REMARK


☐ inspected ☐ reviewed ☒ witnessed  
TRK-0001

11 OCT 2016

JUDGEMENT

☒ PASS  
☐ FAIL



# Test report

ISSUE DATE : 2016. 10. 11

| TEST | REVIEW | APPROVAL |
|------|--------|----------|
| 郑建刚  | 毛德明    | J.H. Gao |

|                      |                                                        |             |                                                                                                            |
|----------------------|--------------------------------------------------------|-------------|------------------------------------------------------------------------------------------------------------|
| Test name            | Fittings appearance, colour, marking                   |             |                                                                                                            |
| Product              | EF TAPPING TEE                                         | REF         | EN 1555-3:2010+A1:2012                                                                                     |
| Size DN              | 315 x 90 mm                                            | LOT         | BD1ETT31509H16                                                                                             |
| Production period    | 16. 08. 09                                             | Test date   | 16. 10. 11                                                                                                 |
| Size group           | <input type="checkbox"/> 1 Group: 25~ 63mm             | Model       | HE3490-LS                                                                                                  |
|                      | <input type="checkbox"/> 2 Group: 75~225mm             | Origin      | Boruge                                                                                                     |
|                      | <input checked="" type="checkbox"/> 3 Group: 250~630mm | Color       | <input type="checkbox"/> Yellow, <input checked="" type="checkbox"/> Black, <input type="checkbox"/> _____ |
|                      |                                                        | SDR(=D/t)   | <input checked="" type="checkbox"/> 11, <input type="checkbox"/> 17.6, <input type="checkbox"/> _____      |
| Nominal pressure(PN) | 16 bar                                                 | Designation | <input checked="" type="checkbox"/> PE 100, <input type="checkbox"/> PE 80, <input type="checkbox"/> _____ |
| Production quantity  | 98 PCS                                                 |             |                                                                                                            |

## TEST RESULT

### Appearance

| Description |                                       | Test data |    |    |    |    | Result                                                                       |
|-------------|---------------------------------------|-----------|----|----|----|----|------------------------------------------------------------------------------|
|             |                                       | n1        | n2 | n3 | n4 | n5 |                                                                              |
| Surfaces    | Smooth & clean                        | OK        | OK | OK | OK | OK | <input checked="" type="checkbox"/> Accept<br><input type="checkbox"/> _____ |
|             | No scoring, cavities or other defects | OK        | OK | OK | OK | OK |                                                                              |
| Component   | No damage or other defects            | OK        | OK | OK | OK | OK |                                                                              |

### Colour

| Description                                                                      |  | Test data |       |       |       |       | Result                                                                       |
|----------------------------------------------------------------------------------|--|-----------|-------|-------|-------|-------|------------------------------------------------------------------------------|
|                                                                                  |  | n1        | n2    | n3    | n4    | n5    |                                                                              |
| The colour of the PE parts of fittings shall be either black, yellow, or orange. |  | black     | black | black | black | black | <input checked="" type="checkbox"/> Accept<br><input type="checkbox"/> _____ |

### Marking

| Description                               |                                     | Test data      |    |    |    |    | Result             |
|-------------------------------------------|-------------------------------------|----------------|----|----|----|----|--------------------|
|                                           |                                     | n1             | n2 | n3 | n4 | n5 |                    |
| Manufacturer's name and/or trademark      |                                     | ERA            |    |    |    |    | ■ Accept<br>□_____ |
| Nominal outside diameter(s) of pipe, dn   |                                     | dn 315 x 90    |    |    |    |    |                    |
| Material and designation                  |                                     | PE100          |    |    |    |    |                    |
| Design application series (ie design SDR) |                                     | SDR 11         |    |    |    |    |                    |
| Manufacturer's information                | Production year & month             | 16. 08         |    |    |    |    | ■ Accept<br>□_____ |
|                                           | Manufacturer producing code         | BD1ETT31509H16 |    |    |    |    |                    |
| Label or individual bag                   | Number of the System Standard       | EN 1555-2      |    |    |    |    | ■ Accept<br>□_____ |
|                                           | Applicable SDR fusion range of pipe | SDR 9 - 11     |    |    |    |    |                    |
|                                           | Intended use                        | GAS            |    |    |    |    |                    |
|                                           | Nominal pressure(For water)         |                |    |    |    |    |                    |

REMARK


☐ inspected ☐ reviewed ☒ witnessed  
TRK-0001

11 OCT 2016

JUDGEMENT

☒ PASS☐ FAIL



# Test report

ISSUE DATE : 2016. 10. 11

| TEST | REVIEW | APPROVAL |
|------|--------|----------|
| 郑建强  | 张亚钧    | J.H. Son |

|                      |                                                                                                                                                    |             |                                                                                                            |
|----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|-------------|------------------------------------------------------------------------------------------------------------|
| Test name            | Fittings electrical characteristics, geometrical characteristics                                                                                   |             |                                                                                                            |
| Product              | EF TAPPING TEE                                                                                                                                     | REF         | EN 1555-3:2010 , EN 12201-3:2012                                                                           |
| Size DN              | 63 x 63 mm                                                                                                                                         | LOT         | BD1ETT063063G16                                                                                            |
| Production period    | 16. 07. 25                                                                                                                                         | Test date   | 16. 10. 11                                                                                                 |
| Size group           | <input checked="" type="checkbox"/> 1 Group: 25~ 63mm<br><input type="checkbox"/> 2 Group: 75~225mm<br><input type="checkbox"/> 3 Group: 250~630mm | Model       | HE3490-LS                                                                                                  |
|                      |                                                                                                                                                    | Origin      | Boruge                                                                                                     |
|                      |                                                                                                                                                    | Color       | <input type="checkbox"/> Yellow, <input checked="" type="checkbox"/> Black, <input type="checkbox"/> _____ |
| Nominal pressure(PN) | 16 bar                                                                                                                                             | SDR(=D/t)   | <input checked="" type="checkbox"/> 11, <input type="checkbox"/> 17.6, <input type="checkbox"/> _____      |
| Production quantity  | 320 PCS                                                                                                                                            | Designation | <input checked="" type="checkbox"/> PE 100, <input type="checkbox"/> PE 80, <input type="checkbox"/> _____ |

## TEST CONDITION (Geometrical characteristics)

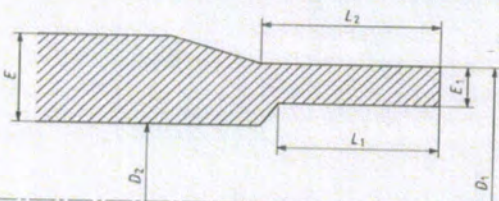
|                             |                              |              |       |       |       |
|-----------------------------|------------------------------|--------------|-------|-------|-------|
| Sampling:<br>>24h after mfg | Mfg time: 15/8/19 17:39      | Conditioning | Temp. | 23±2℃ | 23 ℃  |
|                             | Measurement time: 9/12 08:12 |              | Time  | ≥4h   | 4.5 h |

## TEST RESULT

### Electrical characteristics(At 23℃)

| Test item          | Description     | Test data |       |       |       |       | Result                                     |
|--------------------|-----------------|-----------|-------|-------|-------|-------|--------------------------------------------|
|                    |                 | n1        | n2    | n3    | n4    | n5    |                                            |
| Nominal resistance | -10%~+10+0.1Ω   | 6.225     | 6.395 | 6.514 | 6.223 | 6.221 | <input checked="" type="checkbox"/> Accept |
|                    | 6.175 ~ 6.825 Ω |           |       |       |       |       |                                            |

### Geometrical characteristics



Key  
 D<sub>1</sub> mean outside diameter of fusion end piece <sup>a</sup>  
 D<sub>2</sub> bore comprising minimum diameter of flow channel through body of fitting <sup>b</sup>  
 E body wall thickness of fitting <sup>c</sup>  
 E<sub>1</sub> fusion face wall thickness <sup>d</sup>  
 L<sub>1</sub> cut-back length of fusion end piece <sup>e</sup>  
 L<sub>2</sub> tubular length of fusion end piece <sup>f</sup>

| NO. | Test item                                              | Description (mm)         | Test data |       |       |       |       | Result                                                                 |
|-----|--------------------------------------------------------|--------------------------|-----------|-------|-------|-------|-------|------------------------------------------------------------------------|
|     |                                                        |                          | n1        | n2    | n3    | n4    | n5    |                                                                        |
| 1   | Diameters and lengths<br>Electrofusion saddle fittings | D <sub>1</sub> 63.0~63.4 | 63.2      | 63.2  | 63.3  | 63.4  | 63.2  | <input checked="" type="checkbox"/> Accept<br><input type="checkbox"/> |
|     |                                                        | D <sub>2</sub> min 49    | 51.8      | 51.5  | 51.8  | 51.6  | 51.8  |                                                                        |
|     |                                                        | L <sub>1</sub> min 25    | 120.2     | 120.2 | 120.3 | 120.2 | 120.1 |                                                                        |
|     |                                                        | L <sub>2</sub> min 63    | 99.5      | 99.4  | 99.5  | 99.5  | 99.4  |                                                                        |
|     |                                                        | E1 min 5.8               | 6.1       | 6.0   | 5.9   | 6.1   | 5.8   |                                                                        |
|     |                                                        | Rn max 0.9               | 0.3       | 0.2   | 0.3   | 0.2   | 0.3   | <input checked="" type="checkbox"/> Accept                             |

REMARK : EN ISO 3126:2005

JUDGEMENT

☒ PASS  
☐ FAIL



# Test report

ISSUE DATE : 2016. 10. 11

| TEST | REVIEW | APPROVAL |
|------|--------|----------|
| 郑新明  | 毛强明    | 5.7.507  |

|                      |                                                                  |             |                                                                                                            |
|----------------------|------------------------------------------------------------------|-------------|------------------------------------------------------------------------------------------------------------|
| Test name            | Fittings electrical characteristics, geometrical characteristics |             |                                                                                                            |
| Product              | EF TAPPING TEE                                                   | REF         | EN 1555-3:2010 , EN 12201-3:2012                                                                           |
| Size DN              | 110 x 63 mm                                                      | LOT         | BD1ETT110063G16                                                                                            |
| Production period    | 16. 07. 23                                                       | Test date   | 16. 10. 11                                                                                                 |
| Size group           | <input type="checkbox"/> 1 Group: 25~ 63mm                       | Model       | HE3490-LS                                                                                                  |
|                      | <input checked="" type="checkbox"/> 2 Group: 75~225mm            | Origin      | Boruge                                                                                                     |
|                      | <input type="checkbox"/> 3 Group: 250~630mm                      | Color       | <input type="checkbox"/> Yellow, <input checked="" type="checkbox"/> Black, <input type="checkbox"/> _____ |
| Nominal pressure(PN) | 16 bar                                                           | SDR(=D/t)   | <input checked="" type="checkbox"/> 11, <input type="checkbox"/> 17.6, <input type="checkbox"/> _____      |
| Production quantity  | 286 PCS                                                          | Designation | <input checked="" type="checkbox"/> PE 100, <input type="checkbox"/> PE 80, <input type="checkbox"/> _____ |

## TEST CONDITION (Geometrical characteristics)

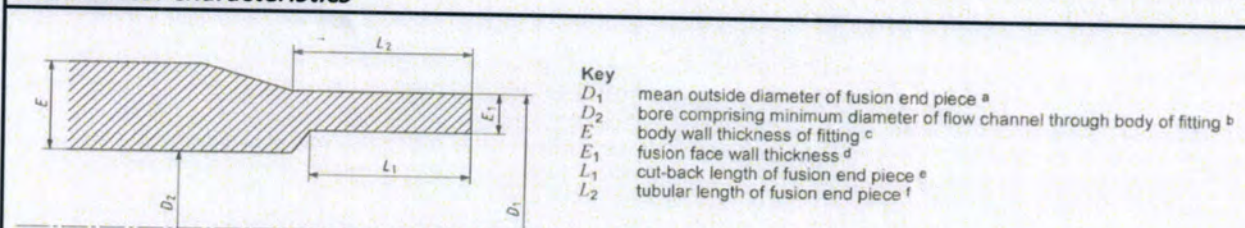
|                             |                              |              |       |        |       |
|-----------------------------|------------------------------|--------------|-------|--------|-------|
| Sampling:<br>>24h after mfg | Mfg time: 15/8/19 17:39      | Conditioning | Temp. | 23±2°C | 23 °C |
|                             | Measurement time: 9/12 08:12 |              | Time  | ≥4h    | 4.5 h |

## TEST RESULT

### Electrical characteristics(At 23°C)

| Test item          | Description     | Test data |      |      |      |      | Result                                     |
|--------------------|-----------------|-----------|------|------|------|------|--------------------------------------------|
|                    |                 | n1        | n2   | n3   | n4   | n5   |                                            |
| Nominal resistance | -10%~+10+0.1Ω   | 6.99      | 6.97 | 7.12 | 7.04 | 7.01 | <input checked="" type="checkbox"/> Accept |
|                    | 6.745 ~ 7.455 Ω |           |      |      |      |      |                                            |

### Geometrical characteristics



| NO. | Test item                                              | Description (mm)                     |                | Test data |       |       |       |       | Result |                                            |
|-----|--------------------------------------------------------|--------------------------------------|----------------|-----------|-------|-------|-------|-------|--------|--------------------------------------------|
|     |                                                        |                                      |                | n1        | n2    | n3    | n4    | n5    |        |                                            |
| 1   | Diameters and lengths<br>Electrofusion saddle fittings | EN 1555-3,<br>EN 12201-3<br>Table 3. | D <sub>1</sub> | 63.0~63.4 | 63.3  | 63.3  | 63.2  | 63.3  | 63.2   | Accept <input type="checkbox"/>            |
|     |                                                        |                                      | D <sub>2</sub> | min 49    | 51.8  | 51.5  | 51.8  | 51.6  | 51.5   |                                            |
|     |                                                        |                                      | L <sub>1</sub> | min 25    | 135.5 | 135.6 | 135.4 | 135.3 | 135.4  |                                            |
|     |                                                        |                                      | L <sub>2</sub> | min 63    | 99.9  | 99.9  | 99.9  | 99.9  | 99.6   |                                            |
|     |                                                        |                                      | E1             | min 5.8   | 6.0   | 6.1   | 5.9   | 6.1   | 6.0    |                                            |
|     |                                                        |                                      | Rn             | max 0.9   | 0.4   | 0.3   | 0.5   | 0.4   | 0.5    | Accept <input checked="" type="checkbox"/> |

REMARK : EN ISO 3126:2005

JUDGEMENT

☒ PASS  
☐ FAIL

11 OCT 2016



# Test report

ISSUE DATE : 2016. 10. 11

| TEST | REVIEW | APPROVAL |
|------|--------|----------|
| 郑建峰  | 张明     | J.H. 50m |

|                      |                                                                                                                                                    |             |                                                                                                            |
|----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|-------------|------------------------------------------------------------------------------------------------------------|
| Test name            | Fittings appearance, colour, marking                                                                                                               |             |                                                                                                            |
| Product              | EF TAPPING TEE                                                                                                                                     | REF         | EN 1555-3:2010, EN 12201-3:2012                                                                            |
| Size DN              | 315 x 90 mm                                                                                                                                        | LOT         | BD1ETT31509H16                                                                                             |
| Production period    | 16. 08. 09                                                                                                                                         | Test date   | 16. 10. 11                                                                                                 |
| Size group           | <input type="checkbox"/> 1 Group: 25~ 63mm<br><input type="checkbox"/> 2 Group: 75~225mm<br><input checked="" type="checkbox"/> 3 Group: 250~630mm | Model       | HE3490-LS                                                                                                  |
|                      |                                                                                                                                                    | Origin      | Boruge                                                                                                     |
|                      |                                                                                                                                                    | Color       | <input type="checkbox"/> Yellow, <input checked="" type="checkbox"/> Black, <input type="checkbox"/> _____ |
| Nominal pressure(PN) | 16 bar                                                                                                                                             | SDR(=D/t)   | <input checked="" type="checkbox"/> 11, <input type="checkbox"/> 17.6, <input type="checkbox"/> _____      |
| Production quantity  | 98 PCS                                                                                                                                             | Designation | <input checked="" type="checkbox"/> PE 100, <input type="checkbox"/> PE 80, <input type="checkbox"/> _____ |

## TEST CONDITION (Geometrical characteristics)

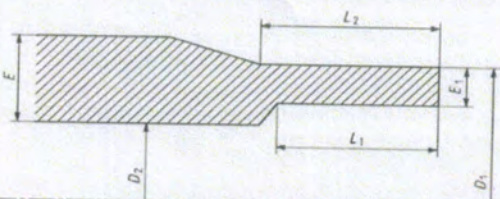
|                             |                              |              |       |        |       |
|-----------------------------|------------------------------|--------------|-------|--------|-------|
| Sampling:<br>>24h after mfg | Mfg time: 15/8/19 17:39      | Conditioning | Temp. | 23±2°C | 23 °C |
|                             | Measurement time: 9/12 08:12 |              | Time  | ≥4h    | 4.5 h |

## TEST RESULT

### Electrical characteristics(At 23°C)

| Test item          | Description     | Test data |      |      |      |      | Result                                     |
|--------------------|-----------------|-----------|------|------|------|------|--------------------------------------------|
|                    |                 | n1        | n2   | n3   | n4   | n5   |                                            |
| Nominal resistance | -10%~+10+0.1Ω   | 2.99      | 3.02 | 3.05 | 3.01 | 2.92 | <input checked="" type="checkbox"/> Accept |
|                    | 2.945 ~ 3.255 Ω |           |      |      |      |      |                                            |

### Geometrical characteristics



Key  
 $D_1$  mean outside diameter of fusion end piece <sup>a</sup>  
 $D_2$  bore comprising minimum diameter of flow channel through body of fitting <sup>b</sup>  
 $E$  body wall thickness of fitting <sup>c</sup>  
 $E_1$  fusion face wall thickness <sup>d</sup>  
 $L_1$  cut-back length of fusion end piece <sup>e</sup>  
 $L_2$  tubular length of fusion end piece <sup>f</sup>

| NO. | Test item                                              | Description (mm)                     |                | Test data |       |       |       |       | Result |                                            |
|-----|--------------------------------------------------------|--------------------------------------|----------------|-----------|-------|-------|-------|-------|--------|--------------------------------------------|
|     |                                                        |                                      |                | n1        | n2    | n3    | n4    | n5    |        |                                            |
| 1   | Diameters and lengths<br>Electrofusion saddle fittings | EN 1555-3,<br>EN 12201-3<br>Table 3. | D <sub>1</sub> | 90.0~90.6 | 110.5 | 110.5 | 110.6 | 110.4 | 110.5  | Accept <input type="checkbox"/>            |
|     |                                                        |                                      | D <sub>2</sub> | min 71    | 73.2  | 73.3  | 73.2  | 72.5  | 72.7   |                                            |
|     |                                                        |                                      | L <sub>1</sub> | min 25    | 127.3 | 127.3 | 127.3 | 127.5 | 127.5  |                                            |
|     |                                                        |                                      | L <sub>2</sub> | min 79    | 85.0  | 85.0  | 85.0  | 85.2  | 85.2   |                                            |
|     |                                                        |                                      | E1             | 8.2~9.2   | 8.3   | 8.7   | 8.6   | 8.4   | 8.3    |                                            |
|     |                                                        |                                      | Rn             | max 1.4   | 1.0   | 0.9   | 0.8   | 0.9   | 1.0    | Accept <input checked="" type="checkbox"/> |

REMARK : EN ISO 3126:2005

JUDGEMENT

☒ PASS  
☐ FAIL



# Test report

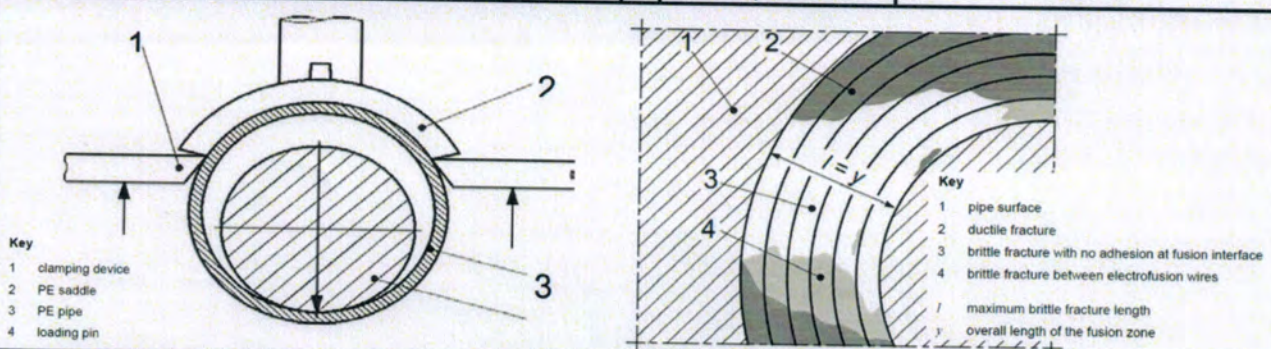
ISSUE DATE : 2016. 10. 11

| TEST | REVIEW | APPROVAL |
|------|--------|----------|
| 郑建刚  | 毛德明    | J.H.505  |

|                      |                                                                    |           |                                                                                                                     |
|----------------------|--------------------------------------------------------------------|-----------|---------------------------------------------------------------------------------------------------------------------|
| Test name            | Decohesive resistance                                              |           |                                                                                                                     |
| Product              | EF TAPPING TEE                                                     | REF       | EN 1555-3:2010, EN 12201-3:2012                                                                                     |
| Size DN              | 63 x 63 mm                                                         | Lot       | BD1ETT063063G16                                                                                                     |
| Production period    | 16. 07. 25                                                         | Test date | 16. 10. 11                                                                                                          |
| Size group           | ■ 1 Group: 25~ 63mm<br>□ 2 Group: 75~225mm<br>□ 3 Group: 250~630mm | Material  | Model<br>HE3490-LS                                                                                                  |
|                      |                                                                    |           | Origin<br>Boruge                                                                                                    |
|                      |                                                                    |           | Color<br><input type="checkbox"/> Yellow, <input checked="" type="checkbox"/> Black, <input type="checkbox"/> _____ |
| Nominal pressure(PN) | 16 bar                                                             | Pipe      | SDR(=D/t)<br>■ 11, <input type="checkbox"/> 17.6, <input type="checkbox"/> _____                                    |
| Production quantity  | 320 PCS                                                            |           | Designation<br>■ PE 100, <input type="checkbox"/> PE 80, <input type="checkbox"/> _____                             |

Test method : ISO 13956 : 2010

| TEST CONDITION |               |            |  | FUSION DATA |        |
|----------------|---------------|------------|--|-------------|--------|
| Free length    | ≥148mm        | 165 mm     |  | Resistance  | 6.38 Ω |
| After fusion   | Time 12h      | 13 h       |  | Voltage     | 40 V   |
|                | Temp. 23 ±2°C | 23 °C      |  | Fusion time | 90 sec |
| Test speeds    | 100mm/min     | 100 mm/min |  | Temperature | 22 °C  |



## TEST RESULT

| NO. | Test item                                 | Description     | Test data |    |    |    |    | Result              |
|-----|-------------------------------------------|-----------------|-----------|----|----|----|----|---------------------|
|     |                                           |                 | n1        | n2 | n3 | n4 | n5 |                     |
| 1   | brittle or ductile                        | ductile         | ductile   | -  | -  | -  | -  | ■ Accept<br>□ _____ |
| 2   | $L_d = \frac{l}{y} \times 100 (\%)$       | $L_d \leq 50\%$ | 0%        | -  | -  | -  | -  | ■ Accept<br>□ _____ |
| 3   | $A_d = \frac{A}{A_{nom}} \times 100 (\%)$ | $A_d \leq 25\%$ | 0%        | -  | -  | -  | -  | ■ Accept<br>□ _____ |

REMARK

JUDGEMENT

■ PASS  
□ FAIL



# Test report

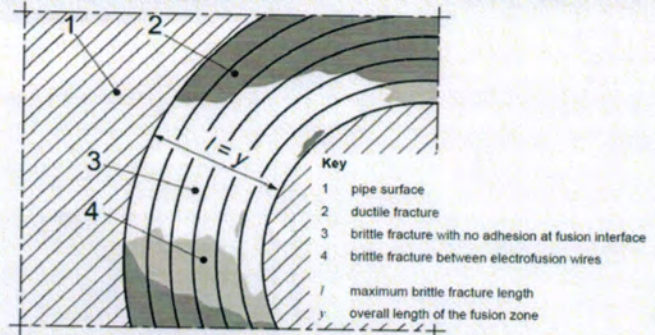
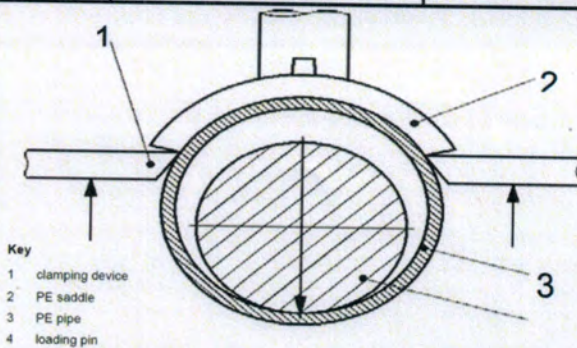
ISSUE DATE : 2016. 10. 11

| TEST | REVIEW | APPROVAL |
|------|--------|----------|
|      |        |          |

|                      |                                                       |           |                                                                                                      |
|----------------------|-------------------------------------------------------|-----------|------------------------------------------------------------------------------------------------------|
| Test name            | Decohesive resistance                                 |           |                                                                                                      |
| Product              | EF TAPPING TEE                                        | REF       | EN 1555-3:2010, EN 12201-3:2012                                                                      |
| Size DN              | 110 x 63 mm                                           | LOT       | BD1ETT110063G16                                                                                      |
| Production period    | 16. 07. 23                                            | Test date | 16. 10. 11                                                                                           |
| Size group           | <input type="checkbox"/> 1 Group: 25~ 63mm            | Material  | Model                                                                                                |
|                      | <input checked="" type="checkbox"/> 2 Group: 75~225mm |           | Origin                                                                                               |
|                      | <input type="checkbox"/> 3 Group: 250~630mm           |           | Color                                                                                                |
| Nominal pressure(PN) | 16 bar                                                | Pipe      | SDR(=D/t)                                                                                            |
| Production quantity  | 286 PCS                                               |           | Designation                                                                                          |
|                      |                                                       |           | <input checked="" type="checkbox"/> PE 100, <input type="checkbox"/> PE 80, <input type="checkbox"/> |

Test method : ISO 13956 : 2010

| TEST CONDITION |           |            |       | FUSION DATA |         |
|----------------|-----------|------------|-------|-------------|---------|
| Free length    | ≥187mm    | 200 mm     |       | Resistance  | 6.89 Ω  |
| After fusion   | Time      | 12h        | 13 h  | Voltage     | 40 V    |
|                | Temp.     | 23 ±2°C    | 23 °C | Fusion time | 120 sec |
| Test speeds    | 100mm/min | 100 mm/min |       | Temperature | 22 °C   |



## TEST RESULT

| NO.    | Test item                                 | Description     | Test data |    |    |    |    | Result                                                                    |
|--------|-------------------------------------------|-----------------|-----------|----|----|----|----|---------------------------------------------------------------------------|
|        |                                           |                 | n1        | n2 | n3 | n4 | n5 |                                                                           |
| 1      | brittle or ductile                        | ductile         | ductile   | -  | -  | -  | -  | <input checked="" type="checkbox"/> Accept<br><input type="checkbox"/>    |
| 2      | $L_d = \frac{l}{y} \times 100 (\%)$       | $L_d \leq 50\%$ | 0%        | -  | -  | -  | -  | <input checked="" type="checkbox"/> Accept<br><input type="checkbox"/>    |
| 3      | $A_d = \frac{A}{A_{nom}} \times 100 (\%)$ | $A_d \leq 25\%$ | 0%        | -  | -  | -  | -  | <input checked="" type="checkbox"/> Accept<br><input type="checkbox"/>    |
| REMARK |                                           |                 |           |    |    |    |    | JUDGEMENT                                                                 |
|        |                                           |                 |           |    |    |    |    | <input checked="" type="checkbox"/> PASS<br><input type="checkbox"/> FAIL |



# Test report

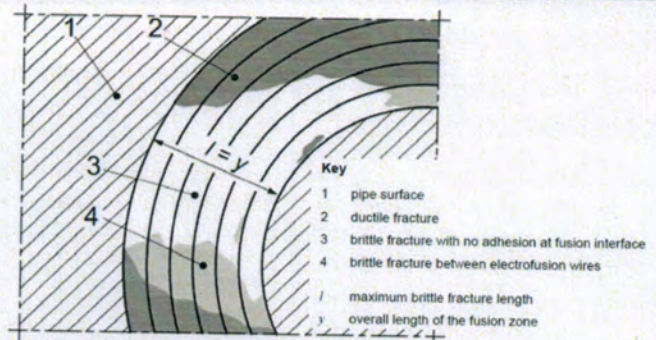
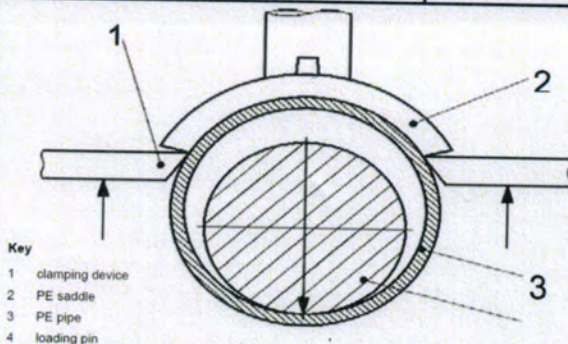
ISSUE DATE : 2016. 10. 11

| TEST | REVIEW | APPROVAL |
|------|--------|----------|
| 郑建明  | 张阳     | g.h.hon  |

|                      |                                                        |             |                                                                                                                  |
|----------------------|--------------------------------------------------------|-------------|------------------------------------------------------------------------------------------------------------------|
| Test name            | Decohesive resistance                                  |             |                                                                                                                  |
| Product              | EF TAPPING TEE                                         | REF         | EN 1555-3:2010, EN 12201-3:2012                                                                                  |
| Size DN              | 315 x 90 mm                                            | Lot         | BD1ETT31509H16                                                                                                   |
| Production period    | 16. 08. 09                                             | Test date   | 16. 10. 11                                                                                                       |
| Size group           | <input type="checkbox"/> 1 Group: 25~ 63mm             | Material    | Model HE3490-LS                                                                                                  |
|                      | <input type="checkbox"/> 2 Group: 75~225mm             |             | Origin Boruge                                                                                                    |
|                      | <input checked="" type="checkbox"/> 3 Group: 250~630mm |             | Color <input type="checkbox"/> Yellow, <input checked="" type="checkbox"/> Black, <input type="checkbox"/> _____ |
| Nominal pressure(PN) | tv                                                     | Pipe        | SDR(=D/t) <input checked="" type="checkbox"/> 11, <input type="checkbox"/> 17.6, <input type="checkbox"/> _____  |
| Production quantity  | 600 PCS                                                | Designation | <input checked="" type="checkbox"/> PE 100, <input type="checkbox"/> PE 80, <input type="checkbox"/> _____       |

Test method : ISO 13956 : 2010

| TEST CONDITION |               |            |  | FUSION DATA |         |
|----------------|---------------|------------|--|-------------|---------|
| Free length    | ≥ 328mm       | 350 mm     |  | Resistance  | 3.199 Ω |
| After fusion   | Time 12h      | 13 h       |  | Voltage     | 40 V    |
|                | Temp. 23 ±2°C | 23 °C      |  | Fusion time | 400 sec |
| Test speeds    | 100mm/min     | 100 mm/min |  | Temperature | 22 °C   |



## TEST RESULT

| NO. | Test item                                 | Description     | Test data |    |    |    |    | Result                                                                       |
|-----|-------------------------------------------|-----------------|-----------|----|----|----|----|------------------------------------------------------------------------------|
|     |                                           |                 | n1        | n2 | n3 | n4 | n5 |                                                                              |
| 1   | brittle or ductile                        | ductile         | ductile   | -  | -  | -  | -  | <input checked="" type="checkbox"/> Accept<br><input type="checkbox"/> _____ |
| 2   | $L_d = \frac{l}{y} \times 100 (\%)$       | $L_d \leq 50\%$ | 0%        | -  | -  | -  | -  | <input checked="" type="checkbox"/> Accept<br><input type="checkbox"/> _____ |
| 3   | $A_d = \frac{A}{A_{nom}} \times 100 (\%)$ | $A_d \leq 25\%$ | 0%        | -  | -  | -  | -  | <input checked="" type="checkbox"/> Accept<br><input type="checkbox"/> _____ |

REMARK

JUDGEMENT

☒ PASS  
☐ FAIL



# Hydrostatic Strength Test Report

| Designation |       | PE Compound | Manufacturing date |             | Lot Volume(Q'ty) |          |
|-------------|-------|-------------|--------------------|-------------|------------------|----------|
| fitting     | pipe  |             | fitting            | pipe        | fitting          | pipe     |
| EF T/TEE    | PIPE  | HE3490-LS   | 2016               | 2016        | 98 pcs           | 21,000 m |
| 315 X 90    | 315mm |             | 8.9                | 10.2 ~ 10.5 |                  |          |

Lot : BA1ETT315090H16

Injection molding machine No :

| Characteristi                                                                                                                  | Q'ty of Test | Test start date - End date | Tester |
|--------------------------------------------------------------------------------------------------------------------------------|--------------|----------------------------|--------|
| <input type="checkbox"/> 20°C / 100h, <input type="checkbox"/> 80°C / 165h<br><input checked="" type="checkbox"/> 80°C / 1000h | 3 pcs        | 2016.10.12~2016.11.25      | 施益民    |

| Requirements                                    | Test parameters            |                                |         |         | conditioning                                                                                       |        |
|-------------------------------------------------|----------------------------|--------------------------------|---------|---------|----------------------------------------------------------------------------------------------------|--------|
|                                                 | parameter                  | Value                          |         |         | thickness mm                                                                                       | Time h |
| No failure during test period of any test piece | End caps                   | Type a                         | Type a  | Type a  | e min < 3                                                                                          | 1      |
|                                                 |                            |                                |         |         | 3 ≤ e min < 8                                                                                      | 3      |
|                                                 | Orientation                | Free                           | Free    | Free    | 8 ≤ e min < 16                                                                                     | 6      |
|                                                 |                            |                                |         |         | 16 ≤ e min < 32                                                                                    | 10     |
|                                                 | Number of test pieces      | Shll conform to EN 1555-7:2010 |         |         | e min ≤ 32                                                                                         | 16     |
|                                                 | Type of test               | Water in water                 |         |         | Sample Type                                                                                        |        |
|                                                 |                            |                                |         |         | <input type="checkbox"/> Mass production<br><input checked="" type="checkbox"/> Developing product |        |
|                                                 | PE80 circumference stress  | 10.0 Mpa                       | 4.5 Mpa | 4.0 Mpa | Laboratory temperature                                                                             |        |
|                                                 | PE100 circumference stress | 12.0 Mpa                       | 5.4 Mpa | 5.0 Mpa |                                                                                                    |        |
|                                                 | Test temperature           | 20°C                           | 80°C    | 80°C    | 23 °C ±2                                                                                           | 23°C   |

| Test items                   |             | Sample ( n = 3, c = 0 ) / Measuring instrument : B.C, Precision: 0.01mm |                      |        |                      |        |                      |        |                      |      |  |
|------------------------------|-------------|-------------------------------------------------------------------------|----------------------|--------|----------------------|--------|----------------------|--------|----------------------|------|--|
|                              |             | Standard                                                                | n1                   |        | n2                   |        | n3                   |        | n4                   |      |  |
| Appearance                   |             | No exception                                                            | ■ Accept , □ Rejects |        | ■ Accept , □ Rejects |        | ■ Accept , □ Rejects |        | □ Accept , □ Rejects |      |  |
| EF<br>Inside<br>diam<br>eter | x           | n/a                                                                     |                      |        |                      |        |                      |        |                      |      |  |
|                              | x'          |                                                                         |                      |        |                      |        |                      |        |                      |      |  |
|                              | y           |                                                                         |                      |        |                      |        |                      |        |                      |      |  |
|                              | y'          |                                                                         |                      |        |                      |        |                      |        |                      |      |  |
|                              | AVG         |                                                                         |                      |        |                      |        |                      |        |                      |      |  |
| R. n                         |             | n/a                                                                     |                      |        |                      |        |                      |        |                      |      |  |
| Th k                         |             | n/a                                                                     |                      |        |                      |        |                      |        |                      |      |  |
| Bran<br>chi<br>&<br>PIPE     | Distinguish | branchi                                                                 | branchi              | pipe   | branchi              | pipe   | branchi              | pipe   | branchi              | pipe |  |
|                              | x           | 90.0 ~ 90.6                                                             | 90.5                 | 314.5  | 90.6                 | 314.5  | 90.7                 | 314.5  |                      |      |  |
|                              | x'          | pipe                                                                    | 90.4                 | 314.8  | 90.3                 | 314.8  | 90.5                 | 314.8  |                      |      |  |
|                              | y           | 315.0~316.9                                                             | 90.3                 | 315.6  | 90.3                 | 315.6  | 90.2                 | 315.6  |                      |      |  |
|                              | y'          | mm                                                                      | 90.1                 | 316.7  | 90.0                 | 316.7  | 90.0                 | 316.7  |                      |      |  |
|                              | AVG         |                                                                         | 90.33                | 315.40 | 90.30                | 315.40 | 90.35                | 315.40 |                      |      |  |
|                              | R. n        | 1.8 / 11.1 mm                                                           | 0.4                  | 2.2    | 0.6                  | 2.2    | 0.7                  | 2.2    |                      |      |  |
|                              | Th k        | 8.2 / 28.6 mm                                                           | 8.88                 | 30.20  | 8.93                 | 30.11  | 8.74                 | 30.02  |                      |      |  |
| Resistance                   |             | 2.945~3.255 Ω                                                           | 2.998                |        | 3.122                |        | 3.055                |        |                      |      |  |
| Fusion sigan                 |             | 400 sec                                                                 | 400 sec              |        | 400 sec              |        | 400 sec              |        |                      |      |  |
| Length of pipe               |             | min 250mm                                                               | 1,200mm              |        | 1,200mm              |        | 1,200mm              |        |                      |      |  |
| sample length                |             | -                                                                       | 2,000mm              |        | 2,000mm              |        | 2,000mm              |        |                      |      |  |
| conditioning                 |             | 10h                                                                     | 10h                  |        | 10h                  |        | 10h                  |        |                      |      |  |
| Tank                         |             | 80℃ ±1                                                                  | 80                   |        | 80                   |        | 80                   |        |                      |      |  |
| Testing pressure             |             | 1.059 MPa                                                               | 1.059                |        | 1.059                |        | 1.059                |        |                      |      |  |
| Decision                     |             | Will not be a problem<br>for more than h                                | ■ Accept             |        | ■ Accept             |        | ■ Accept             |        | □ Accept             |      |  |
|                              |             |                                                                         | □ Rejects ( h)       |        | □ Rejects ( h)       |        | □ Rejects ( h)       |        | □ Rejects ( h)       |      |  |
| Decision                     |             |                                                                         | ■ Accept □ Rejects   |        |                      |        |                      |        |                      |      |  |

• Test Specification : EN 1555-2 : 2010 / EN 1555-3:2010/ EN 12201-2 :2012/ EN 12201-3 : 2013

• Test method : EN ISO 1167-1,2

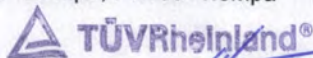
• PIPE materials : PE 80 & PE 100

• 20°C/100h : PE80=2.0Mpa, PE100=2.48Mpa

• 80°C/165h : PE80=0.92Mpa, PE100=1.1Mpa

• 80°C/100h : PE80=0.8Mpa, PE100=1.0Mpa

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30 NOV 2016

☐ inspected ☐ reviewed ☒ witnessed

TRK-0001





## Sciteq-Hammel A/S

Industrivej 13-15  
6740 Hammel  
Denmark

## 产品的详细资料

试验号码 201610141  
描述 TUV 315X90mm  
产品编号  
试验型号  
客户

## 压力测试详细资料

操作者  
站 31  
设定压力 10,59 [bar]  
滞后 0,10 [bar]  
警报 0,21 [bar]  
最大压力 10,87 [bar]  
泄漏率 5

## 压力测试结果

总的试验时间 1000:00 小时  
合格时间 1000:00 小时  
当前测试时间 1003:04 小时  
超出公差时间 3:04 小时  
电源故障时间 6:47 小时

## 压力测试温度

注意: 手动输入温度参数  
水箱设定温度 0,00 [度]

## 试验注解

## 日期

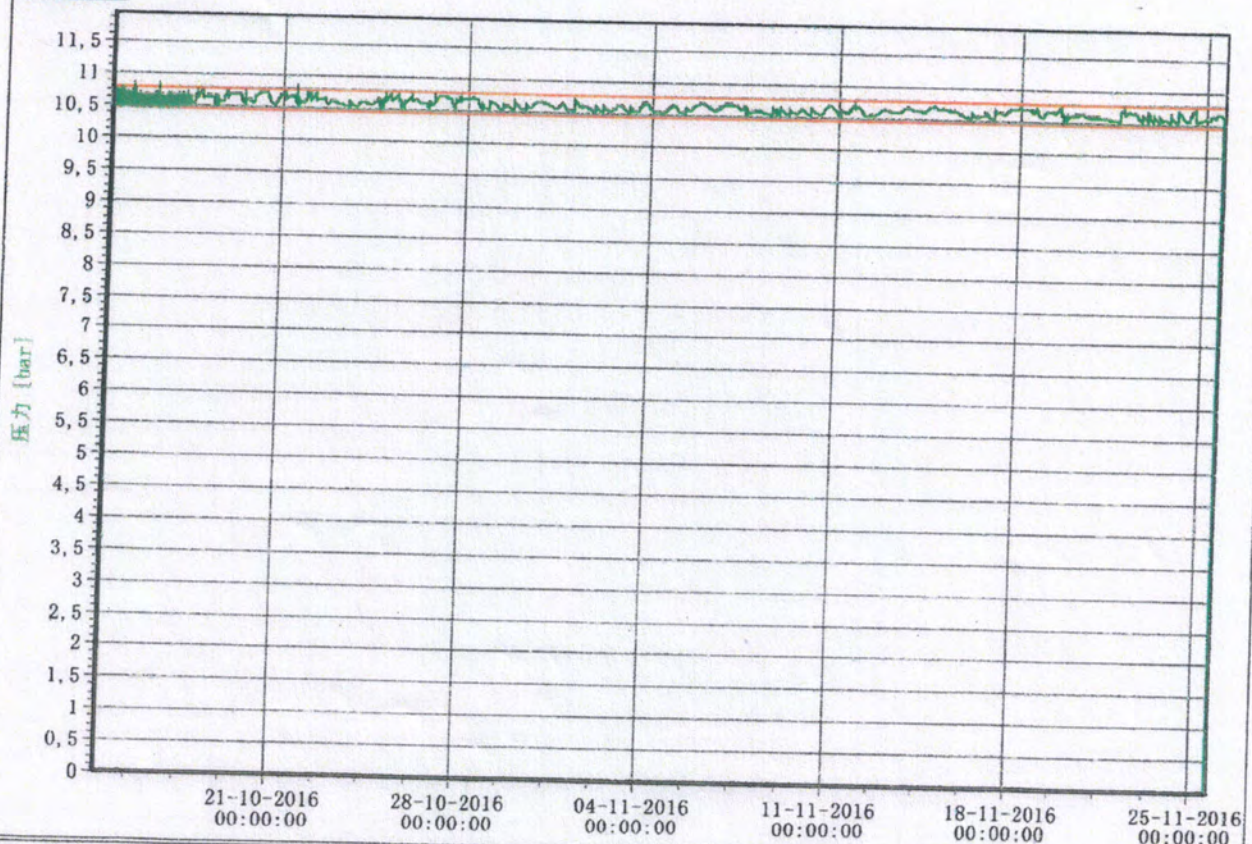
试验启动日期 14-10-2016 14:13  
测试最后日期 25-11-2016 16:07  
日期打印 30-11-2016 09:17:10



☐ inspected ☐ reviewed ☐ witnessed  
TRK-0001

30 NOV 2016

## 全部测试



Pc 版本 = 25 01 2016 8.72

0版本 = 21-05-2015

试验认可

: 日期 . . / . .



# Hydrostatic Strength Test Report

| Designation |       | PE Compound | Manufacturing date |             | Lot Volume(Q'ty) |          |
|-------------|-------|-------------|--------------------|-------------|------------------|----------|
| fitting     | pipe  |             | fitting            | pipe        | fitting          | pipe     |
| EF T/TEE    | PIPE  | HE3490-LS   | 2016               | 2016        | 286 pcs          | 48,000 m |
| 110 X 63    | 110mm |             | 7.23               | 10.2 ~ 10.5 |                  |          |

Lot : BC1ETT110063G16

Injection molding machine No :

| Characteristi                                                                                                               | Q'ty of Test | Test start date - End date | Tester |
|-----------------------------------------------------------------------------------------------------------------------------|--------------|----------------------------|--------|
| <input type="checkbox"/> 20℃ / 100h, <input type="checkbox"/> 80℃ / 165h<br><input checked="" type="checkbox"/> 80℃ / 1000h | 3 pcs        | 2016.10.12~2016.11.24      | 施益民    |

| Requirements                                    | Test parameters            |                                |         | conditioning |                                                                                                    |
|-------------------------------------------------|----------------------------|--------------------------------|---------|--------------|----------------------------------------------------------------------------------------------------|
|                                                 | parameter                  | Value                          |         |              |                                                                                                    |
| No failure during test period of any test piece | End caps                   | 100h                           | 165h    | 1000h        | thickness mm                                                                                       |
|                                                 |                            | Type a                         | Type a  | Type a       | e min < 3                                                                                          |
|                                                 |                            |                                |         |              | 3 ≤ e min < 8                                                                                      |
|                                                 | Orientation                | Free                           | Free    | Free         | 8 ≤ e min < 16                                                                                     |
|                                                 |                            |                                |         |              | 16 ≤ e min < 32                                                                                    |
|                                                 |                            |                                |         |              | e min ≤ 32                                                                                         |
|                                                 | Number of test pieces      | Shll conform to EN 1555-7:2010 |         |              | Time h                                                                                             |
|                                                 | Type of test               | Water in water                 |         |              |                                                                                                    |
|                                                 | PE80 circumference stress  | 10.0 Mpa                       | 4.5 Mpa | 4.0 Mpa      | Sample Type                                                                                        |
|                                                 | PE100 circumference stress | 12.0 Mpa                       | 5.4 Mpa | 5.0 Mpa      |                                                                                                    |
|                                                 |                            |                                |         |              | <input type="checkbox"/> Mass production<br><input checked="" type="checkbox"/> Developing product |
|                                                 |                            |                                |         |              | Laboratory temperature                                                                             |
|                                                 |                            |                                |         |              | 23 °C ±2                                                                                           |
|                                                 |                            |                                |         |              | 23 °C                                                                                              |

| Test items                   |             | Sample ( n = 3, c = 0 ) / Measuring instrument : B.C, Precision: 0.01mm |                             |        |                             |        |                             |        |                             |      |  |
|------------------------------|-------------|-------------------------------------------------------------------------|-----------------------------|--------|-----------------------------|--------|-----------------------------|--------|-----------------------------|------|--|
|                              |             | Standard                                                                | n1                          |        | n2                          |        | n3                          |        | n4                          |      |  |
| Appearance                   |             | No exception                                                            | ■ Accept , □ Rejects        |        | ■ Accept , □ Rejects        |        | ■ Accept , □ Rejects        |        | □ Accept , □ Rejects        |      |  |
| EF<br>Inside<br>diam<br>eter | x           | n/a                                                                     |                             |        |                             |        |                             |        |                             |      |  |
|                              | x'          |                                                                         |                             |        |                             |        |                             |        |                             |      |  |
|                              | y           |                                                                         |                             |        |                             |        |                             |        |                             |      |  |
|                              | y'          |                                                                         |                             |        |                             |        |                             |        |                             |      |  |
|                              | AVG         |                                                                         |                             |        |                             |        |                             |        |                             |      |  |
| R. n                         |             | n/a                                                                     |                             |        |                             |        |                             |        |                             |      |  |
| Th k                         |             | n/a                                                                     |                             |        |                             |        |                             |        |                             |      |  |
| Bran<br>chi<br>&<br>PIPE     | Distinguish | branchi                                                                 | branchi                     | pipe   | branchi                     | pipe   | branchi                     | pipe   | branchi                     | pipe |  |
|                              | x           | 63.0 ~ 63.4                                                             | 63.1                        | 110.1  | 63.4                        | 110.3  | 63.4                        | 110.3  |                             |      |  |
|                              | x'          | pipe                                                                    | 63.3                        | 110.2  | 63.2                        | 110.0  | 63.1                        | 110.1  |                             |      |  |
|                              | y           | 110.0~110.7                                                             | 63.4                        | 110.2  | 63.3                        | 110.4  | 63.5                        | 110.4  |                             |      |  |
|                              | y'          | mm                                                                      | 63.2                        | 110.1  | 63.4                        | 110.3  | 63.2                        | 110.3  |                             |      |  |
|                              | AVG         |                                                                         | 63.25                       | 110.15 | 63.33                       | 110.25 | 63.30                       | 110.28 |                             |      |  |
|                              | R. n        | 1.5 / 2.2 mm                                                            | 0.3                         | 0.1    | 0.2                         | 0.4    | 0.4                         | 0.3    |                             |      |  |
|                              | Th k        | 5.8 / 10.0 mm                                                           | 6.12                        | 10.88  | 6.02                        | 10.85  | 5.98                        | 10.82  |                             |      |  |
| Resistance                   |             | 6.745~7.453 Ω                                                           | 6.999                       |        | 6.985                       |        | 7.025                       |        |                             |      |  |
| Fusion sigan                 |             | 120 sec                                                                 | 120 s                       |        | 120 s                       |        | 120 s                       |        |                             |      |  |
| Length of pipe               |             | min 250mm                                                               | 1000mm                      |        | 1000mm                      |        | 1000mm                      |        |                             |      |  |
| sample length                |             | -                                                                       | 1,500mm                     |        | 1,500mm                     |        | 1,500mm                     |        |                             |      |  |
| conditioning                 |             | 6h                                                                      | 6h                          |        | 6h                          |        | 6h                          |        |                             |      |  |
| Tank                         |             | 80℃ ±1                                                                  | 79.9                        |        | 79.9                        |        | 79.9                        |        |                             |      |  |
| Testing pressure             |             | 1.000 MPa                                                               | 1.000                       |        | 1.000                       |        | 1.000                       |        |                             |      |  |
| Decision                     |             | Will not be a problem for more than h                                   | ■ Accept<br>□ Rejects ( h ) |        | ■ Accept<br>□ Rejects ( h ) |        | ■ Accept<br>□ Rejects ( h ) |        | □ Accept<br>□ Rejects ( h ) |      |  |
| Decision                     |             |                                                                         | ■ Accept □ Rejects          |        |                             |        |                             |        |                             |      |  |

° Test Specification : EN 1555-2 : 2010 / EN 1555-3:2010/ EN 12201-2 :2012/ EN 12201-3 : 2013

° Test method : EN ISO 1167-1,2

° PIPE materials : PE 80 & PE 100

° 20℃/100h : PE80=2.0Mpa, PE100=2.48Mpa

° 80℃/165h : PE80=0.92Mpa, PE100=1.1Mpa

° 80℃/100h : PE80=0.8Mpa, PE100=1.0Mpa

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## Sciteq-Hammel A/S

Industrivej 13-15  
6740 Hammel  
Denmark

## 产品的详细资料

试验号码 201610134  
描述 TUV 110X63mm  
产品编号  
试验型号  
客户

## 压力测试详细资料

操作者  
站 35  
设定压力 10,00 [bar]  
滞后 0,10 [bar]  
警报 0,20 [bar]  
最大压力 10,81 [bar]  
泄漏率 5

## 压力测试结果

总的试验时间 1000:00 小时  
合格时间 1000:00 小时  
当前测试时间 1001:26 小时  
超出公差时间 1:26 小时  
电源故障时间 8:15 小时

## 压力测试温度

注意: 手动输入温度参数  
水箱设定温度 0,00 [°C]

## 试验注解

## 日期

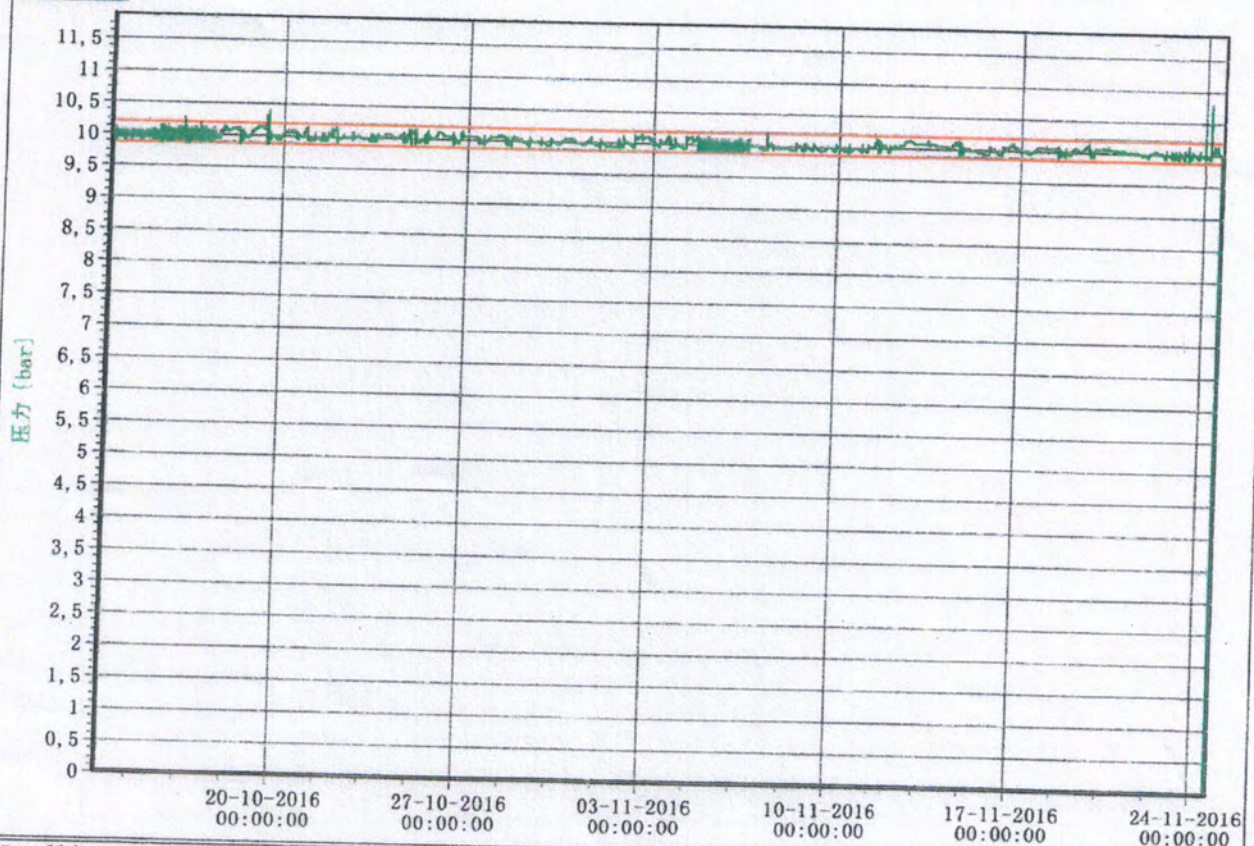
试验启动日期 13-10-2016 14:34  
测试最后日期 24-11-2016 16:16  
日期打印 30-11-2016 09:17:44



☐ inspected ☐ reviewed ☒ witnessed  
TRK-0001

30 NOV 2016

## 全部测试



Pc 版本 = 25 01 2016 8.72  
0版本 = 21-05-2015

试验认可

: 日期 . . / . .



# Hydrostatic Strength Test Report

| Designation         |           | PE Compound | Manufacturing date |                      | Lot Volume(Q'ty) |          |
|---------------------|-----------|-------------|--------------------|----------------------|------------------|----------|
| fitting             | pipe      |             | fitting            | pipe                 | fitting          | pipe     |
| EF T/TEE<br>63 X 63 | PIPE 63mm | HE3490-LS   | 2016<br>7.25       | 2016<br>10.5 ~ 10.10 | 320 pcs          | 52,000 m |

Lot : BD1ETT063063G16

Injection molding machine No :

| Characteristi                                                                                                                  | Q'ty of Test | Test start date - End date | Tester |
|--------------------------------------------------------------------------------------------------------------------------------|--------------|----------------------------|--------|
| <input type="checkbox"/> 20°C / 100h, <input type="checkbox"/> 80°C / 165h<br><input checked="" type="checkbox"/> 80°C / 1000h | 3 pcs        | 2016.10.12~2016.11.24      | 施益民    |

| Requirements                                    | Test parameters            |                                |         |         | conditioning                                                                                                      |        |
|-------------------------------------------------|----------------------------|--------------------------------|---------|---------|-------------------------------------------------------------------------------------------------------------------|--------|
|                                                 | parameter                  | Value                          |         |         | thickness mm                                                                                                      | Time h |
| No failure during test period of any test piece | End caps                   | Type a                         | Type a  | Type a  | e min < 3                                                                                                         | 1      |
|                                                 | Orientation                | Free                           | Free    | Free    | 3 ≤ e min < 8                                                                                                     | 3      |
|                                                 | Number of test pieces      | Shll conform to EN 1555-7:2010 |         |         | 8 ≤ e min < 16                                                                                                    | 6      |
|                                                 |                            |                                |         |         | 16 ≤ e min < 32                                                                                                   | 10     |
|                                                 | Type of test               | Water in water                 |         |         | e min ≤ 32                                                                                                        | 16     |
|                                                 | PE80 circumference stress  | 10.0 Mpa                       | 4.5 Mpa | 4.0 Mpa | Sample Type<br><input type="checkbox"/> Mass production<br><input checked="" type="checkbox"/> Developing product |        |
|                                                 | PE100 circumference stress | 12.0 Mpa                       | 5.4 Mpa | 5.0 Mpa |                                                                                                                   |        |
|                                                 | Test temperature           | 20°C                           | 80°C    | 80°C    | Laboratory temperature                                                                                            |        |
|                                                 |                            |                                |         |         | 23 °C ±2                                                                                                          | 23°C   |

| Test items                   |             | Sample ( n = 3, c = 0 ) / Measuring instrument : B.C, Precision: 0.01mm |                            |       |                            |       |                            |      |                            |      |  |
|------------------------------|-------------|-------------------------------------------------------------------------|----------------------------|-------|----------------------------|-------|----------------------------|------|----------------------------|------|--|
|                              |             | Standard                                                                | n1                         |       | n2                         |       | n3                         |      | n4                         |      |  |
| Appearance                   |             | No exception                                                            | ■ Accept, □ Rejects        |       | ■ Accept, □ Rejects        |       | ■ Accept, □ Rejects        |      | □ Accept, □ Rejects        |      |  |
| EF<br>Inside<br>diam<br>eter | x           | n/a                                                                     |                            |       |                            |       |                            |      |                            |      |  |
|                              | x'          |                                                                         |                            |       |                            |       |                            |      |                            |      |  |
|                              | y           |                                                                         |                            |       |                            |       |                            |      |                            |      |  |
|                              | y'          |                                                                         |                            |       |                            |       |                            |      |                            |      |  |
| AVG                          |             |                                                                         |                            |       |                            |       |                            |      |                            |      |  |
| R. n                         |             | n/a                                                                     |                            |       |                            |       |                            |      |                            |      |  |
| Th k                         |             | n/a                                                                     |                            |       |                            |       |                            |      |                            |      |  |
| Bran<br>chi<br>&<br>PIPE     | Distinguish | 63.0 ~ 63.4<br><br>mm                                                   | branchi                    | pipe  | branchi                    | pipe  | branchi                    | pipe | branchi                    | pipe |  |
|                              | x           |                                                                         | 63.3                       | 63.2  | 63.3                       | 63.1  | 63.4                       | 63.3 |                            |      |  |
|                              | x'          |                                                                         | 63.3                       | 63.2  | 63.3                       | 63.3  | 63.4                       | 63.2 |                            |      |  |
|                              | y           |                                                                         | 63.3                       | 63.3  | 63.4                       | 63.4  | 63.3                       | 63.1 |                            |      |  |
|                              | y'          |                                                                         | 63.4                       | 63.4  | 63.4                       | 63.4  | 63.4                       | 63.4 |                            |      |  |
|                              | AVG         | 63.33                                                                   | 63.28                      | 63.35 | 63.30                      | 63.38 | 63.25                      |      |                            |      |  |
|                              | R. n        | 1.5 mm                                                                  | 0.1                        | 0.2   | 0.1                        | 0.3   | 0.1                        | 0.3  |                            |      |  |
| Th k                         |             | 5.8~6.5 mm                                                              | 6.20                       | 6.12  | 6.10                       | 6.08  | 6.15                       | 6.10 |                            |      |  |
| Resistance                   |             | 6.175~6.825 Ω                                                           | 6.223                      |       | 6.342                      |       | 6.388                      |      |                            |      |  |
| Fusion sigan                 |             | 90 sec                                                                  | 90s                        |       | 90s                        |       | 90s                        |      |                            |      |  |
| Length of pipe               |             | min 250mm                                                               | 1000mm                     |       | 1000mm                     |       | 1000mm                     |      |                            |      |  |
| sample length                |             | -                                                                       | 1,500mm                    |       | 1,500mm                    |       | 1,500mm                    |      |                            |      |  |
| conditioning                 |             | 3h                                                                      | 3h                         |       | 3h                         |       | 3h                         |      |                            |      |  |
| Tank                         |             | 80℃ ±1                                                                  | 79.9                       |       | 79.9                       |       | 79.9                       |      |                            |      |  |
| Testing pressure             |             | 1.014 MPa                                                               | 1.014                      |       | 1.014                      |       | 1.014                      |      |                            |      |  |
| Decision                     |             | Will not be a problem<br>for more than h                                | ■ Accept<br>□ Rejects ( h) |       | ■ Accept<br>□ Rejects ( h) |       | ■ Accept<br>□ Rejects ( h) |      | □ Accept<br>□ Rejects ( h) |      |  |
|                              |             |                                                                         | Decision                   |       | ■ Accept □ Rejects         |       |                            |      |                            |      |  |

• Test Specification : EN 1555-2 : 2010 / EN 1555-3:2010/ EN 12201-2 :2012/ EN 12201-3 : 2013

• Test method : EN ISO 1167-1,2

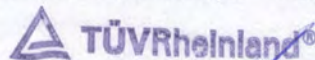
• PIPE materials : PE 80 & PE 100

• 20°C/100h : PE80=2.0Mpa, PE100=2.48Mpa

• 80°C/165h : PE80=0.92Mpa, PE100=1.1Mpa

• 80°C/100h : PE80=0.8Mpa, PE100=1.0Mpa

YONGGAO CO.,LTD 11.30.



30 NOV 2016

□ inspected □ reviewed □ witnessed

TRK-0001





## Sciteq-Hammel A/S

Industrivej 13-15  
6740 Hammel  
Denmark

## 产品的详细资料

试验号码 201610135  
描述 TUV 63X63mm  
产品编号  
试验型号  
客户

## 压力测试详细资料

操作者  
站 37  
设定压力 10,14 [bar]  
滞后 0,10 [bar]  
警报 0,20 [bar]  
最大压力 10,92 [bar]  
泄漏率 5

## 压力测试结果

总的试验时间 1000:00 小时  
合格时间 1000:00 小时  
当前测试时间 1000:30 小时  
超出公差时间 0:30 小时  
电源故障时间 8:12 小时

## 压力测试温度

注意: 手动输入温度参数  
水箱设定温度 0,00 [度]

## 试验注解

## 日期

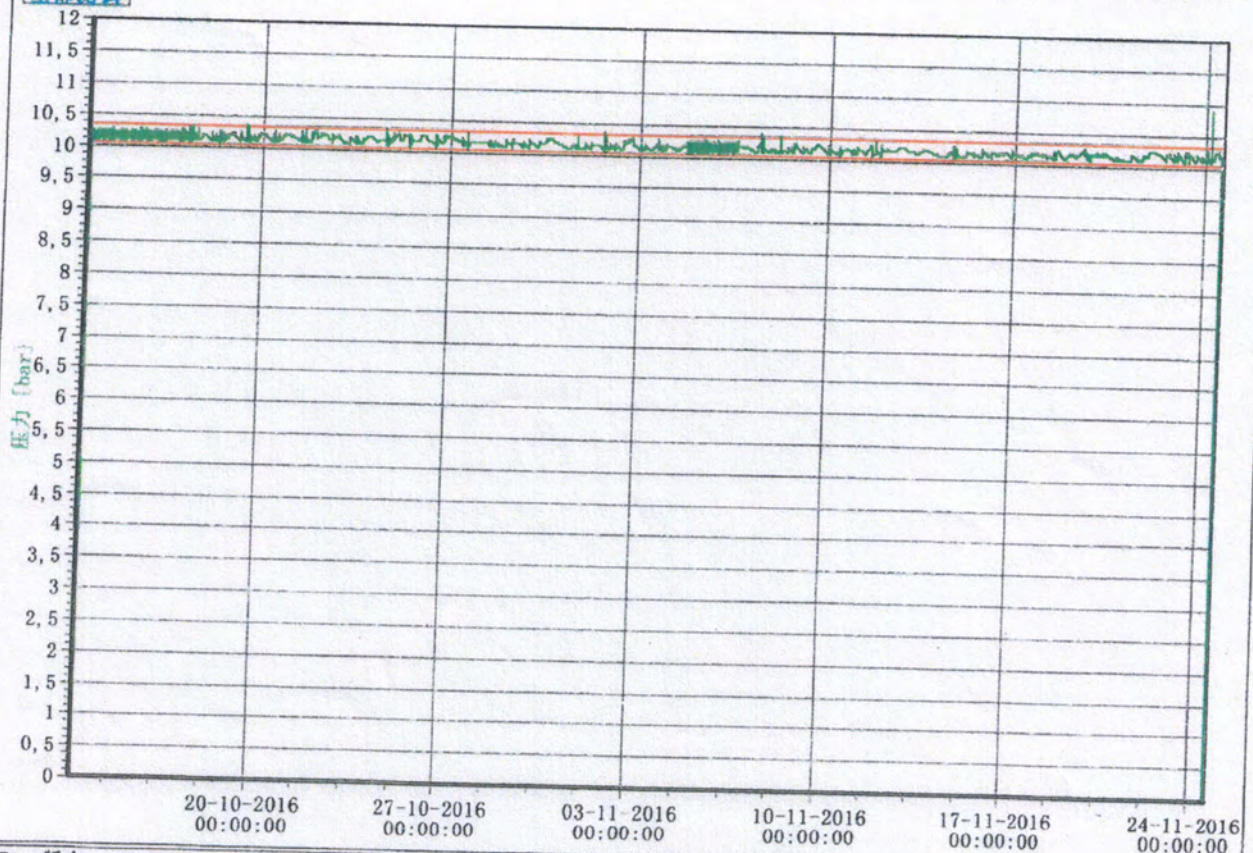
试验启动日期 13-10-2016 14:54  
测试最后日期 24-11-2016 15:39  
日期打印 30-11-2016 09:18:14



☐ Inspected ☐ reviewed ☒ witnessed  
TRK-0001

30 NOV 2016

## 全部测试



Pc 版本 = 25 01 2016 8.72

0版本 = 21-05-2015

试验认可

:

日期 . . / . .



# Hydrostatic Strength Test Report

| Designation |       | PE Compound | Manufacturing date |             | Lot Volume(Q'ty) |          |
|-------------|-------|-------------|--------------------|-------------|------------------|----------|
| fitting     | pipe  |             | fitting            | pipe        | fitting          | pipe     |
| EF T/TEE    | PIPE  | HE3490-LS   | 2016               | 2016        | 98 pcs           | 21,000 m |
| 315 X 90    | 315mm |             | 8.9                | 10.2 ~ 10.5 |                  |          |

Lot : BA1ETT315090H16

Injection molding machine No :

| Characteristi                                                                                                               | Q'ty of Test | Test start date - End date | Tester |
|-----------------------------------------------------------------------------------------------------------------------------|--------------|----------------------------|--------|
| <input type="checkbox"/> 20℃ / 100h, <input checked="" type="checkbox"/> 80℃ / 165h<br><input type="checkbox"/> 80℃ / 1000h | 3 pcs        | 2016.10.12~2016.10.21      | 施益民    |

| Requirements                                    | Test parameters            |                                |         |         | conditioning                                                                                       |        |
|-------------------------------------------------|----------------------------|--------------------------------|---------|---------|----------------------------------------------------------------------------------------------------|--------|
|                                                 | parameter                  | Value                          |         |         | thickness mm                                                                                       | Time h |
| No failure during test period of any test piece | End caps                   | Type a                         | Type a  | Type a  | e min < 3                                                                                          | 1      |
|                                                 |                            |                                |         |         | 3 ≤ e min < 8                                                                                      | 3      |
|                                                 | Orientation                | Free                           | Free    | Free    | 8 ≤ e min < 16                                                                                     | 6      |
|                                                 |                            |                                |         |         | 16 ≤ e min < 32                                                                                    | 10     |
|                                                 | Number of test pieces      | Shll conform to EN 1555-7:2010 |         |         | e min ≤ 32                                                                                         | 16     |
|                                                 | Type of test               | Water in water                 |         |         | Sample Type                                                                                        |        |
|                                                 |                            |                                |         |         | <input type="checkbox"/> Mass production<br><input checked="" type="checkbox"/> Developing product |        |
|                                                 | PE80 circumference stress  | 10.0 Mpa                       | 4.5 Mpa | 4.0 Mpa | Laboratory temperature                                                                             |        |
|                                                 | PE100 circumference stress | 12.0 Mpa                       | 5.4 Mpa | 5.0 Mpa |                                                                                                    |        |
|                                                 | Test temperature           | 20℃                            | 80℃     | 80℃     | 23℃ ±2                                                                                             | 23℃    |

| Test items                   |             | Sample ( n = 3, c = 0 ) / Measuring instrument : B.C, Precision: 0.01mm |                             |        |                             |        |                             |        |                             |      |  |
|------------------------------|-------------|-------------------------------------------------------------------------|-----------------------------|--------|-----------------------------|--------|-----------------------------|--------|-----------------------------|------|--|
|                              |             | Standard                                                                | n1                          |        | n2                          |        | n3                          |        | n4                          |      |  |
| Appearance                   |             | No exception                                                            | ■ Accept , □ Rejects        |        | ■ Accept , □ Rejects        |        | ■ Accept , □ Rejects        |        | □ Accept , □ Rejects        |      |  |
| EF<br>Inside<br>diam<br>eter | x           | n/a                                                                     |                             |        |                             |        |                             |        |                             |      |  |
|                              | x'          |                                                                         |                             |        |                             |        |                             |        |                             |      |  |
|                              | y           |                                                                         |                             |        |                             |        |                             |        |                             |      |  |
|                              | y'          |                                                                         |                             |        |                             |        |                             |        |                             |      |  |
|                              | AVG         |                                                                         |                             |        |                             |        |                             |        |                             |      |  |
| R. n                         |             | n/a                                                                     |                             |        |                             |        |                             |        |                             |      |  |
| Th k                         |             | n/a                                                                     |                             |        |                             |        |                             |        |                             |      |  |
| Bran<br>chi<br>&<br>PIPE     | Distinguish | branchi                                                                 | branchi                     | pipe   | branchi                     | pipe   | branchi                     | pipe   | branchi                     | pipe |  |
|                              | x           | 90.0 ~ 90.6                                                             | 90.5                        | 314.5  | 90.6                        | 314.5  | 90.7                        | 314.5  |                             |      |  |
|                              | x'          | pipe                                                                    | 90.4                        | 314.8  | 90.3                        | 314.8  | 90.5                        | 314.8  |                             |      |  |
|                              | y           | 315.0~316.9                                                             | 90.3                        | 315.6  | 90.3                        | 315.6  | 90.2                        | 315.6  |                             |      |  |
|                              | y'          | mm                                                                      | 90.1                        | 316.7  | 90.0                        | 316.7  | 90.0                        | 316.7  |                             |      |  |
|                              | AVG         |                                                                         | 90.33                       | 315.40 | 90.30                       | 315.40 | 90.35                       | 315.40 |                             |      |  |
|                              | R. n        | 1.8 / 11.1 mm                                                           | 0.4                         | 2.2    | 0.6                         | 2.2    | 0.7                         | 2.2    |                             |      |  |
|                              | Th k        | 8.2 / 28.6 mm                                                           | 8.88                        | 30.20  | 8.93                        | 30.11  | 8.74                        | 30.02  |                             |      |  |
| Resistance                   |             | 2.945~3.255 Ω                                                           | 2.999                       |        | 3.125                       |        | 3.089                       |        |                             |      |  |
| Fusion sigan                 |             | 400 sec                                                                 | 400 sec                     |        | 400 sec                     |        | 400 sec                     |        |                             |      |  |
| Length of pipe               |             | min 250mm                                                               | 1,200mm                     |        | 1,200mm                     |        | 1,200mm                     |        |                             |      |  |
| sample length                |             | -                                                                       | 2,000mm                     |        | 2,000mm                     |        | 2,000mm                     |        |                             |      |  |
| conditioning                 |             | 10h                                                                     | 10h                         |        | 10h                         |        | 10h                         |        |                             |      |  |
| Tank                         |             | 80°C ±1                                                                 | 80                          |        | 80                          |        | 80                          |        |                             |      |  |
| Testing pressure             |             | 1.08 MPa                                                                | 2.43                        |        | 2.43                        |        | 2.43                        |        |                             |      |  |
| Decision                     |             | Will not be a problem for more than h                                   | ■ Accept<br>□ Rejects ( h ) |        | ■ Accept<br>□ Rejects ( h ) |        | ■ Accept<br>□ Rejects ( h ) |        | □ Accept<br>□ Rejects ( h ) |      |  |
| Decision                     |             |                                                                         | ■ Accept □ Rejects          |        |                             |        |                             |        |                             |      |  |

• Test Specification : EN 1555-2 : 2010 / EN 1555-3:2010/ EN 12201-2 :2012/ EN 12201-3 : 2013

• Test method : EN ISO 1167-1,2

• PIPE materials : PE 80 & PE 100

• 20℃/100h : PE80=2.0Mpa, PE100=2.48Mpa

• 80℃/165h : PE80=0.92Mpa, PE100=1.1Mpa

• 80℃/100h : PE80=0.8Mpa, PE100=1.0Mpa

YONGGAO CO.,LTD 2016.11.30



## Sciteq-Hammel A/S

Industrivej 13-15  
6740 Hammel  
Denmark

## 产品的详细资料

试验号码 201610141  
描述 TUV 315X90mm  
产品编号  
试验型号  
客户

## 压力测试详细资料

操作者  
站 34  
设定压力 10,80 [bar]  
滞后 0,11 [bar]  
警报 0,22 [bar]  
最大压力 11,07 [bar]  
泄漏率 5

## 压力测试结果

总的试验时间 165:00 小时  
合格时间 165:00 小时  
当前测试时间 175:39 小时  
超出公差时间 10:39 小时  
电源故障时间 2:31 小时

## 压力测试温度

注意: 手动输入温度参数  
水箱设定温度 0,00 [度]

## 试验注解

## 日期

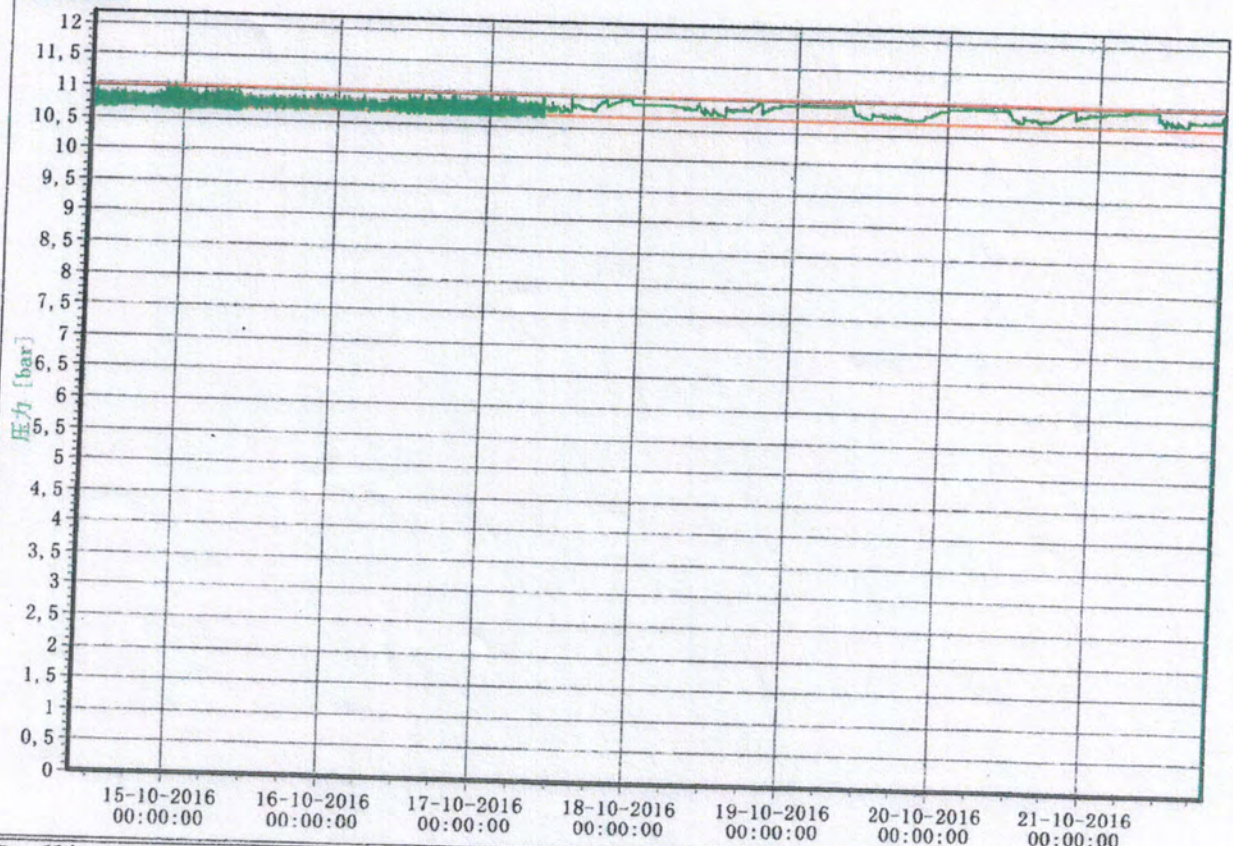
试验启动日期 14-10-2016 09:32  
测试最后日期 21-10-2016 19:44  
日期打印 30-11-2016 09:17:26

TÜVRheinland®

☐ inspected ☐ reviewed ☒ witnessed  
TRK-0001

30 NOV 2016

## 全部测试



Pc 版本 = 25 01 2016 8.72  
0版本 = 21-05-2015

试验认可

: 日期 . . / . .



# Hydrostatic Strength Test Report

| Designation |       | PE Compound | Manufacturing date |             | Lot Volume(Q'ty) |          |
|-------------|-------|-------------|--------------------|-------------|------------------|----------|
| fitting     | pipe  |             | fitting            | pipe        | fitting          | pipe     |
| EF T/TEE    | PIPE  | HE3490-LS   | 2016               | 2016        | 286 pcs          | 48,000 m |
| 110 X 63    | 110mm |             | 7.23               | 10.2 ~ 10.5 |                  |          |

Lot : BC1ETT110063G16

Injection molding machine No :

| Characteristi                                                                                                               | Q'ty of Test | Test start date - End date | Tester |
|-----------------------------------------------------------------------------------------------------------------------------|--------------|----------------------------|--------|
| <input type="checkbox"/> 20℃ / 100h, <input checked="" type="checkbox"/> 80℃ / 165h<br><input type="checkbox"/> 80℃ / 1000h | 3 pcs        | 2016.10.12~2016.10.21      | 施益民    |

| Requirements                                    | Test parameters            |                                |         |         | conditioning                                                                                       |        |
|-------------------------------------------------|----------------------------|--------------------------------|---------|---------|----------------------------------------------------------------------------------------------------|--------|
|                                                 | parameter                  | Value                          |         |         | thickness mm                                                                                       | Time h |
| No failure during test period of any test piece | End caps                   | Type a                         | Type a  | Type a  | e min < 3                                                                                          | 1      |
|                                                 |                            |                                |         |         | 3 ≤ e min < 8                                                                                      | 3      |
|                                                 | Orientation                | Free                           | Free    | Free    | 8 ≤ e min < 16                                                                                     | 6      |
|                                                 |                            |                                |         |         | 16 ≤ e min < 32                                                                                    | 10     |
|                                                 | Number of test pieces      | Shll conform to EN 1555-7:2010 |         |         | e min ≤ 32                                                                                         | 16     |
|                                                 | Type of test               | Water in water                 |         |         | Sample Type                                                                                        |        |
|                                                 |                            |                                |         |         | <input type="checkbox"/> Mass production<br><input checked="" type="checkbox"/> Developing product |        |
|                                                 |                            |                                |         |         | Laboratory temperature                                                                             |        |
|                                                 | PE80 circumference stress  | 10.0 Mpa                       | 4.5 Mpa | 4.0 Mpa | 23 °C ±2                                                                                           |        |
|                                                 | PE100 circumference stress | 12.0 Mpa                       | 5.4 Mpa | 5.0 Mpa |                                                                                                    |        |
|                                                 | Test temperature           | 20℃                            | 80℃     | 80℃     | 23℃                                                                                                |        |

| Test items                   |               | Sample ( n = 3, c = 0 ) / Measuring instrument : B.C, Precision: 0.01mm |                      |        |                      |        |                      |        |                      |      |  |
|------------------------------|---------------|-------------------------------------------------------------------------|----------------------|--------|----------------------|--------|----------------------|--------|----------------------|------|--|
|                              |               | Standard                                                                | n1                   |        | n2                   |        | n3                   |        | n4                   |      |  |
| Appearance                   |               | No exception                                                            | ■ Accept , □ Rejects |        | ■ Accept , □ Rejects |        | ■ Accept , □ Rejects |        | □ Accept , □ Rejects |      |  |
| EF<br>Inside<br>diam<br>eter | x             | n/a                                                                     |                      |        |                      |        |                      |        |                      |      |  |
|                              | x'            |                                                                         |                      |        |                      |        |                      |        |                      |      |  |
|                              | y             |                                                                         |                      |        |                      |        |                      |        |                      |      |  |
|                              | y'            |                                                                         |                      |        |                      |        |                      |        |                      |      |  |
|                              | AVG           |                                                                         |                      |        |                      |        |                      |        |                      |      |  |
| R. n                         |               | n/a                                                                     |                      |        |                      |        |                      |        |                      |      |  |
| Th k                         |               | n/a                                                                     |                      |        |                      |        |                      |        |                      |      |  |
| Bran<br>chi<br>&<br>PIPE     | Distinguish   | branchi                                                                 | branchi              | pipe   | branchi              | pipe   | branchi              | pipe   | branchi              | pipe |  |
|                              | x             | 63.0 ~ 63.4                                                             | 63.1                 | 110.1  | 63.4                 | 110.3  | 63.4                 | 110.3  |                      |      |  |
|                              | x'            |                                                                         | 63.3                 | 110.2  | 63.2                 | 110.0  | 63.1                 | 110.1  |                      |      |  |
|                              | y             | 110.0~110.7                                                             | 63.4                 | 110.2  | 63.3                 | 110.4  | 63.5                 | 110.4  |                      |      |  |
|                              | y'            |                                                                         | 63.2                 | 110.1  | 63.4                 | 110.3  | 63.2                 | 110.3  |                      |      |  |
|                              | AVG           | mm                                                                      | 63.25                | 110.15 | 63.33                | 110.25 | 63.30                | 110.28 |                      |      |  |
|                              | R. n          | 1.5 / 2.2 mm                                                            | 0.3                  | 0.1    | 0.2                  | 0.4    | 0.4                  | 0.3    |                      |      |  |
| Th k                         | 5.8 / 10.0 mm | 6.12                                                                    | 10.88                | 6.02   | 10.85                | 5.98   | 10.82                |        |                      |      |  |
| Resistance                   |               | 6.745~7.453 Ω                                                           | 6.999                |        | 6.985                |        | 7.025                |        |                      |      |  |
| Fusion sigan                 |               | 120 sec                                                                 | 120 s                |        | 120 s                |        | 120 s                |        |                      |      |  |
| Length of pipe               |               | min 250mm                                                               | 1000mm               |        | 1000mm               |        | 1000mm               |        |                      |      |  |
| sample length                |               | -                                                                       | 1,500mm              |        | 1,500mm              |        | 1,500mm              |        |                      |      |  |
| conditioning                 |               | 6h                                                                      | 6h                   |        | 6h                   |        | 6h                   |        |                      |      |  |
| Tank                         |               | 80℃ ±1                                                                  | 80                   |        | 80                   |        | 80                   |        |                      |      |  |
| Testing pressure             |               | 1.080 MPa                                                               | 1.08                 |        | 1.08                 |        | 1.08                 |        |                      |      |  |
| Decision                     |               | Will not be a problem for more than h                                   | ■ Accept             |        | ■ Accept             |        | ■ Accept             |        | □ Accept             |      |  |
|                              |               |                                                                         | □ Rejects ( h)       |        | □ Rejects ( h)       |        | □ Rejects ( h)       |        | □ Rejects ( h)       |      |  |
| Decision                     |               |                                                                         | ■ Accept □ Rejects   |        |                      |        |                      |        |                      |      |  |

• Test Specification : EN 1555-2 : 2010 / EN 1555-3:2010/ EN 12201-2 :2012/ EN 12201-3 : 2013

• Test method : EN ISO 1167-1,2

• PIPE materials : PE 80 & PE 100

• 20℃/100h : PE80=2.0Mpa, PE100=2.48Mpa

• 80℃/165h : PE80=0.92Mpa, PE100=1.1Mpa

• 80℃/100h : PE80=0.8Mpa, PE100=1.0Mpa

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## Sciteq-Hammel A/S

Industrivej 13-15  
6740 Hammel  
Denmark

## 产品的详细资料

试验号码 201610148  
描述 TUV 110X63mm  
产品编号  
试验型号  
客户

## 压力测试详细资料

操作者  
站 36  
设定压力 10,80 [bar]  
滞后 0,11 [bar]  
警报 0,22 [bar]  
最大压力 11,12 [bar]  
泄漏率 5

## 压力测试结果

总的试验时间 165:00 小时  
合格时间 165:00 小时  
当前测试时间 165:08 小时  
超出公差时间 0:08 小时  
电源故障时间 1:36 小时

## 压力测试温度

注意: 手动输入温度参数  
水箱设定温度 0,00 [°C]

## 试验注解

## 日期

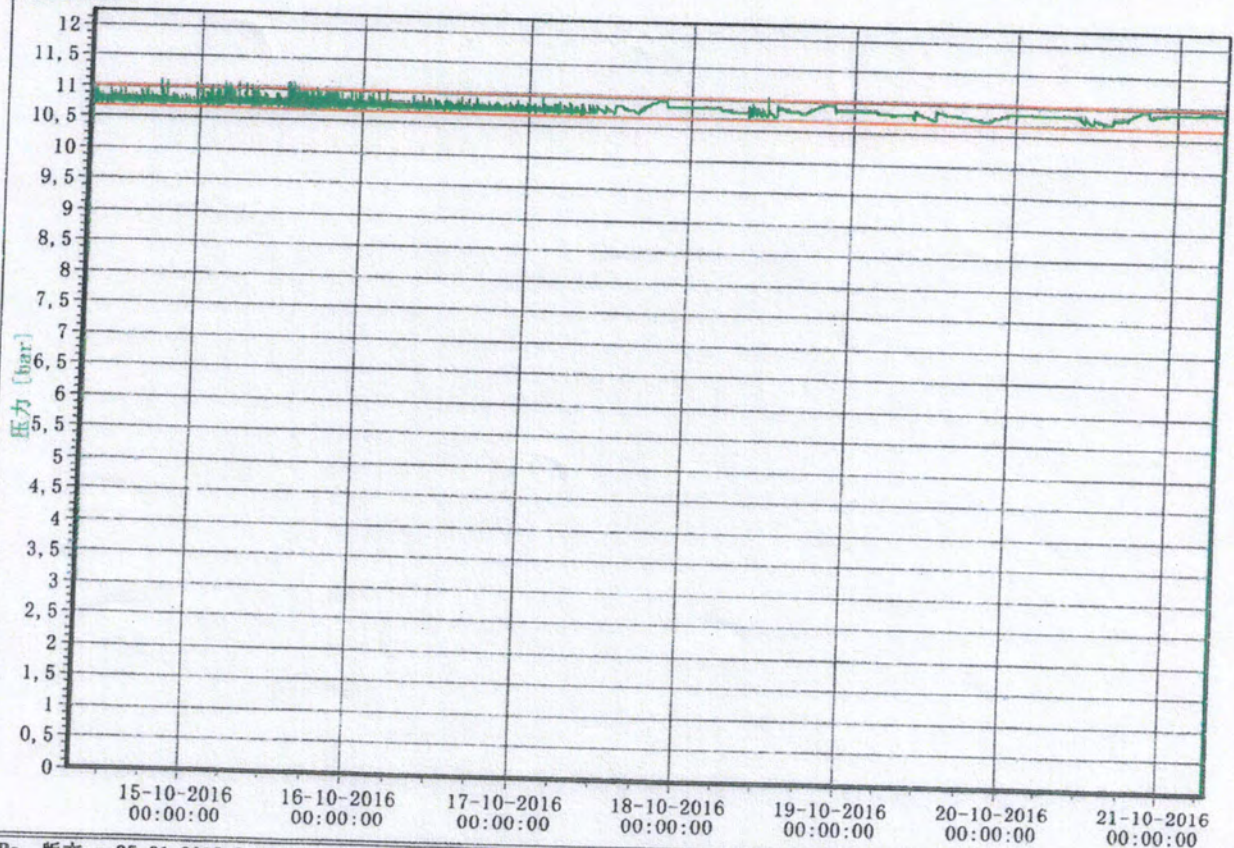
试验启动日期 14-10-2016 08:08  
测试最后日期 21-10-2016 06:53  
日期打印 30-11-2016 09:17:58



☐ inspected ☐ reviewed ☒ witnessed  
TRK-0001

30 NOV 2016

## 全部测试



Pc 版本 = 25 01 2016 8.72  
0版本 = 21-05-2015

试验认可

日期 . . / . .



# Hydrostatic Strength Test Report

| Designation         |           | PE Compound | Manufacturing date |                      | Lot Volume(Q'ty) |          |
|---------------------|-----------|-------------|--------------------|----------------------|------------------|----------|
| fitting             | pipe      |             | fitting            | pipe                 | fitting          | pipe     |
| EF T/TEE<br>63 X 63 | PIPE 63mm | HE3490-LS   | 2016<br>7.25       | 2016<br>10.5 ~ 10.10 | 320 pcs          | 52,000 m |

Lot : BD1ETT063063G16

Injection molding machine No :

| Characteristi                                                                                                                  | Q'ty of Test | Test start date - End date | Tester |
|--------------------------------------------------------------------------------------------------------------------------------|--------------|----------------------------|--------|
| <input type="checkbox"/> 20°C / 100h, <input checked="" type="checkbox"/> 80°C / 165h<br><input type="checkbox"/> 80°C / 1000h | 3 pcs        | 2016.10.12~2016.10.21      | 施益民    |

| Requirements                                    | Test parameters            |                                |         |         | conditioning                                                                                       |        |
|-------------------------------------------------|----------------------------|--------------------------------|---------|---------|----------------------------------------------------------------------------------------------------|--------|
|                                                 | parameter                  | Value                          |         |         | thickness mm                                                                                       | Time h |
| No failure during test period of any test piece | End caps                   | Type a                         | Type a  | Type a  | e min < 3                                                                                          | 1      |
|                                                 |                            |                                |         |         | 3 ≤ e min < 8                                                                                      | 3      |
|                                                 | Orientation                | Free                           | Free    | Free    | 8 ≤ e min < 16                                                                                     | 6      |
|                                                 |                            |                                |         |         | 16 ≤ e min < 32                                                                                    | 10     |
|                                                 | Number of test pieces      | Shll conform to EN 1555-7:2010 |         |         | e min ≤ 32                                                                                         | 16     |
|                                                 | Type of test               | Water in water                 |         |         | Sample Type                                                                                        |        |
|                                                 |                            |                                |         |         | <input type="checkbox"/> Mass production<br><input checked="" type="checkbox"/> Developing product |        |
|                                                 |                            |                                |         |         | Laboratory temperature                                                                             |        |
|                                                 | PE80 circumference stress  | 10.0 Mpa                       | 4.5 Mpa | 4.0 Mpa | 23 °C ±2                                                                                           |        |
|                                                 | PE100 circumference stress | 12.0 Mpa                       | 5.4 Mpa | 5.0 Mpa |                                                                                                    |        |
|                                                 | Test temperature           | 20°C                           | 80°C    | 80°C    | 23°C                                                                                               |        |

| Test items               |                                       | Sample ( n = 3, c = 0 ) / Measuring instrument : B.C, Precision: 0.01mm |                            |       |                            |       |                            |       |                            |
|--------------------------|---------------------------------------|-------------------------------------------------------------------------|----------------------------|-------|----------------------------|-------|----------------------------|-------|----------------------------|
|                          |                                       | Standard                                                                | n1                         |       | n2                         |       | n3                         |       | n4                         |
| Appearance               |                                       | No exception                                                            | ■ Accept, □ Rejects        |       | ■ Accept, □ Rejects        |       | ■ Accept, □ Rejects        |       | □ Accept, □ Rejects        |
| EF                       | x                                     | n/a                                                                     |                            |       |                            |       |                            |       |                            |
| Inside diam              | x'                                    |                                                                         |                            |       |                            |       |                            |       |                            |
|                          | y                                     |                                                                         |                            |       |                            |       |                            |       |                            |
| eter                     | y'                                    |                                                                         |                            |       |                            |       |                            |       |                            |
|                          | AVG                                   |                                                                         |                            |       |                            |       |                            |       |                            |
| R. n                     |                                       | n/a                                                                     |                            |       |                            |       |                            |       |                            |
| Th k                     |                                       | n/a                                                                     |                            |       |                            |       |                            |       |                            |
| Bran<br>chi<br>&<br>PIPE | Distinguish                           | 63.0 ~ 63.4                                                             | branchi                    | pipe  | branchi                    | pipe  | branchi                    | pipe  | branchi pipe               |
|                          | x                                     |                                                                         | 63.3                       | 63.2  | 63.3                       | 63.1  | 63.4                       | 63.3  |                            |
|                          | x'                                    |                                                                         | 63.3                       | 63.2  | 63.3                       | 63.3  | 63.4                       | 63.2  |                            |
|                          | y                                     |                                                                         | 63.3                       | 63.3  | 63.4                       | 63.4  | 63.3                       | 63.1  |                            |
|                          | y'                                    |                                                                         | 63.4                       | 63.4  | 63.4                       | 63.4  | 63.4                       | 63.4  |                            |
|                          | AVG                                   | mm                                                                      | 63.33                      | 63.28 | 63.35                      | 63.30 | 63.38                      | 63.25 |                            |
|                          | R. n                                  | 1.5 mm                                                                  | 0.1                        | 0.2   | 0.1                        | 0.3   | 0.1                        | 0.3   |                            |
|                          | Th k                                  | 5.8~6.5 mm                                                              | 6.20                       | 6.12  | 6.10                       | 6.08  | 6.15                       | 6.10  |                            |
| Resistance               |                                       | 6.175~6.825 Ω                                                           | 6.221                      |       | 6.236                      |       | 6.296                      |       |                            |
| Fusion sigan             |                                       | 90 sec                                                                  | 90s                        |       | 90s                        |       | 90s                        |       |                            |
| Length of pipe           |                                       | min 250mm                                                               | 1000mm                     |       | 1000mm                     |       | 1000mm                     |       |                            |
| sample length            |                                       | -                                                                       | 1,500mm                    |       | 1,500mm                    |       | 1,500mm                    |       |                            |
| conditioning             |                                       | 3h                                                                      | 3h                         |       | 3h                         |       | 3h                         |       |                            |
| Tank                     |                                       | 80°C ±1                                                                 | 80                         |       | 80                         |       | 80                         |       |                            |
| Testing pressure         |                                       | 1.100 MPa                                                               | 1.100                      |       | 1.100                      |       | 1.100                      |       |                            |
| Decision                 | Will not be a problem for more than h |                                                                         | ■ Accept<br>□ Rejects ( h) |       | ■ Accept<br>□ Rejects ( h) |       | ■ Accept<br>□ Rejects ( h) |       | □ Accept<br>□ Rejects ( h) |
|                          |                                       |                                                                         | ■ Accept                   |       | □ Rejects                  |       |                            |       |                            |

- Test Specification : EN 1555-2 : 2010 / EN 1555-3:2010/ EN 12201-2 :2012/ EN 12201-3 : 2013
- Test method : EN ISO 1167-1,2
- PIPE materials : PE 80 & PE 100
- 20°C/100h : PE80=2.0Mpa, PE100=2.48Mpa
- 80°C/165h : PE80=0.92Mpa, PE100=1.1Mpa
- 80°C/100h : PE80=0.8Mpa, PE100=1.0Mpa

2016.11.30.

YONGGAO CO.,LTD 2016.11.30.





## Sciteq-Hammel A/S

Industrivej 13-15  
6740 Hammel  
Denmark

## 产品的详细资料

试验号码 201610136  
描述 TUV 63X63mm  
产品编号  
试验型号  
客户

## 压力测试详细资料

操作者  
站 38  
设定压力 11,00 [bar]  
滞后 0,11 [bar]  
警报 0,22 [bar]  
最大压力 11,24 [bar]  
泄漏率 5

## 压力测试结果

总的试验时间 165:00 小时  
合格时间 165:00 小时  
当前测试时间 165:08 小时  
超出公差时间 0:08 小时  
电源故障时间 14:40 小时

## 压力测试温度

注意: 手动输入温度参数  
水箱设定温度 0,00 [°C]

## 试验注解

## 日期

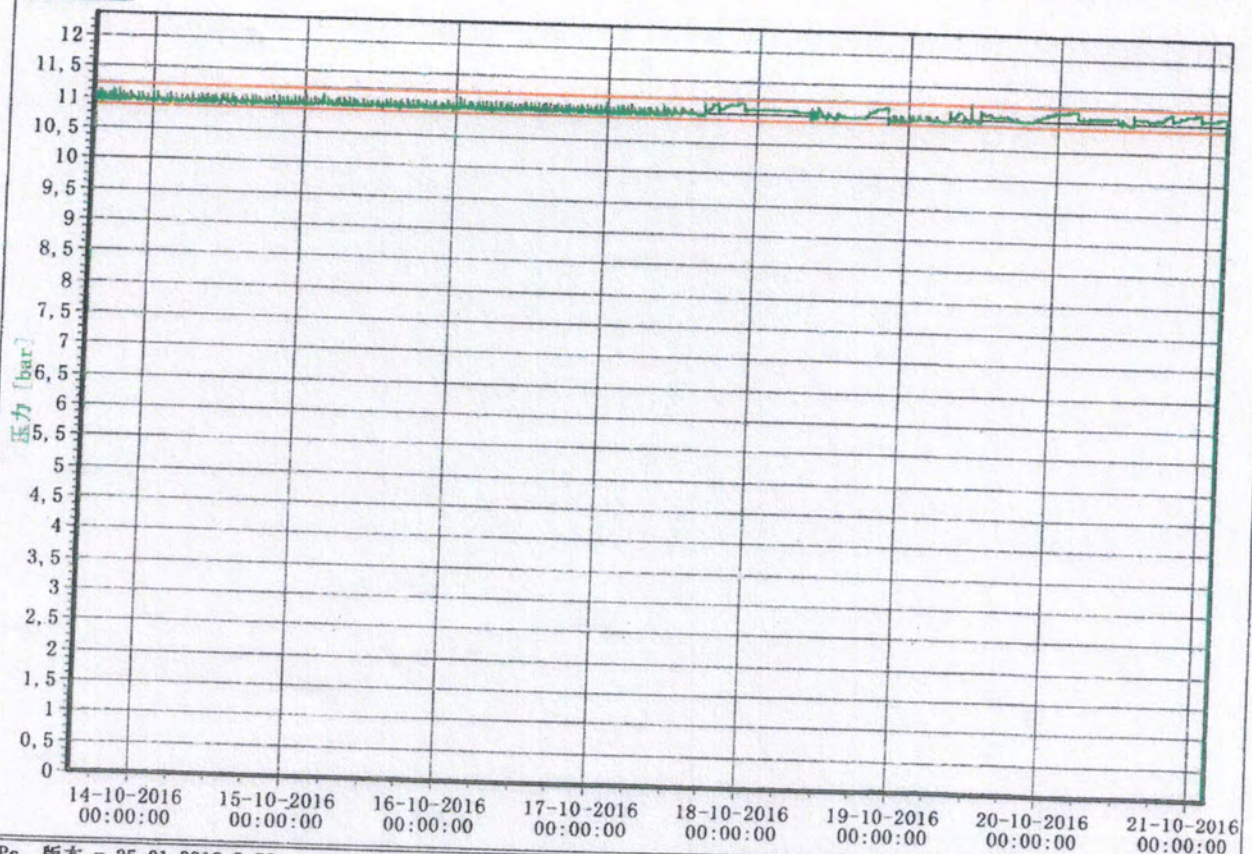
试验启动日期 13-10-2016 15:00  
测试最后日期 21-10-2016 02:50  
日期打印 30-11-2016 09:18:28



☐ inspected ☐ reviewed ☒ witnessed  
TRK-0001

30 NOV 2016

## 全部测试



Pc 版本 = 25 01 2016 8.72

0版本 = 21-05-2015

试验认可

: 日期 . . / . .



# Hydrostatic Strength Test Report

| Designation |       | PE Compound | Manufacturing date |             | Lot Volume(Q'ty) |          |
|-------------|-------|-------------|--------------------|-------------|------------------|----------|
| fitting     | pipe  |             | fitting            | pipe        | fitting          | pipe     |
| EF T/TEE    | PIPE  | HE3490-LS   | 2016               | 2016        | 98 pcs           | 21,000 m |
| 315 X 90    | 315mm |             | 8.9                | 10.2 ~ 10.5 |                  |          |

Lot : BA1ETT315090H16

Injection molding machine No :

| Characteristi                                                                                                                  | Q'ty of Test | Test start date - End date | Tester |
|--------------------------------------------------------------------------------------------------------------------------------|--------------|----------------------------|--------|
| <input checked="" type="checkbox"/> 20°C / 100h, <input type="checkbox"/> 80°C / 165h<br><input type="checkbox"/> 80°C / 1000h | 3 pcs        | 2016.10.12~2016.10.18      | 施益民    |

| Requirements                                    | Test parameters            |                                |         |         | conditioning                                                                                       |        |
|-------------------------------------------------|----------------------------|--------------------------------|---------|---------|----------------------------------------------------------------------------------------------------|--------|
|                                                 | parameter                  | Value                          |         |         | thickness mm                                                                                       | Time h |
| No failure during test period of any test piece | End caps                   | Type a                         | Type a  | Type a  | e min < 3                                                                                          | 1      |
|                                                 |                            |                                |         |         | 3 ≤ e min < 8                                                                                      | 3      |
|                                                 | Orientation                | Free                           | Free    | Free    | 8 ≤ e min < 16                                                                                     | 6      |
|                                                 |                            |                                |         |         | 16 ≤ e min < 32                                                                                    | 10     |
|                                                 | Number of test pieces      | Shll conform to EN 1555-7:2010 |         |         | e min ≤ 32                                                                                         | 16     |
|                                                 | Type of test               | Water in water                 |         |         | Sample Type                                                                                        |        |
|                                                 |                            |                                |         |         | <input type="checkbox"/> Mass production<br><input checked="" type="checkbox"/> Developing product |        |
|                                                 |                            |                                |         |         | Laboratory temperature                                                                             |        |
|                                                 | PE80 circumference stress  | 10.0 Mpa                       | 4.5 Mpa | 4.0 Mpa | 23 °C ±2                                                                                           | 23°C   |
|                                                 | PE100 circumference stress | 12.0 Mpa                       | 5.4 Mpa | 5.0 Mpa |                                                                                                    |        |
|                                                 | Test temperature           | 20°C                           | 80°C    | 80°C    |                                                                                                    |        |

| Test items               |             | Sample ( n = 3, c = 0 ) / Measuring instrument : B.C, Precision: 0.01mm |                             |        |                             |        |                             |        |                             |
|--------------------------|-------------|-------------------------------------------------------------------------|-----------------------------|--------|-----------------------------|--------|-----------------------------|--------|-----------------------------|
|                          |             | Standard                                                                | n1                          |        | n2                          |        | n3                          |        | n4                          |
| Appearance               |             | No exception                                                            | ■ Accept, □ Rejects         |        | ■ Accept, □ Rejects         |        | ■ Accept, □ Rejects         |        | □ Accept, □ Rejects         |
| EF                       | x           | n/a                                                                     |                             |        |                             |        |                             |        |                             |
|                          | x'          |                                                                         |                             |        |                             |        |                             |        |                             |
|                          | y           |                                                                         |                             |        |                             |        |                             |        |                             |
|                          | y'          |                                                                         |                             |        |                             |        |                             |        |                             |
| Inside diam              |             |                                                                         |                             |        |                             |        |                             |        |                             |
| eter                     |             |                                                                         |                             |        |                             |        |                             |        |                             |
| R. n                     |             | n/a                                                                     |                             |        |                             |        |                             |        |                             |
| Th k                     |             | n/a                                                                     |                             |        |                             |        |                             |        |                             |
| Bran<br>chi<br>&<br>PIPE | Distinguish | branchi                                                                 | branchi                     | pipe   | branchi                     | pipe   | branchi                     | pipe   | branchi pipe                |
|                          | x           | 90.0 ~ 90.6                                                             | 90.5                        | 314.5  | 90.6                        | 314.5  | 90.7                        | 314.5  |                             |
|                          | x'          |                                                                         | 90.4                        | 314.8  | 90.3                        | 314.8  | 90.5                        | 314.8  |                             |
|                          | y           | pipe                                                                    | 90.3                        | 315.6  | 90.3                        | 315.6  | 90.2                        | 315.6  |                             |
|                          | y'          | 315.0~316.9                                                             | 90.1                        | 316.7  | 90.0                        | 316.7  | 90.0                        | 316.7  |                             |
|                          | AVG         | mm                                                                      | 90.33                       | 315.40 | 90.30                       | 315.40 | 90.35                       | 315.40 |                             |
|                          | R. n        | 1.8 / 11.1 mm                                                           | 0.4                         | 2.2    | 0.6                         | 2.2    | 0.7                         | 2.2    |                             |
|                          | Th k        | 8.2 / 28.6 mm                                                           | 8.88                        | 30.20  | 8.93                        | 30.11  | 8.74                        | 30.02  |                             |
| Resistance               |             | 2.945~3.255 Ω                                                           | 2.999                       |        | 3.125                       |        | 3.089                       |        |                             |
| Fusion sigan             |             | 400 sec                                                                 | 400 sec                     |        | 400 sec                     |        | 400 sec                     |        |                             |
| Length of pipe           |             | min 250mm                                                               | 1,200mm                     |        | 1,200mm                     |        | 1,200mm                     |        |                             |
| sample length            |             | -                                                                       | 2,000mm                     |        | 2,000mm                     |        | 2,000mm                     |        |                             |
| conditioning             |             | 10h                                                                     | 10h                         |        | 10h                         |        | 10h                         |        |                             |
| Tank                     |             | 20°C ±1                                                                 | 19.8                        |        | 19.8                        |        | 19.8                        |        |                             |
| Testing pressure         |             | 2.43 MPa                                                                | 2.43                        |        | 2.43                        |        | 2.43                        |        |                             |
| Decision                 |             | Will not be a problem for more than h                                   | ■ Accept<br>□ Rejects ( h ) |        | ■ Accept<br>□ Rejects ( h ) |        | ■ Accept<br>□ Rejects ( h ) |        | □ Accept<br>□ Rejects ( h ) |
| Decision                 |             |                                                                         | ■ Accept                    |        | □ Rejects                   |        |                             |        |                             |

Test Specification : EN 1555-2 : 2010 / EN 1555-3:2010/ EN 12201-2 :2012/ EN 12201-3 : 2013

Test method : EN ISO 1167-1,2

PIPE materials : PE 80 &amp; PE 100

20°C/100h : PE80=2.0Mpa, PE100=2.48Mpa

80°C/165h : PE80=0.92Mpa, PE100=1.1Mpa

80°C/100h : PE80=0.8Mpa, PE100=1.0Mpa

YONGGAO CO., LTD



# Sciteq-Hammel A/S

Industrivej 13-15  
6740 Hammel  
Denmark

Attachment NO: 23 01 49  
belongs to Test Report No: CCC-13304284-300-1

## 产品的详细资料

试验号码 201610121  
描述 T/TEE 315X90  
产品编号  
试验型号  
客户

## 压力测试详细资料

操作者  
站 3  
设定压力 24, 30 [bar]  
滞后 0, 24 [bar]  
警报 0, 49 [bar]  
最大压力 25, 66 [bar]  
泄漏率 5

## 压力测试结果

总的试验时间 100:00 小时  
合格时间 100:00 小时  
当前测试时间 100:09 小时  
超出公差时间 0:09 小时  
电源故障时间 0:00 小时

## 压力测试温度

注意: 手动输入温度参数  
水箱设定温度 0,00 [° C]

## 试验注解

## 日期

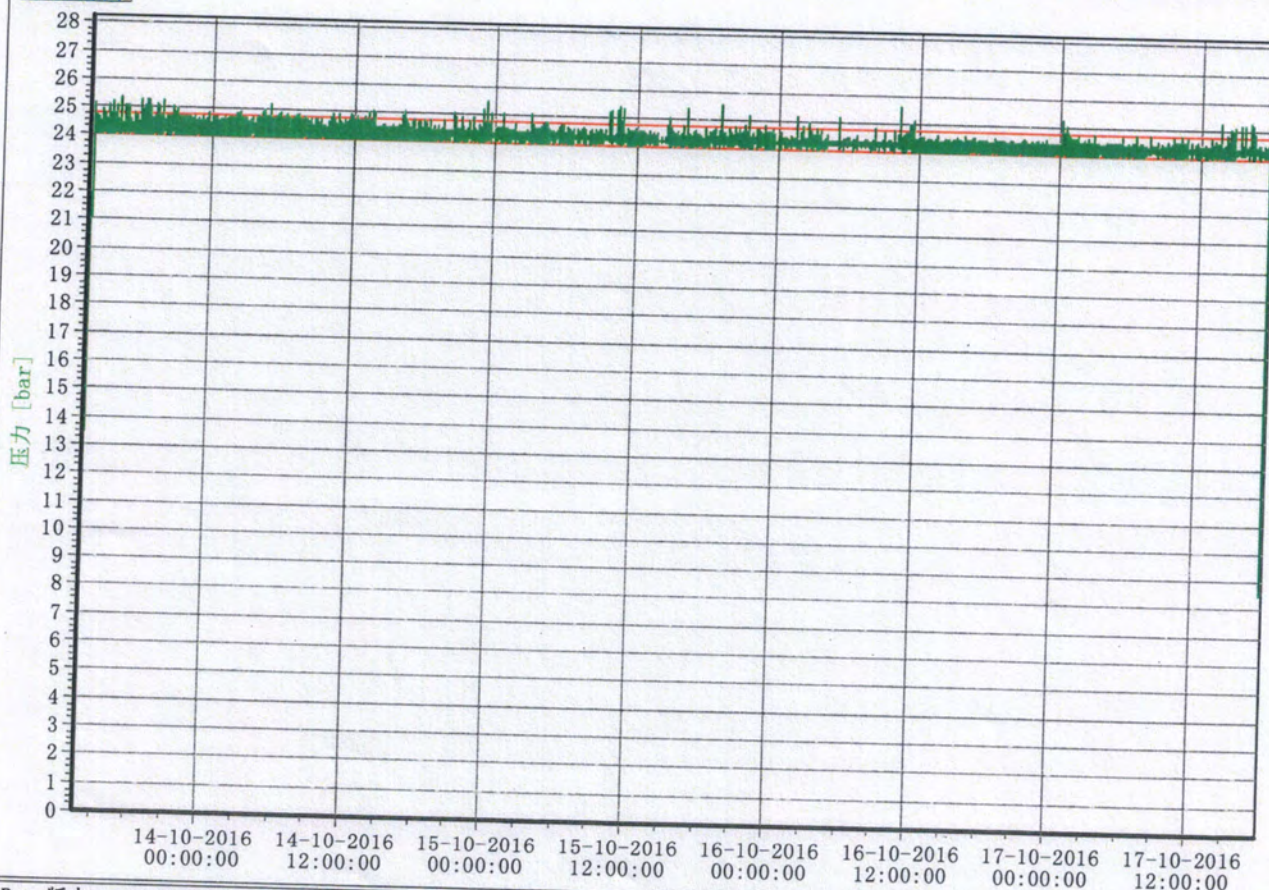
试验启动日期 13-10-2016 13:47  
测试最后日期 17-10-2016 17:56  
日期打印 18-10-2016 14:47:26



30 NOV 2016

☐ inspected ☐ reviewed ☐ witnessed  
TRK-0001

## 全部测试



Pc 版本 = 25 01 2016 8.72  
0版本 = 11-11-2014

试验认可

: 日期 . . / . .



# Hydrostatic Strength Test Report

| Designation |       | PE Compound | Manufacturing date |             | Lot Volume(Q'ty) |          |
|-------------|-------|-------------|--------------------|-------------|------------------|----------|
| fitting     | pipe  |             | fitting            | pipe        | fitting          | pipe     |
| EF T/TEE    | PIPE  | HE3490-LS   | 2016               | 2016        | 286 pcs          | 48,000 m |
| 110 X 63    | 110mm |             | 7.23               | 10.2 ~ 10.5 |                  |          |

Lot : BC1ETT110063G16

Injection molding machine No :

| Characteristi                                                                                                                  | Q'ty of Test | Test start date - End date | Tester |
|--------------------------------------------------------------------------------------------------------------------------------|--------------|----------------------------|--------|
| <input checked="" type="checkbox"/> 20°C / 100h, <input type="checkbox"/> 80°C / 165h<br><input type="checkbox"/> 80°C / 1000h | 3 pcs        | 2016.10.12~2016.10.18      | 施益民    |

| Requirements                                    | Test parameters            |                                |         |         | conditioning                                                                                                      |        |
|-------------------------------------------------|----------------------------|--------------------------------|---------|---------|-------------------------------------------------------------------------------------------------------------------|--------|
|                                                 | parameter                  | Value                          |         |         | thickness mm                                                                                                      | Time h |
| No failure during test period of any test piece | End caps                   | Type a                         | Type a  | Type a  | e min < 3                                                                                                         | 1      |
|                                                 | Orientation                | Free                           | Free    | Free    | 3 ≤ e min < 8                                                                                                     | 3      |
|                                                 | Number of test pieces      | Shll conform to EN 1555-7:2010 |         |         | 8 ≤ e min < 16                                                                                                    | 6      |
|                                                 |                            |                                |         |         | 16 ≤ e min < 32                                                                                                   | 10     |
|                                                 | Type of test               | Water in water                 |         |         | e min ≤ 32                                                                                                        | 16     |
|                                                 | PE80 circumference stress  | 10.0 Mpa                       | 4.5 Mpa | 4.0 Mpa | Sample Type<br><input type="checkbox"/> Mass production<br><input checked="" type="checkbox"/> Developing product |        |
|                                                 | PE100 circumference stress | 12.0 Mpa                       | 5.4 Mpa | 5.0 Mpa |                                                                                                                   |        |
|                                                 | Test temperature           | 20°C                           | 80°C    | 80°C    | Laboratory temperature                                                                                            |        |
|                                                 |                            |                                |         |         | 23 °C ±2                                                                                                          | 23°C   |

| Test items               |               | Sample ( n = 3, c = 0 ) / Measuring instrument : B.C, Precision: 0.01mm |                            |        |                            |        |                            |        |                            |      |  |
|--------------------------|---------------|-------------------------------------------------------------------------|----------------------------|--------|----------------------------|--------|----------------------------|--------|----------------------------|------|--|
|                          |               | Standard                                                                | n1                         |        | n2                         |        | n3                         |        | n4                         |      |  |
| Appearance               |               | No exception                                                            | ■ Accept , □ Rejects       |        | ■ Accept , □ Rejects       |        | ■ Accept , □ Rejects       |        | □ Accept , □ Rejects       |      |  |
| EF                       | x             | n/a                                                                     |                            |        |                            |        |                            |        |                            |      |  |
| Inside diam              | x'            |                                                                         |                            |        |                            |        |                            |        |                            |      |  |
|                          | y             |                                                                         |                            |        |                            |        |                            |        |                            |      |  |
|                          | y'            |                                                                         |                            |        |                            |        |                            |        |                            |      |  |
| eter                     | AVG           |                                                                         |                            |        |                            |        |                            |        |                            |      |  |
| R. n                     |               | n/a                                                                     |                            |        |                            |        |                            |        |                            |      |  |
| Th k                     |               | n/a                                                                     |                            |        |                            |        |                            |        |                            |      |  |
| Bran<br>chi<br>&<br>PIPE | Distinguish   | branchi                                                                 | branchi                    | pipe   | branchi                    | pipe   | branchi                    | pipe   | branchi                    | pipe |  |
|                          | x             | 63.0 ~ 63.4<br>pipe<br>110.0~110.7<br>mm                                | 63.1                       | 110.1  | 63.4                       | 110.3  | 63.4                       | 110.3  |                            |      |  |
|                          | x'            |                                                                         | 63.3                       | 110.2  | 63.2                       | 110.0  | 63.1                       | 110.1  |                            |      |  |
|                          | y             |                                                                         | 63.4                       | 110.2  | 63.3                       | 110.4  | 63.5                       | 110.4  |                            |      |  |
|                          | y'            |                                                                         | 63.2                       | 110.1  | 63.4                       | 110.3  | 63.2                       | 110.3  |                            |      |  |
|                          | AVG           |                                                                         | 63.25                      | 110.15 | 63.33                      | 110.25 | 63.30                      | 110.28 |                            |      |  |
|                          | R. n          | 1.5 / 2.2 mm                                                            | 0.3                        | 0.1    | 0.2                        | 0.4    | 0.4                        | 0.3    |                            |      |  |
| Th k                     | 5.8 / 10.0 mm | 6.12                                                                    | 10.88                      | 6.02   | 10.85                      | 5.98   | 10.82                      |        |                            |      |  |
| Resistance               |               | 6.745~7.453 Ω                                                           | 6.999                      |        | 6.985                      |        | 7.025                      |        |                            |      |  |
| Fusion sigan             |               | 120 sec                                                                 | 120 s                      |        | 120 s                      |        | 120 s                      |        |                            |      |  |
| Length of pipe           |               | min 250mm                                                               | 1000mm                     |        | 1000mm                     |        | 1000mm                     |        |                            |      |  |
| sample length            |               | -                                                                       | 1,500mm                    |        | 1,500mm                    |        | 1,500mm                    |        |                            |      |  |
| conditioning             |               | 6h                                                                      | 6h                         |        | 6h                         |        | 6h                         |        |                            |      |  |
| Tank                     |               | 20°C ±1                                                                 | 19.8                       |        | 19.8                       |        | 19.8                       |        |                            |      |  |
| Testing pressure         |               | 2.43 MPa                                                                | 2.43                       |        | 2.43                       |        | 2.43                       |        |                            |      |  |
| Decision                 |               | Will not be a problem<br>for more than h                                | ■ Accept<br>□ Rejects ( h) |        | ■ Accept<br>□ Rejects ( h) |        | ■ Accept<br>□ Rejects ( h) |        | □ Accept<br>□ Rejects ( h) |      |  |
| Decision                 |               |                                                                         | ■ Accept □ Rejects         |        |                            |        |                            |        |                            |      |  |

• Test Specification : EN 1555-2 : 2010 / EN 1555-3:2010/ EN 12201-2 :2012/ EN 12201-3 : 2013

• Test method : EN ISO 1167-1,2

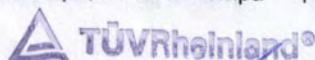
• PIPE materials : PE 80 & PE 100

• 20°C/100h : PE80=2.0Mpa, PE100=2.48Mpa

• 80°C/165h : PE80=0.92Mpa, PE100=1.1Mpa

• 80°C/100h : PE80=0.8Mpa, PE100=1.0Mpa

YONGGAO CO.,LTD



30 NOV 2016

☐ inspected ☐ reviewed ☒ witnessed  
 TRK-0001





# Sciteq-Hammel A/S

Industrivej 13-15  
6740 Hammel  
Denmark

TÜVRheinland®

Attachment NO: 25 05 49  
belongs to Test Report No: COL-13304204-300-1

## 产品的详细资料

试验号码 20161012  
描述 T/TEE110X63  
产品编号  
试验型号  
客户

## 压力测试详细资料

操作者  
站 4  
设定压力 24, 30 [bar]  
滞后 0, 24 [bar]  
警报 0, 49 [bar]  
最大压力 25, 23 [bar]  
泄漏率 5

## 压力测试结果

总的试验时间 100:00 小时  
合格时间 100:00 小时  
当前测试时间 100:04 小时  
超出公差时间 0:04 小时  
电源故障时间 0:00 小时

## 压力测试温度

注意: 手动输入温度参数  
水箱设定温度 0, 00 [° C]

## 试验注解

## 日期

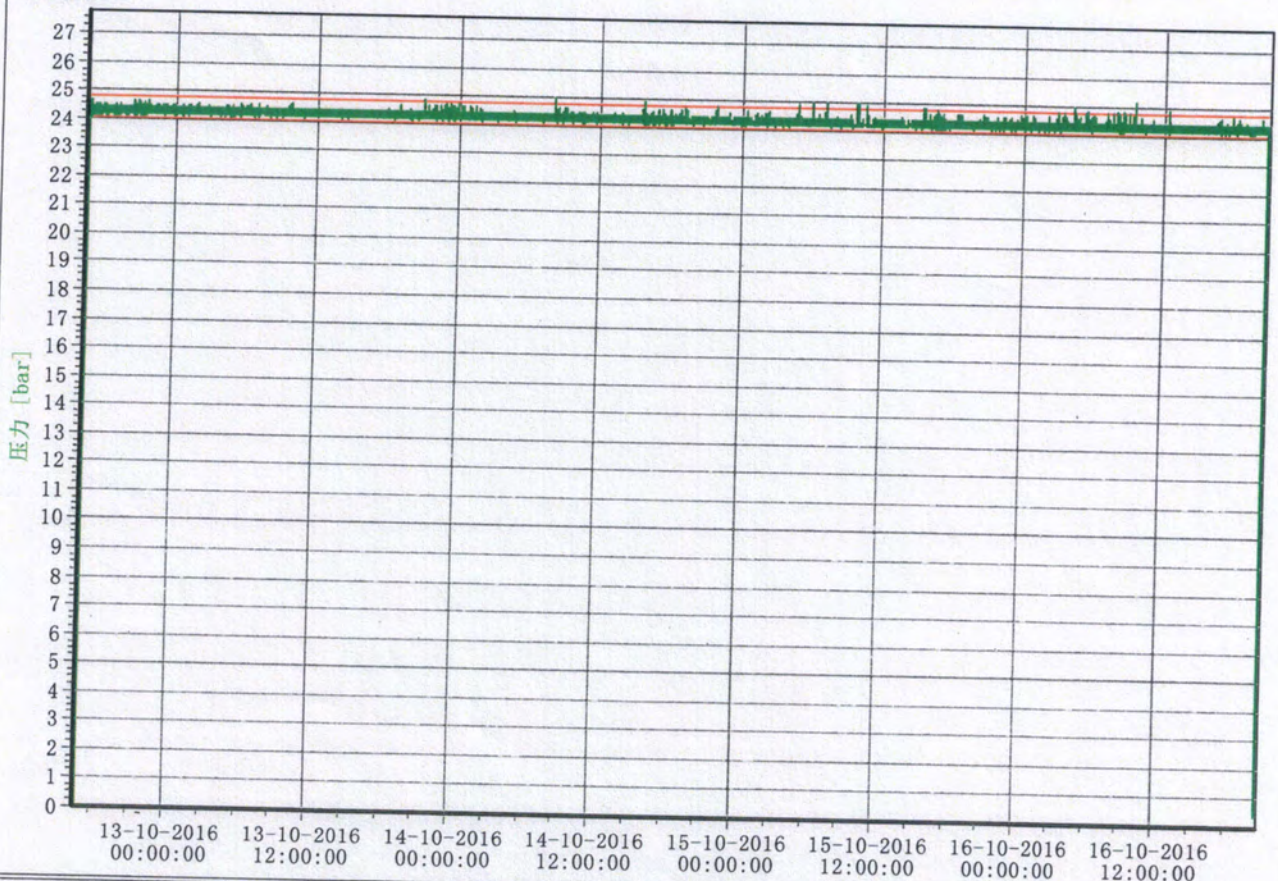
试验启动日期 12-10-2016 16:43  
测试最后日期 16-10-2016 20:47  
日期打印 18-10-2016 14:48:41

TÜVRheinland®

☐ inspected ☐ reviewed ☒ witnessed  
TRK-0001

30 NOV 2016

## 全部测试



Pc 版本 = 25 01 2016 8.72

0版本 = 11-11-2014

试验认可

: 日期 . . / . .



# Hydrostatic Strength Test Report

| Designation         |           | PE Compound | Manufacturing date |                      | Lot Volume(Q'ty) |          |
|---------------------|-----------|-------------|--------------------|----------------------|------------------|----------|
| fitting             | pipe      |             | fitting            | pipe                 | fitting          | pipe     |
| EF T/TEE<br>63 X 63 | PIPE 63mm | HE3490-LS   | 2016<br>7.25       | 2016<br>10.5 ~ 10.10 | 320 pcs          | 52,000 m |

Lot : BD1ETT063063G16

Injection molding machine No :

| Characteristi                                                                                                                  | Q'ty of Test | Test start date - End date | Tester |
|--------------------------------------------------------------------------------------------------------------------------------|--------------|----------------------------|--------|
| <input checked="" type="checkbox"/> 20°C / 100h, <input type="checkbox"/> 80°C / 165h<br><input type="checkbox"/> 80°C / 1000h | 3 pcs        | 2016.10.12~2016.10.18      | 施益民    |

| Requirements                                    | Test parameters            |                                |         |         | conditioning                                                                                                      |        |
|-------------------------------------------------|----------------------------|--------------------------------|---------|---------|-------------------------------------------------------------------------------------------------------------------|--------|
|                                                 | parameter                  | Value                          |         |         | thickness mm                                                                                                      | Time h |
| No failure during test period of any test piece | End caps                   | Type a                         | Type a  | Type a  | e min < 3                                                                                                         | 1      |
|                                                 | Orientation                | Free                           | Free    | Free    | 3 ≤ e min < 8                                                                                                     | 3      |
|                                                 | Number of test pieces      | Shll conform to EN 1555-7:2010 |         |         | 8 ≤ e min < 16                                                                                                    | 6      |
|                                                 |                            |                                |         |         | 16 ≤ e min < 32                                                                                                   | 10     |
|                                                 | Type of test               | Water in water                 |         |         | e min ≤ 32                                                                                                        | 16     |
|                                                 | PE80 circumference stress  | 10.0 Mpa                       | 4.5 Mpa | 4.0 Mpa | Sample Type<br><input type="checkbox"/> Mass production<br><input checked="" type="checkbox"/> Developing product |        |
|                                                 | PE100 circumference stress | 12.0 Mpa                       | 5.4 Mpa | 5.0 Mpa |                                                                                                                   |        |
|                                                 | Test temperature           | 20°C                           | 80°C    | 80°C    | Laboratory temperature                                                                                            |        |
|                                                 |                            |                                |         |         | 23 °C ±2                                                                                                          | 23°C   |

| Test items       |             | Sample ( n = 3, c = 0 ) / Measuring instrument : B.C, Precision: 0.01mm |                            |       |                            |       |                            |       |                            |      |  |
|------------------|-------------|-------------------------------------------------------------------------|----------------------------|-------|----------------------------|-------|----------------------------|-------|----------------------------|------|--|
|                  |             | Standard                                                                | n1                         |       | n2                         |       | n3                         |       | n4                         |      |  |
| Appearance       |             | No exception                                                            | ■ Accept , □ Rejects       |       | ■ Accept , □ Rejects       |       | ■ Accept , □ Rejects       |       | □ Accept , □ Rejects       |      |  |
| EF               | x           | n/a                                                                     |                            |       |                            |       |                            |       |                            |      |  |
| Inside diam eter | x'          |                                                                         |                            |       |                            |       |                            |       |                            |      |  |
|                  | y           |                                                                         |                            |       |                            |       |                            |       |                            |      |  |
|                  | y'          |                                                                         |                            |       |                            |       |                            |       |                            |      |  |
|                  | AVG         |                                                                         |                            |       |                            |       |                            |       |                            |      |  |
| R. n             | n/a         |                                                                         |                            |       |                            |       |                            |       |                            |      |  |
| Thk              |             | n/a                                                                     |                            |       |                            |       |                            |       |                            |      |  |
| Branchi & PIPE   | Distinguish | 63.0 ~ 63.4                                                             | branchi                    | pipe  | branchi                    | pipe  | branchi                    | pipe  | branchi                    | pipe |  |
|                  | x           |                                                                         | 63.3                       | 63.2  | 63.3                       | 63.1  | 63.4                       | 63.3  |                            |      |  |
|                  | x'          |                                                                         | 63.3                       | 63.2  | 63.3                       | 63.3  | 63.4                       | 63.2  |                            |      |  |
|                  | y           |                                                                         | 63.3                       | 63.3  | 63.4                       | 63.4  | 63.3                       | 63.1  |                            |      |  |
|                  | y'          |                                                                         | 63.4                       | 63.4  | 63.4                       | 63.4  | 63.4                       | 63.4  |                            |      |  |
|                  | AVG         | mm                                                                      | 63.33                      | 63.28 | 63.35                      | 63.30 | 63.38                      | 63.25 |                            |      |  |
|                  | R. n        | 1.5 mm                                                                  | 0.1                        | 0.2   | 0.1                        | 0.3   | 0.1                        | 0.3   |                            |      |  |
| Thk              |             | 5.8~6.5 mm                                                              | 6.20                       | 6.12  | 6.10                       | 6.08  | 6.15                       | 6.10  |                            |      |  |
| Resistance       |             | 6.175~6.825 Ω                                                           | 6.225                      |       | 6.282                      |       | 6.395                      |       |                            |      |  |
| Fusion sigan     |             | 90 sec                                                                  | 90s                        |       | 90s                        |       | 90s                        |       |                            |      |  |
| Length of pipe   |             | min 250mm                                                               | 1000mm                     |       | 1000mm                     |       | 1000mm                     |       |                            |      |  |
| sample length    |             | -                                                                       | 1,500mm                    |       | 1,500mm                    |       | 1,500mm                    |       |                            |      |  |
| conditioning     |             | 3h                                                                      | 3h                         |       | 3h                         |       | 3h                         |       |                            |      |  |
| Tank             |             | 20°C ±1                                                                 | 19.8                       |       | 19.8                       |       | 19.8                       |       |                            |      |  |
| Testing pressure |             | 2.43 MPa                                                                | 2.433                      |       | 2.433                      |       | 2.433                      |       |                            |      |  |
| Decision         |             | Will not be a problem for more than h                                   | ■ Accept<br>□ Rejects ( h) |       | ■ Accept<br>□ Rejects ( h) |       | ■ Accept<br>□ Rejects ( h) |       | □ Accept<br>□ Rejects ( h) |      |  |
| Decision         |             |                                                                         | ■ Accept      □ Rejects    |       |                            |       |                            |       |                            |      |  |

• Test Specification : EN 1555-2 : 2010 / EN 1555-3:2010/ EN 12201-2 :2012/ EN 12201-3 : 2013

• Test method : EN ISO 1167-1,2

• PIPE materials : PE 80 & PE 100

• 20°C/100h : PE80=2.0Mpa, PE100=2.48Mpa

• 80°C/165h : PE80=0.92Mpa, PE100=1.1Mpa

• 80°C/100h : PE80=0.8Mpa, PE100=1.0Mpa

YONGGAO CO.,LTD



# Sciteq-Hammel A/S

Industrivej 13-15  
6740 Hammel  
Denmark

TÜVRheinland®

Attachment NO: 27 06 49  
belongs to Test Report No: coc-133042-AP4-300

## 产品的详细资料

试验号码 20161012  
描述 T/TEE63X63  
产品编号  
试验型号  
客户

## 压力测试详细资料

操作者  
站 1  
设定压力 24,30 [bar]  
滞后 0,24 [bar]  
警报 0,49 [bar]  
最大压力 24,71 [bar]  
泄漏率 5

## 压力测试结果

总的试验时间 100:00 小时  
合格时间 100:00 小时  
当前测试时间 100:09 小时  
超出公差时间 0:09 小时  
电源故障时间 0:00 小时

## 压力测试温度

水箱编号 4  
最大温度 0,00 [°C]  
最小温度 0,00 [°C]

## 试验注解

## 日期

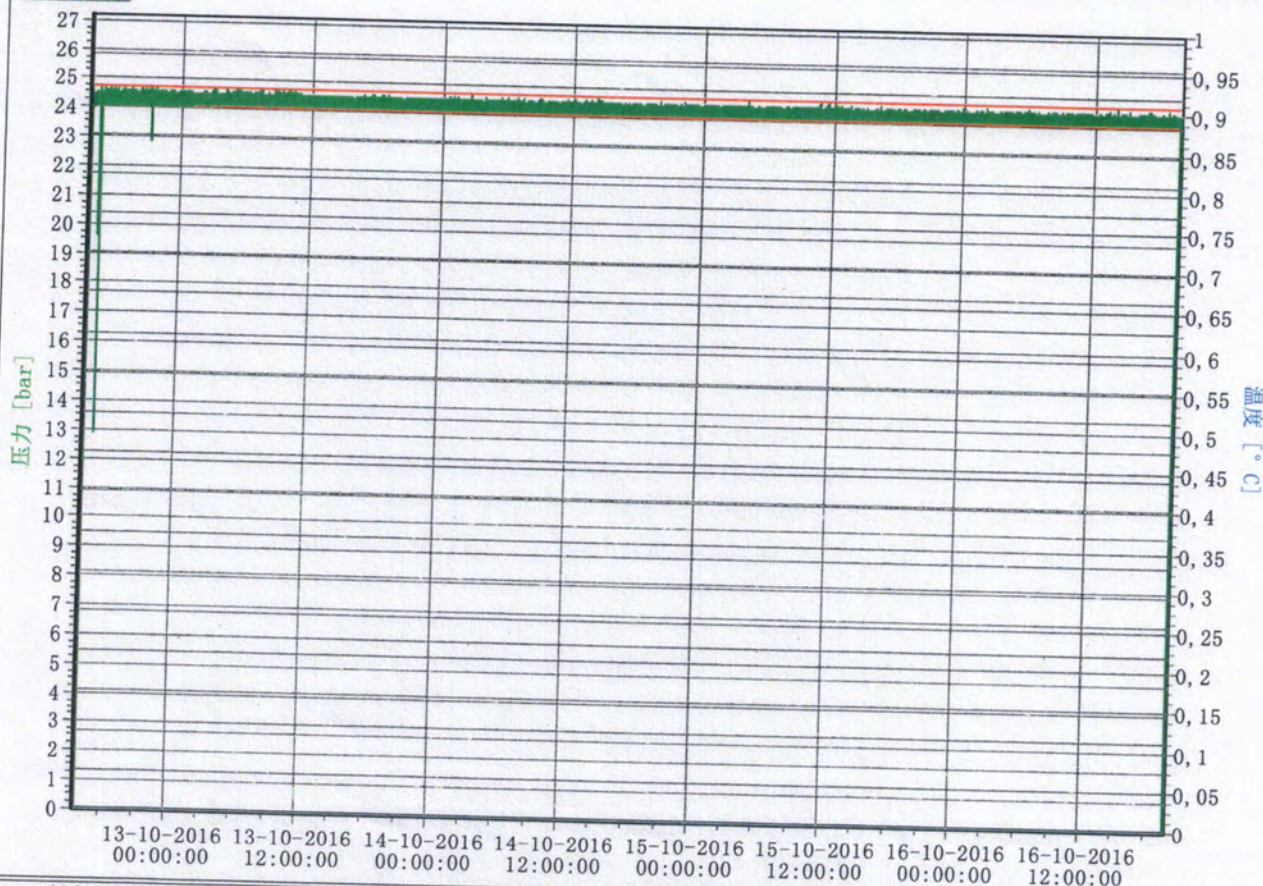
试验启动日期 12-10-2016 15:46  
测试最后日期 16-10-2016 19:56  
日期打印 18-10-2016 14:46:01

TÜVRheinland®

☐ inspected ☒ reviewed ☒ witnessed  
TRK-0001

30 NOV 2016

## 全部测试



Pc 版本 = 25 01 2016 8.72  
0版本 = 11-11-2014

试验认可

:

日期 . . / . .



**CERTIFICATE OF ANALYSIS**

To Whom it May Concern

**Product** HE3490LS **Date** 23.05.2016 **Your Reference** VH160522 **Our Reference** 5200517323 **Packaging** Bags

| Batch 1316074                   | Production date 26.02.2016 | Quantity 99,000.000 KG |       |
|---------------------------------|----------------------------|------------------------|-------|
| Property                        | Reference Test Method      | Unit                   | Value |
| Melt Flow Rate(190°C/5.0kg)     | B192 (ISO-1133)            | g/10 min               | 0.22  |
| Density                         | B292 (ISO-1183)            | kg/m³                  | 960   |
| Carbon Black Content            | B184 (ISO-6964)            | %                      | 2.18  |
| Disp/Carbon Black               | B154 (ISO-18553)           |                        | 0.5   |
| Oxidation Induction Time(210°C) | B162 (ISO-11357)           | min                    | 42    |
| Moisture Content                | B187 (ISO-15512)           | ppm                    | 20    |
| Total Volatiles                 | B185 (EN12099)             | ppm                    | 230   |

BORSAGE HE3490LS HD POLYETHYLENE

11 OCT 2016

This Certificate conforms to EN 10204, Inspection Certificate 3.1

Khalifa

Khaled Dhalei  
Laboratory Manager

Abu Dhabi Polymers Company Limited



# Melt mass-flow rate Test Report

|                     |                        |                |             |              |              |
|---------------------|------------------------|----------------|-------------|--------------|--------------|
| Test item           | EF TAPPING TEE 63*63mm | Materials DATA | HE3490-LS   | LOT NO       | 1316074      |
| Production time     | 2016/7/25              | PE CLASS       | PE100       | Quantity lot | 320 PCS      |
| Test date           | 2016/10/11             | Color          | Black       | Tester       | Zhibo Huang  |
| Test specifications | EN 1555-3:2010+A1:2012 | Test method    | EN ISO 1133 | Humiture     | 23.3 °C 53 % |

| Records                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |        |        |        |                   |               |                         |                 |  |  | Requirement of standard                                           | Conclusion |                                                    |  |                   |               |                         |                 |          |        |        |        |        |       |      |     |          |        |        |        |        |       |          |        |        |        |        |       |          |   |   |   |   |   |          |   |   |   |   |   |                                                                   |  |                                                    |  |  |  |  |            |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|--------|--------|-------------------|---------------|-------------------------|-----------------|--|--|-------------------------------------------------------------------|------------|----------------------------------------------------|--|-------------------|---------------|-------------------------|-----------------|----------|--------|--------|--------|--------|-------|------|-----|----------|--------|--------|--------|--------|-------|----------|--------|--------|--------|--------|-------|----------|---|---|---|---|---|----------|---|---|---|---|---|-------------------------------------------------------------------|--|----------------------------------------------------|--|--|--|--|------------|
| <p>Main test equipment: Testing Machine of MFR<br/>Model: GT-7100-MIBH No. Of apparatus: YQ069<br/>Procedure: Cut 2mm<sup>3</sup> ~ 5mm<sup>3</sup> from a pipe around <u>3.0</u> g as test samples. Test temperature <u>190</u> °C, Load <u>5.0</u>kg, interval of each cutting <u>120</u> s. Keep three segments and measure their average weight.<br/>Equation 1: MFR ( <math>\theta</math>, mnom) = (tref•m) /t; Equation 2: Change rate G= (MFR1- MFR2) / MFR2.<br/><math>\theta</math> —Test temperature, °C; mnom — Load, kg; m—average weight of the segments, g; tref —Reference time (10min) , s (600s) ; t—interval of each cutting<br/>MFR: Melt mass-flow rate, g/10min; MFR1: Melt mass-flow rate of the sample; MFR2: Melt mass-flow rate of the raw material;</p> |        |        |        |                   |               |                         |                 |  |  | MFR of the sample should be less than 20% of the raw material MFR |            | Materials Data<br>(Lot: 1316074)<br>(0.22 g/10min) |  |                   |               |                         | 1 OCT 2016      |          |        |        |        |        |       |      |     |          |        |        |        |        |       |          |        |        |        |        |       |          |   |   |   |   |   |          |   |   |   |   |   |                                                                   |  |                                                    |  |  |  |  |            |
| MFR of the sample should be less than 20% of the raw material MFR                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |        |        |        |                   |               |                         |                 |  |  |                                                                   |            |                                                    |  |                   |               |                         |                 |          |        |        |        |        |       |      |     |          |        |        |        |        |       |          |        |        |        |        |       |          |   |   |   |   |   |          |   |   |   |   |   |                                                                   |  |                                                    |  |  |  |  |            |
| <table><tr><th colspan="4">Weight of the segments (g)</th><th>Average value (g)</th><th>MFR (g/10min)</th><th>Average value (g/10min)</th><th>Change rate (%)</th></tr><tr><td>sample 1</td><td>0.0413</td><td>0.0400</td><td>0.0398</td><td>0.0404</td><td>0.200</td><td rowspan="5">0.21</td><td rowspan="5">4.5</td></tr><tr><td>sample 2</td><td>0.0416</td><td>0.0419</td><td>0.0420</td><td>0.0418</td><td>0.209</td></tr><tr><td>sample 3</td><td>0.0426</td><td>0.0470</td><td>0.0419</td><td>0.0438</td><td>0.218</td></tr><tr><td>sample 4</td><td>/</td><td>/</td><td>/</td><td>/</td><td>/</td></tr><tr><td>sample 5</td><td>/</td><td>/</td><td>/</td><td>/</td><td>/</td></tr></table>                                                                              |        |        |        |                   |               |                         |                 |  |  | Weight of the segments (g)                                        |            |                                                    |  | Average value (g) | MFR (g/10min) | Average value (g/10min) | Change rate (%) | sample 1 | 0.0413 | 0.0400 | 0.0398 | 0.0404 | 0.200 | 0.21 | 4.5 | sample 2 | 0.0416 | 0.0419 | 0.0420 | 0.0418 | 0.209 | sample 3 | 0.0426 | 0.0470 | 0.0419 | 0.0438 | 0.218 | sample 4 | / | / | / | / | / | sample 5 | / | / | / | / | / | MFR of the sample should be less than 20% of the raw material MFR |  | Materials Data<br>(Lot: 1316074)<br>(0.22 g/10min) |  |  |  |  | 1 OCT 2016 |
| Weight of the segments (g)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |        |        |        | Average value (g) | MFR (g/10min) | Average value (g/10min) | Change rate (%) |  |  |                                                                   |            |                                                    |  |                   |               |                         |                 |          |        |        |        |        |       |      |     |          |        |        |        |        |       |          |        |        |        |        |       |          |   |   |   |   |   |          |   |   |   |   |   |                                                                   |  |                                                    |  |  |  |  |            |
| sample 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 0.0413 | 0.0400 | 0.0398 | 0.0404            | 0.200         | 0.21                    | 4.5             |  |  |                                                                   |            |                                                    |  |                   |               |                         |                 |          |        |        |        |        |       |      |     |          |        |        |        |        |       |          |        |        |        |        |       |          |   |   |   |   |   |          |   |   |   |   |   |                                                                   |  |                                                    |  |  |  |  |            |
| sample 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 0.0416 | 0.0419 | 0.0420 | 0.0418            | 0.209         |                         |                 |  |  |                                                                   |            |                                                    |  |                   |               |                         |                 |          |        |        |        |        |       |      |     |          |        |        |        |        |       |          |        |        |        |        |       |          |   |   |   |   |   |          |   |   |   |   |   |                                                                   |  |                                                    |  |  |  |  |            |
| sample 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 0.0426 | 0.0470 | 0.0419 | 0.0438            | 0.218         |                         |                 |  |  |                                                                   |            |                                                    |  |                   |               |                         |                 |          |        |        |        |        |       |      |     |          |        |        |        |        |       |          |        |        |        |        |       |          |   |   |   |   |   |          |   |   |   |   |   |                                                                   |  |                                                    |  |  |  |  |            |
| sample 4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | /      | /      | /      | /                 | /             |                         |                 |  |  |                                                                   |            |                                                    |  |                   |               |                         |                 |          |        |        |        |        |       |      |     |          |        |        |        |        |       |          |        |        |        |        |       |          |   |   |   |   |   |          |   |   |   |   |   |                                                                   |  |                                                    |  |  |  |  |            |
| sample 5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | /      | /      | /      | /                 | /             |                         |                 |  |  |                                                                   |            |                                                    |  |                   |               |                         |                 |          |        |        |        |        |       |      |     |          |        |        |        |        |       |          |        |        |        |        |       |          |   |   |   |   |   |          |   |   |   |   |   |                                                                   |  |                                                    |  |  |  |  |            |
| MFR of the sample should be less than 20% of the raw material MFR                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |        |        |        |                   |               |                         |                 |  |  |                                                                   |            |                                                    |  |                   |               |                         |                 |          |        |        |        |        |       |      |     |          |        |        |        |        |       |          |        |        |        |        |       |          |   |   |   |   |   |          |   |   |   |   |   |                                                                   |  |                                                    |  |  |  |  |            |
|  <input type="checkbox"/> Inspected <input checked="" type="checkbox"/> reviewed <input checked="" type="checkbox"/> Witnessed<br>TRK-0001                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |        |        |        |                   |               |                         |                 |  |  | 1 OCT 2016                                                        |            |                                                    |  |                   |               |                         |                 |          |        |        |        |        |       |      |     |          |        |        |        |        |       |          |        |        |        |        |       |          |   |   |   |   |   |          |   |   |   |   |   |                                                                   |  |                                                    |  |  |  |  |            |
| Remark :                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |        |        |        |                   |               |                         |                 |  |  |                                                                   |            |                                                    |  |                   |               |                         |                 |          |        |        |        |        |       |      |     |          |        |        |        |        |       |          |        |        |        |        |       |          |   |   |   |   |   |          |   |   |   |   |   |                                                                   |  |                                                    |  |  |  |  |            |

Tester : 张蒙

Approval : 王

Test date : 2016.10.30





# Melt mass-flow rate Test Report

|                     |                         |                |             |              |              |
|---------------------|-------------------------|----------------|-------------|--------------|--------------|
| Test item           | EF TAPPING TEE 110*63mm | Materials DATA | HE3490-LS   | LOT NO       | 1316074      |
| Production time     | 2016/7/23               | PE CLASS       | PE100       | Quantity lot | 286 PCS      |
| Test date           | 2016/10/11              | Color          | Black       | Tester       | Zhibo Huang  |
| Test specifications | EN 1555-3:2010+A1:2012  | Test method    | EN ISO 1133 | Humiture     | 23.3 °C 53 % |

| Records                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |  |        |  |        |  |        |  |        |  | Requirement of standard                                           | Conclusion |                                                    |  |  |  |  |             |                                                                                                                                                 |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--------|--|--------|--|--------|--|--------|--|-------------------------------------------------------------------|------------|----------------------------------------------------|--|--|--|--|-------------|-------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Main test equipment: Testing Machine of MFR<br/>Model: GT-7100-MIBH No. Of apparatus: YQ069<br/>Procedure: Cut 2mm<sup>3</sup> ~ 5mm<sup>3</sup> from a pipe around 3.0 g as test samples. Test temperature 190°C, Load 5.0kg, interval of each cutting 120 s. Keep three segments and measure their average weight.<br/>Equation 1: MFR (0, mnom) = (tref•m) /t; Equation 2: Change rate G= (MFR1- MFR2) / MFR2.<br/>0 —Test temperature, °C; mnom — Load, kg; m—average weight of the segments, g; tref —Reference time (10min) , s (600s) ; t—interval of each cutting<br/>MFR: Melt mass-flow rate, g/10min; MFR1: Melt mass-flow rate of the sample; MFR2: Melt mass-flow rate of the raw material;</p> |  |        |  |        |  |        |  |        |  | MFR of the sample should be less than 20% of the raw material MFR |            | Materials Data<br>(Lot: 1316074)<br>(0.22 g/10min) |  |  |  |  | 11 OCT 2016 | TÜVRheinland®<br><input type="checkbox"/> Inspected <input type="checkbox"/> reviewed <input checked="" type="checkbox"/> Witnessed<br>TRK-0001 |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  |        |  |        |  |        |  |        |  |                                                                   |            |                                                    |  |  |  |  |             |                                                                                                                                                 |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  |        |  |        |  |        |  |        |  |                                                                   |            |                                                    |  |  |  |  |             |                                                                                                                                                 |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  |        |  |        |  |        |  |        |  |                                                                   |            |                                                    |  |  |  |  |             |                                                                                                                                                 |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  |        |  |        |  |        |  |        |  |                                                                   |            |                                                    |  |  |  |  |             |                                                                                                                                                 |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  |        |  |        |  |        |  | 0      |  | qualification                                                     |            |                                                    |  |  |  |  |             |                                                                                                                                                 |
| sample 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  | 0.0435 |  | 0.0426 |  | 0.0430 |  | 0.0431 |  |                                                                   | 0.218      |                                                    |  |  |  |  |             |                                                                                                                                                 |
| sample 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  | 0.0439 |  | 0.0434 |  | 0.0435 |  | 0.0436 |  |                                                                   | 0.218      |                                                    |  |  |  |  |             |                                                                                                                                                 |
| sample 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  | 0.0439 |  | 0.0440 |  | 0.0436 |  | 0.0438 |  |                                                                   | 0.218      |                                                    |  |  |  |  |             |                                                                                                                                                 |
| sample 4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  | /      |  | /      |  | /      |  | /      |  |                                                                   | /          |                                                    |  |  |  |  |             |                                                                                                                                                 |
| sample 5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  | /      |  | /      |  | /      |  | /      |  | /                                                                 |            |                                                    |  |  |  |  |             |                                                                                                                                                 |
| Remark :                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |        |  |        |  |        |  |        |  |                                                                   |            |                                                    |  |  |  |  |             |                                                                                                                                                 |

1 OCT 2016

Tester: 张蒙

Approval: [Signature]

Test date: 2016.11.30





# Melt mass-flow rate Test Report

|                     |                         |                |             |              |              |
|---------------------|-------------------------|----------------|-------------|--------------|--------------|
| Test item           | EF TAPPING TEE 315×90mm | Materials DATA | HE3490-LS   | LOT NO       | 1316074      |
| Production time     | 2016/8/9                | PE CLASS       | PE100       | Quantity lot | 98 PCS       |
| Test date           | 2016/10/11              | Color          | Black       | Tester       | Zhibo Huang  |
| Test specifications | EN 1555-3:2010+A1:2012  | Test method    | EN ISO 1133 | Humiture     | 23.3 °C 53 % |

| Records                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |        |        |        |                   |               |                         |                 |  |  | Requirement of standard                                           | Conclusion |                                                                                                                                                                                                                                                          |  |  |  |  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|--------|--------|-------------------|---------------|-------------------------|-----------------|--|--|-------------------------------------------------------------------|------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|--|
| <p>Main test equipment: Testing Machine of MFR<br/>Model: GT-7100-MIBH No. Of apparatus: YQ069<br/>Procedure: Cut 2mm<sup>3</sup> ~ 5mm<sup>3</sup> from a pipe around 3.0g as test samples. Test temperature 190°C, Load 5.0kg, interval of each cutting 120 s. Keep three segments and measure their average weight.<br/>Equation 1: <math>MFR(\theta, mmom) = (tref \cdot m) / t</math>; Equation 2: Change rate <math>G = (MFR1 - MFR2) / MFR2</math>.<br/><math>\theta</math> —Test temperature, °C; mmom — Load, kg; m—average weight of the segments, g; tref —Reference time (10min), s (600s); t—interval of each cutting<br/>MFR: Melt mass-flow rate, g/10min; MFR1: Melt mass-flow rate of the sample; MFR2: Melt mass-flow rate of the raw material;</p> |        |        |        |                   |               |                         |                 |  |  | MFR of the sample should be less than 20% of the raw material MFR |            | <p>Materials Data<br/>(Lot: 1316074)<br/>(0.22 g/10min)</p> <p>TÜVRheinland®</p> <p><input type="checkbox"/> Inspected <input checked="" type="checkbox"/> reviewed <input checked="" type="checkbox"/> witnessed</p> <p>11 OCT 2016</p> <p>TRK-0001</p> |  |  |  |  |
| Weight of the segments (g)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |        |        |        | Average value (g) | MFR (g/10min) | Average value (g/10min) | Change rate (%) |  |  |                                                                   |            |                                                                                                                                                                                                                                                          |  |  |  |  |
| sample 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 0.0460 | 0.0459 | 0.0463 | 0.0461            | 0.231         | 0.23                    | 4.5             |  |  |                                                                   |            |                                                                                                                                                                                                                                                          |  |  |  |  |
| sample 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 0.0462 | 0.0462 | 0.0476 | 0.0467            | 0.233         |                         |                 |  |  |                                                                   |            |                                                                                                                                                                                                                                                          |  |  |  |  |
| sample 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 0.0467 | 0.0457 | 0.0451 | 0.0458            | 0.228         |                         |                 |  |  |                                                                   |            |                                                                                                                                                                                                                                                          |  |  |  |  |
| sample 4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | /      | /      | /      | /                 | /             |                         |                 |  |  |                                                                   |            |                                                                                                                                                                                                                                                          |  |  |  |  |
| sample 5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | /      | /      | /      | /                 | /             |                         |                 |  |  |                                                                   |            |                                                                                                                                                                                                                                                          |  |  |  |  |
| Remark:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |        |        |        |                   |               |                         |                 |  |  |                                                                   |            |                                                                                                                                                                                                                                                          |  |  |  |  |

Tester: 张蒙

Approval: [Signature]

Test date: 2016.10.30





# Oxidation induction time(O.I.T) Test Report

|                     |                        |                |                  |              |              |
|---------------------|------------------------|----------------|------------------|--------------|--------------|
| Test item           | EF TAPPING TEE 63*63mm | Materials DATA | HE3490-LS        | LOT NO       | 1316074      |
| Production time     | 2016/7/25              | PE CLASS       | PE100            | Quantity lot | 320 PCS      |
| Test date           | 2016/10/12             | Color          | Black            | Tester       | Zhibo Huang  |
| Test specifications | EN 1555-3:2010+AI:2012 | Test method    | ISO 11357-6:2008 | Humiture     | 23.3 °C 53 % |

| Records                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                     |          |                | Requirement of standard                                                                                                                                                                                                              | Conclusion                               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|----------|----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|
| <p>Materials Lot : ( 1316074 )</p> <p>Main test equipment: differential scanning calorimeter(DSC) Model: Q20 Model of Equipment: YQ013</p> <p>Procedure: Cut sample whose diameter is less than that of the cylinder and weight is <math>15 \pm 0.5\text{mg}</math> from the arc segment. Regulate the flow of oxygen and nitrogen to <math>50\text{ cm}^3/\text{min}</math>. at the speed of <math>20\text{ }^\circ\text{C}/\text{min}</math> to raise the temperature to <math>200\text{ }^\circ\text{C}</math>, than maintain this constant temperature and record the thermal curves.</p> |                     |          |                |                                                                                                                                                                                                                                      |                                          |
| n=3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Weight of sample, g | OIT, min | Average value: |                                                                                                                                                                                                                                      |                                          |
| sample 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 0.0151              | >35      | >35            |                                                                                                                                                                                                                                      |                                          |
| sample 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 0.0152              | >35      |                |                                                                                                                                                                                                                                      |                                          |
| sample 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 0.0151              | >35      |                |                                                                                                                                                                                                                                      |                                          |
| sample 4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | /                   | /        |                |                                                                                                                                                                                                                                      |                                          |
| sample 5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | /                   | /        |                |                                                                                                                                                                                                                                      |                                          |
| Remark :                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                     |          |                | <br><input type="checkbox"/> Inspected <input type="checkbox"/> Reviewed <input checked="" type="checkbox"/> Witnessed<br>12 OCT 2016<br>TRK-0001 | $\geq 20\text{min}$<br><br>qualification |

Note: “/” means items do not need testing. “√” in “□” standards for conforming to the standard requirement while “×” standards

Approval :

Test date : 2016.10.30

Tester : 张静

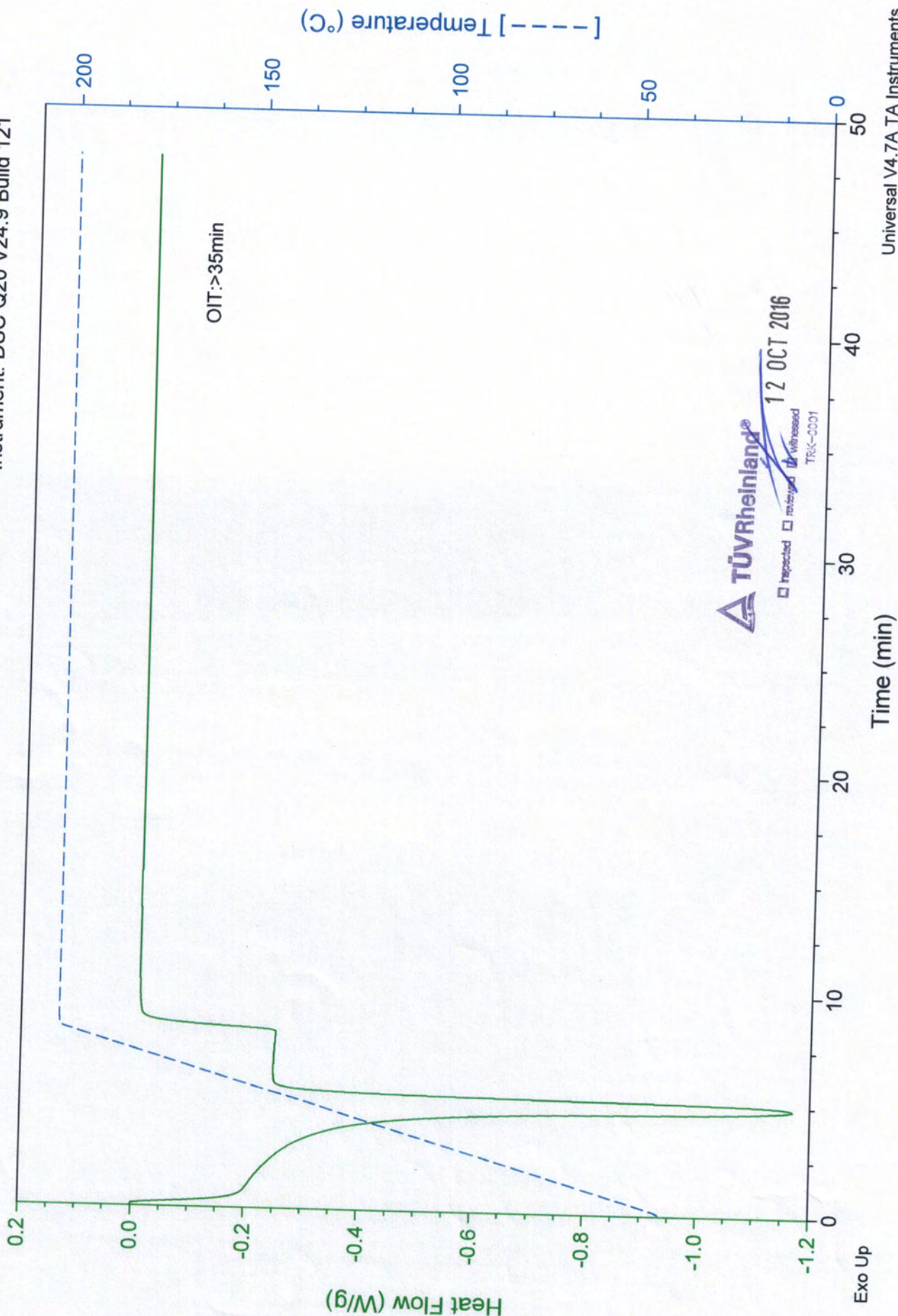




Sample: PE-63X63 SDR11-1316149  
Size: 15.1000 mg  
Method: OIT

# DSC

Attachment NO: 33 st 49  
belongs to Test Report No: CAC-133042884-300-1  
File: C:\201610\PE-63X63 SDR11-1316149.003  
Operator: xx  
Run Date: 12-Oct-2016 17:32  
Instrument: DSC Q20 V24.9 Build 121

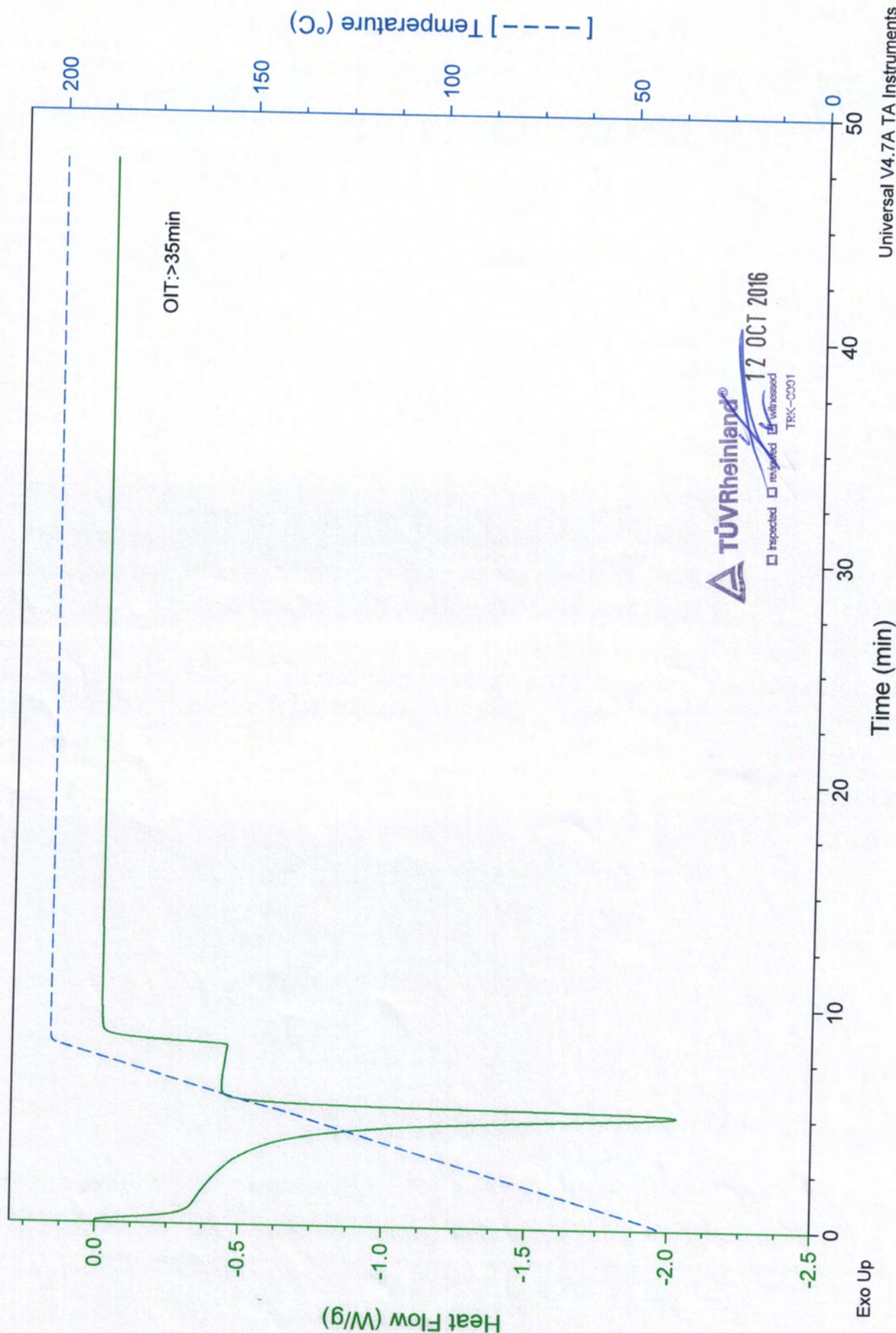




Attachment NO: 34 of 49  
 belongs to Test Report No: COC-13304284-300-1  
 File: C:\...\201610\PE-63X63 SDR11-1316149.002  
 Operator: xx  
 Run Date: 12-Oct-2016 16:35  
 Instrument: DSC Q20 V24.9 Build 121

# DSC

Sample: PE-63X63 SDR11-1316149  
 Size: 15.2000 mg  
 Method: OIT

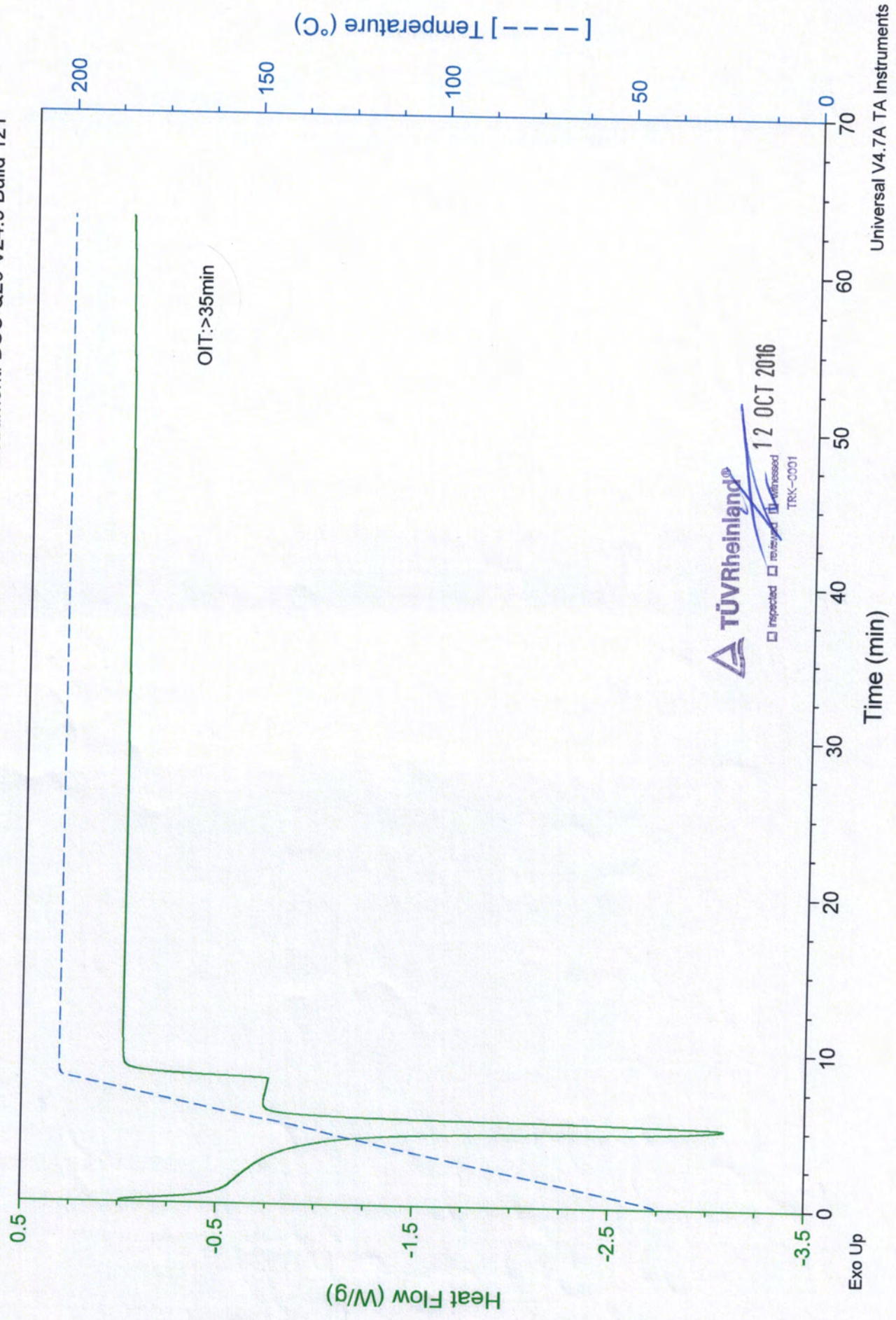




Attachment NO: 35-06-49  
Belongs to Test Report No: C-1304-200-1  
File: C:\201610\PE-63X63 SDR11-1316149.001  
Operator: xx  
Run Date: 12-Oct-2016 09:42  
Instrument: DSC Q20 V24.9 Build 121

Sample: PE-63X63 SDR11-1316149  
Size: 15.1000 mg  
Method: OIT

DSC





# Oxidation induction time(O.I.T) Test Report

|                     |                         |                |                  |              |              |
|---------------------|-------------------------|----------------|------------------|--------------|--------------|
| Test item           | EF TAPPING TEE 110×63mm | Materials DATA | HE3490-LS        | LOT NO       | 1316074      |
| Production time     | 2016/7/23               | PE CLASS       | PE100            | Quantity lot | 286 PCS      |
| Test date           | 2016/10/12              | Color          | Black            | Tester       | Zhibo Huang  |
| Test specifications | EN 1555-3:2010+A1:2012  | Test method    | ISO 11357-6:2008 | Humiture     | 23.3 °C 53 % |

| Records                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                     |          |                | Requirement of standard                                                                                                                                                                                                                                                                             | Conclusion |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|----------|----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|
| <p>Materials Lot : ( 1316074 )</p> <p>Main test equipment: differential scanning calorimeter(DSC) Model: Q20 Model of Equipment: YQ013</p> <p>Procedure: Cut sample whose diameter is less than that of the cylinder and weight is 15±0.5mg from the arc segment. Regulate the flow of oxygen and nitrogen to <u>50</u> cm<sup>3</sup>/min. at the speed of <u>20</u> °C/min to raise the temperature to <u>200</u> °C, than maintain this constant temperature and record the thermal curves.</p> |                     |          |                | <p>≥20min</p> <p>qualification</p>                                                                                                                                                                                                                                                                  |            |
| n=3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Weight of sample, g | OIT, min | Average value: |                                                                                                                                                                                                                                                                                                     |            |
| sample 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 0.0150              | >35      | >35            |                                                                                                                                                                                                                                                                                                     |            |
| sample 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 0.0152              | >35      |                |                                                                                                                                                                                                                                                                                                     |            |
| sample 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 0.0151              | >35      |                |                                                                                                                                                                                                                                                                                                     |            |
| sample 4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | /                   | /        |                |                                                                                                                                                                                                                                                                                                     |            |
| sample 5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | /                   | /        |                |                                                                                                                                                                                                                                                                                                     |            |
| Remark :                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                     |          |                | <div><div> TÜVRheinland®</div><div><input type="checkbox"/> inspected <input checked="" type="checkbox"/> reviewed <input checked="" type="checkbox"/> witnessed<br/>TRK-0001</div></div> <div>12 OCT 2016</div> |            |

Note: “/” means items do not need testing. “√” in “□” standards for conforming to the standard requirement, while “X” standards

Approval :

Tester : 张蒙

Test date : 2016.11.30

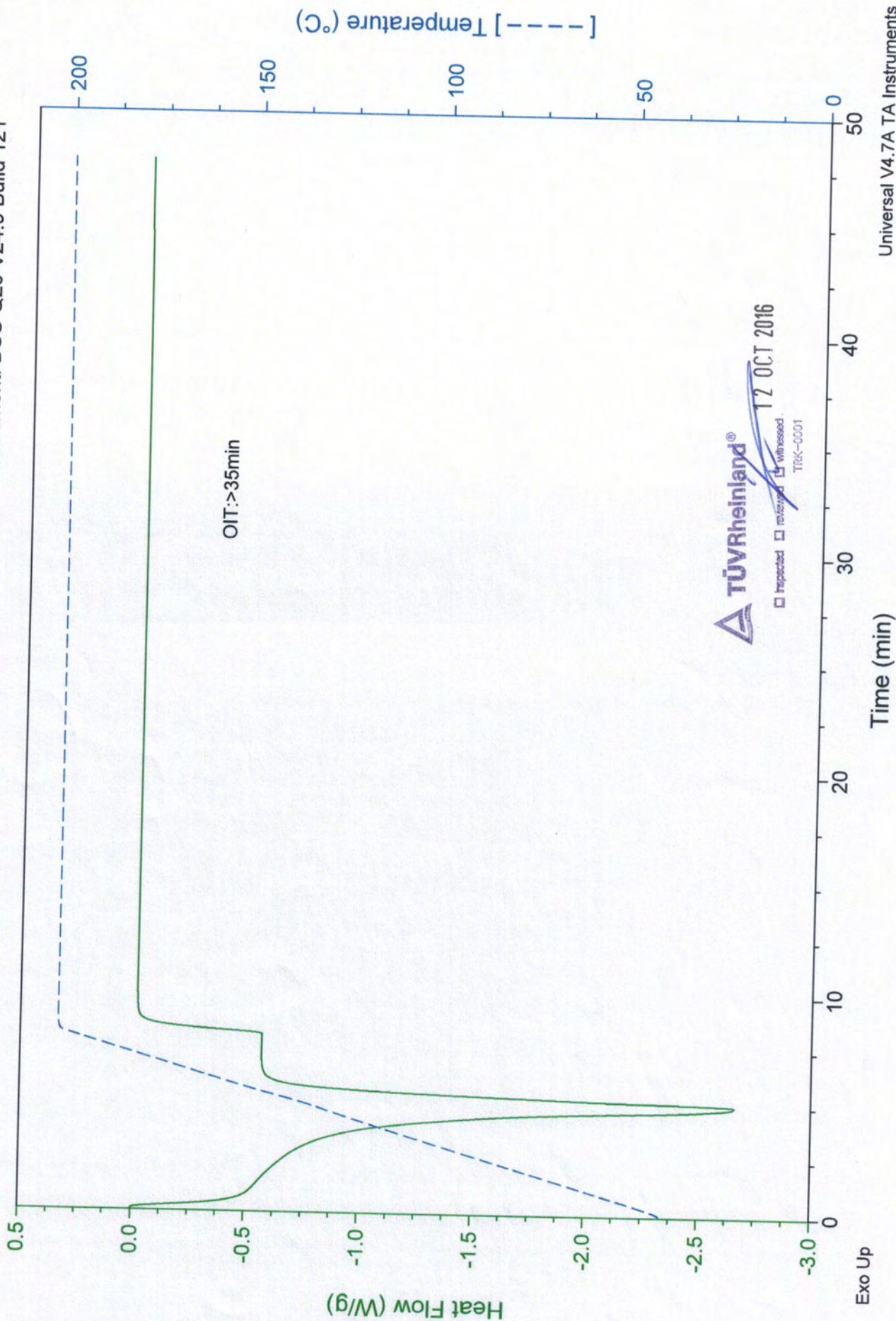




Sample: PE-110X63 SDR11-1316149  
Size: 15.1000 mg  
Method: OIT

# DSC

Attachment NO: 21 OF 49  
belongs to Test Report No: OCT 13042004-300-1  
File: C:\...V201610PE-110X63 SDR11-1316149.003  
Operator: xx  
Run Date: 12-Oct-2016 15:39  
Instrument: DSC Q20 V24.9 Build 121

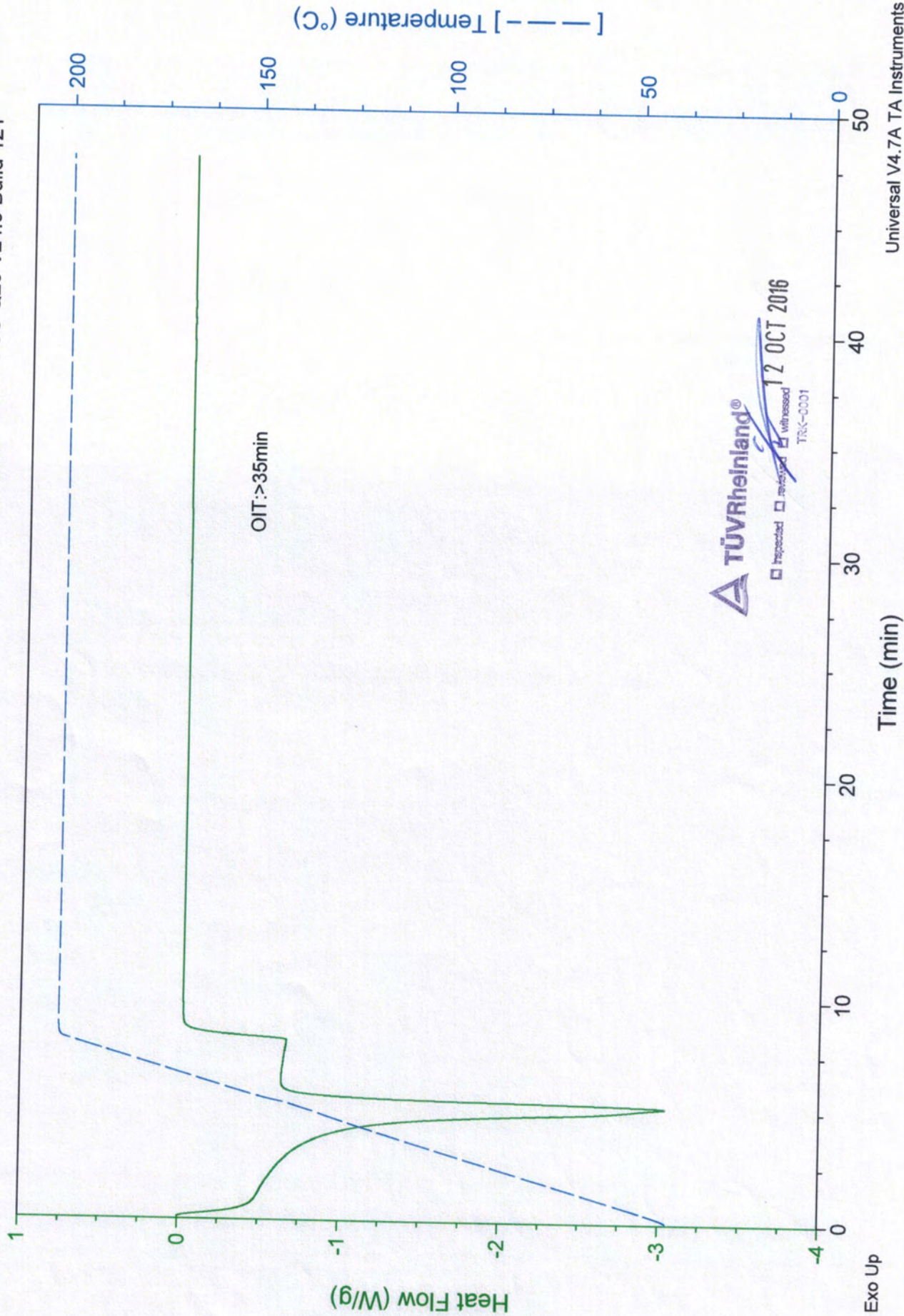




Sample: PE-110X63 SDR11-1316149  
Size: 15.2000 mg  
Method: OIT

# DSC

File: C:\...\201610PE-110X63 SDR11-1316149.002  
Operator: xx  
Run Date: 12-Oct-2016 12:54  
Instrument: DSC Q20 V24.9 Build 121

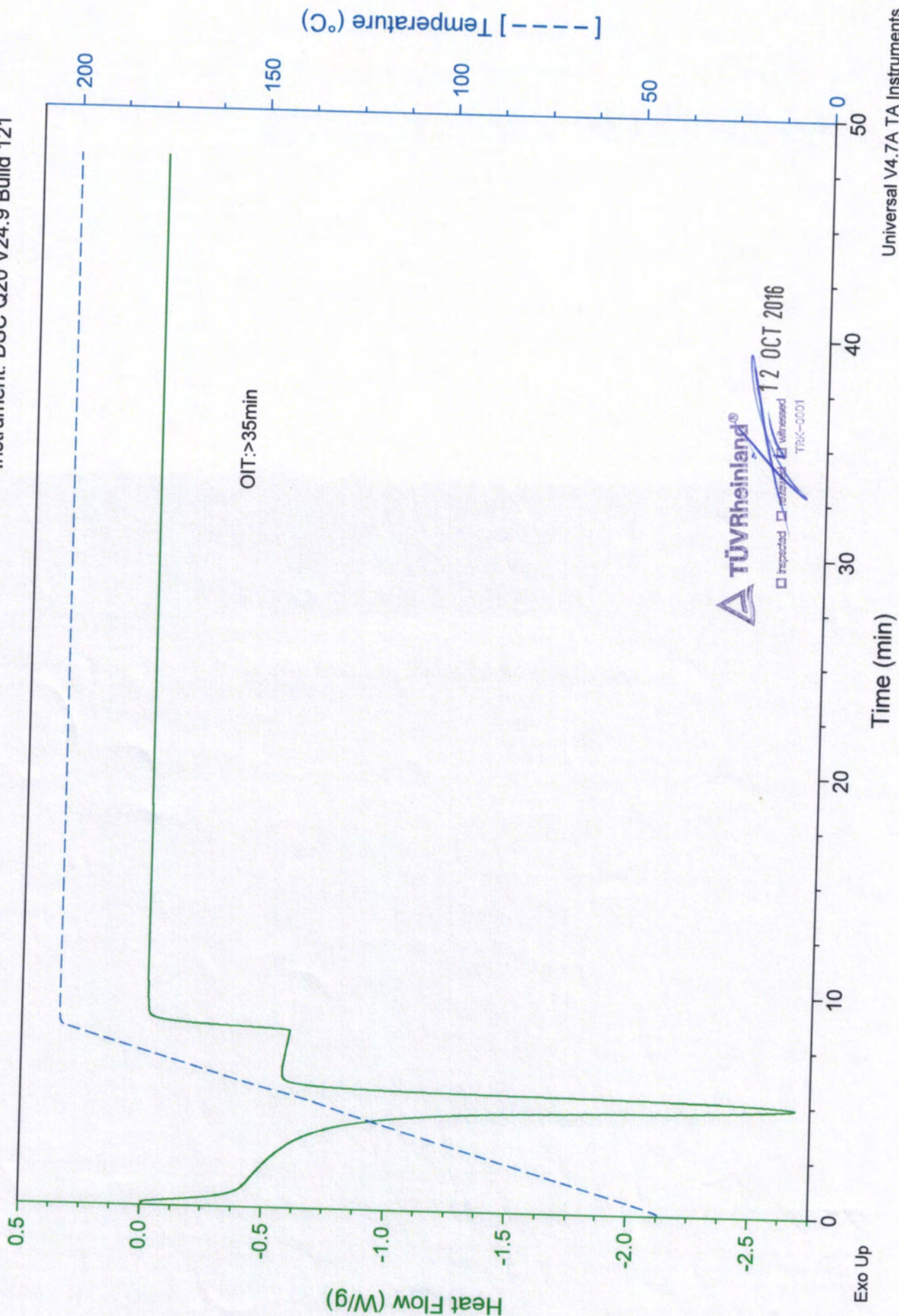




Sample: PE-110X63 SDR11-1316149  
Size: 15.0000 mg  
Method: OIT

# DSC

Attachment NO: 39 st 49  
belongs to Test Report No: 0002 13304284-300-1  
File: C:\... \201610\PE-110X63 SDR11-1316149.001  
Operator: xx  
Run Date: 12-Oct-2016 11:56  
Instrument: DSC Q20 V24.9 Build 121





# Oxidation induction time(O.I.T) Test Report

|                     |                         |                |                  |              |              |
|---------------------|-------------------------|----------------|------------------|--------------|--------------|
| Test item           | EF TAPPING TEE 315×90mm | Materials DATA | HE3490-LS        | LOT NO       | 1316074      |
| Production time     | 2016/8/9                | PE CLASS       | PE100            | Quantity lot | 98 PCS       |
| Test date           | 2016/10/12              | Color          | Black            | Tester       | Zhibo Huang  |
| Test specifications | EN 1555-3:2010+A1:2012  | Test method    | ISO 11357-6:2008 | Humiture     | 23.3 °C 53 % |

| Records                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                     |          |                | Requirement of standard                                                                                                                                                                      | Conclusion                         |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|----------|----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------|
| <p>Materials Lot : ( 1316074 )</p> <p>Main test equipment: differential scanning calorimeter(DSC) Model: Q20 Model of Equipment: YQ013</p> <p>Procedure: Cut sample whose diameter is less than that of the cylinder and weight is 15±0.5mg from the arc segment. Regulate the flow of oxygen and nitrogen to 50 cm³/min. at the speed of 20 °C/min to raise the temperature to 200 °C, then maintain this constant temperature and record the thermal curves.</p> |                     |          |                |                                                                                                                                                                                              |                                    |
| n=                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Weight of sample, g | OIT, min | Average value: |                                                                                                                                                                                              |                                    |
| sample 1                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 0.0150              | >35      | >35            |                                                                                                                                                                                              |                                    |
| sample 2                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 0.0153              | >35      |                |                                                                                                                                                                                              |                                    |
| sample 3                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 0.0152              | >35      |                |                                                                                                                                                                                              |                                    |
| sample 4                                                                                                                                                                                                                                                                                                                                                                                                                                                           | /                   | /        |                |                                                                                                                                                                                              |                                    |
| sample 5                                                                                                                                                                                                                                                                                                                                                                                                                                                           | /                   | /        |                |                                                                                                                                                                                              |                                    |
| Remark :                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                     |          |                | <p>TÜVRheinland®</p> <p><input type="checkbox"/> Inspected <input checked="" type="checkbox"/> reviewed <input checked="" type="checkbox"/> Witnessed</p> <p>TRK-0001</p> <p>12 OCT 2016</p> | <p>≥20min</p> <p>qualification</p> |

Note: “/” means items do not need testing. “√” in “□” standards for conforming to the standard requirement while “×” standards

Approval :

Test date :



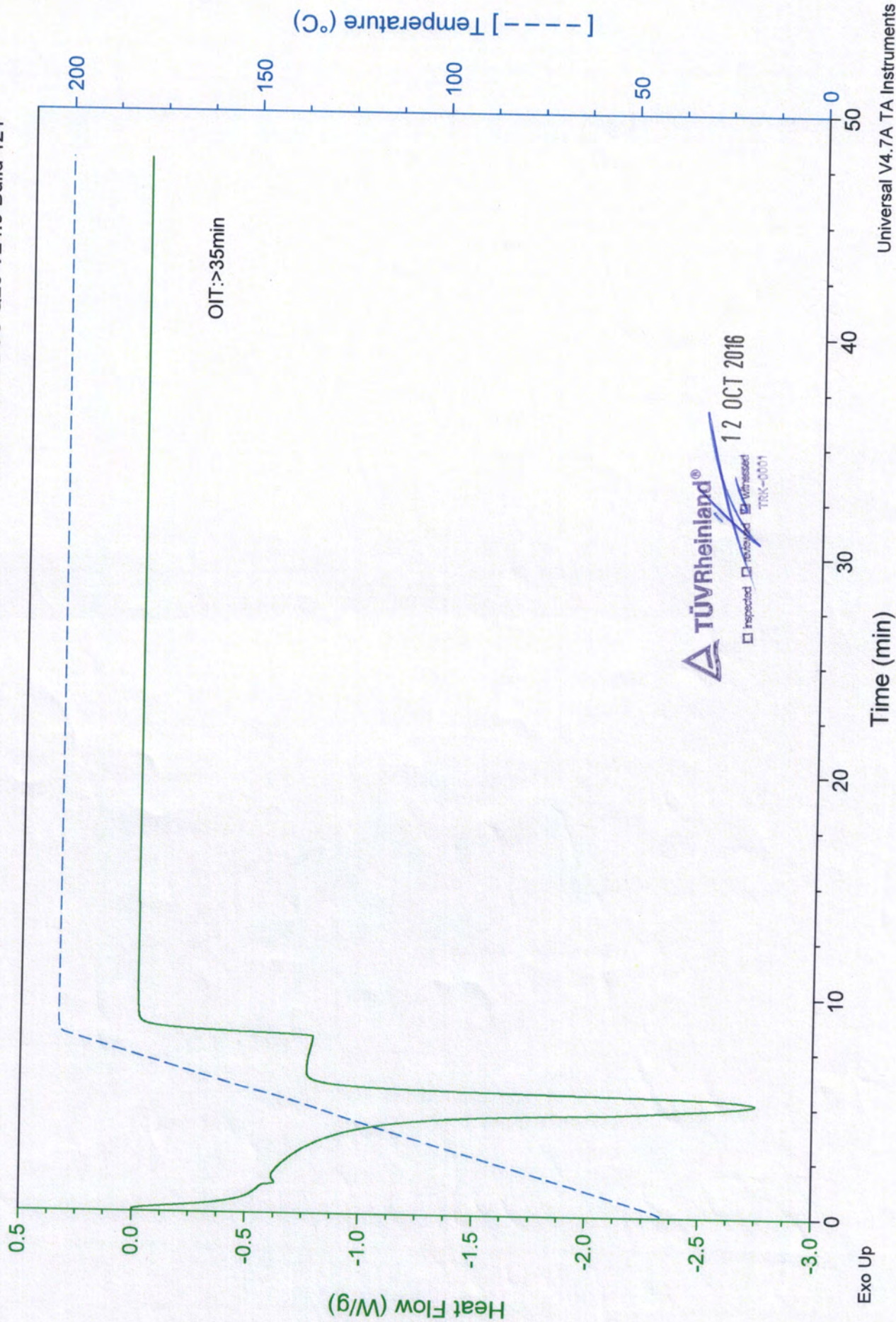
2016.11.30



Sample: PE-315X90 SDR11-1316095  
Size: 15.2000 mg  
Method: OIT

# DSC

File: C:\...\201610\PE-315X90 SDR11-1316095.003  
Operator: xx  
Run Date: 12-Oct-2016 14:44  
Instrument: DSC Q20 V24.9 Build 121

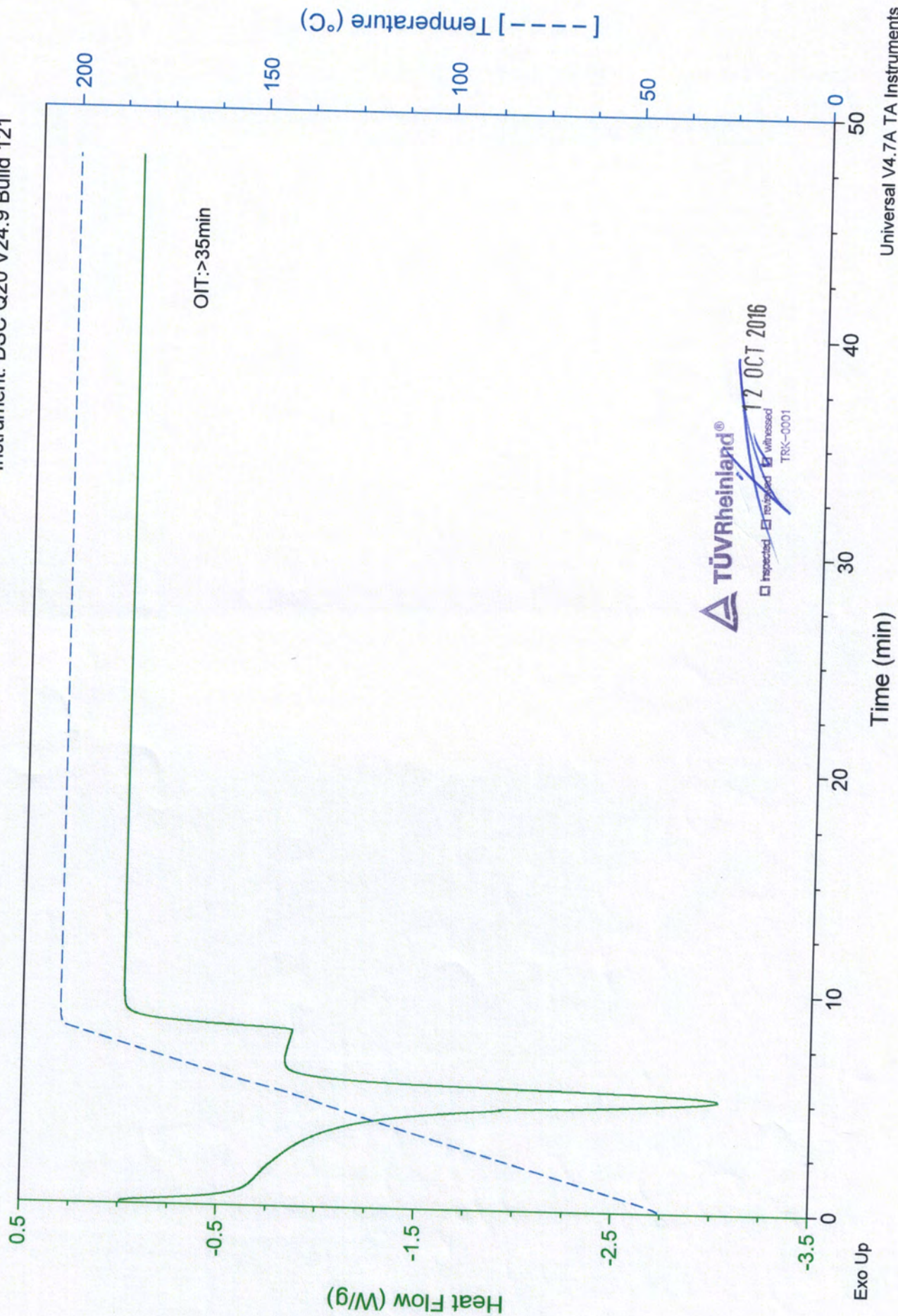




Attachment NO: 42-06 49  
 belongs to Test Report No: OC-1304281-20-1  
 File: C:\201610\PE-315X90 SDR11-1316095.002  
 Operator: xx  
 Run Date: 12-Oct-2016 13:49  
 Instrument: DSC Q20 V24.9 Build 121

Sample: PE-315X90 SDR11-1316095  
 Size: 15.3000 mg  
 Method: OIT

# DSC

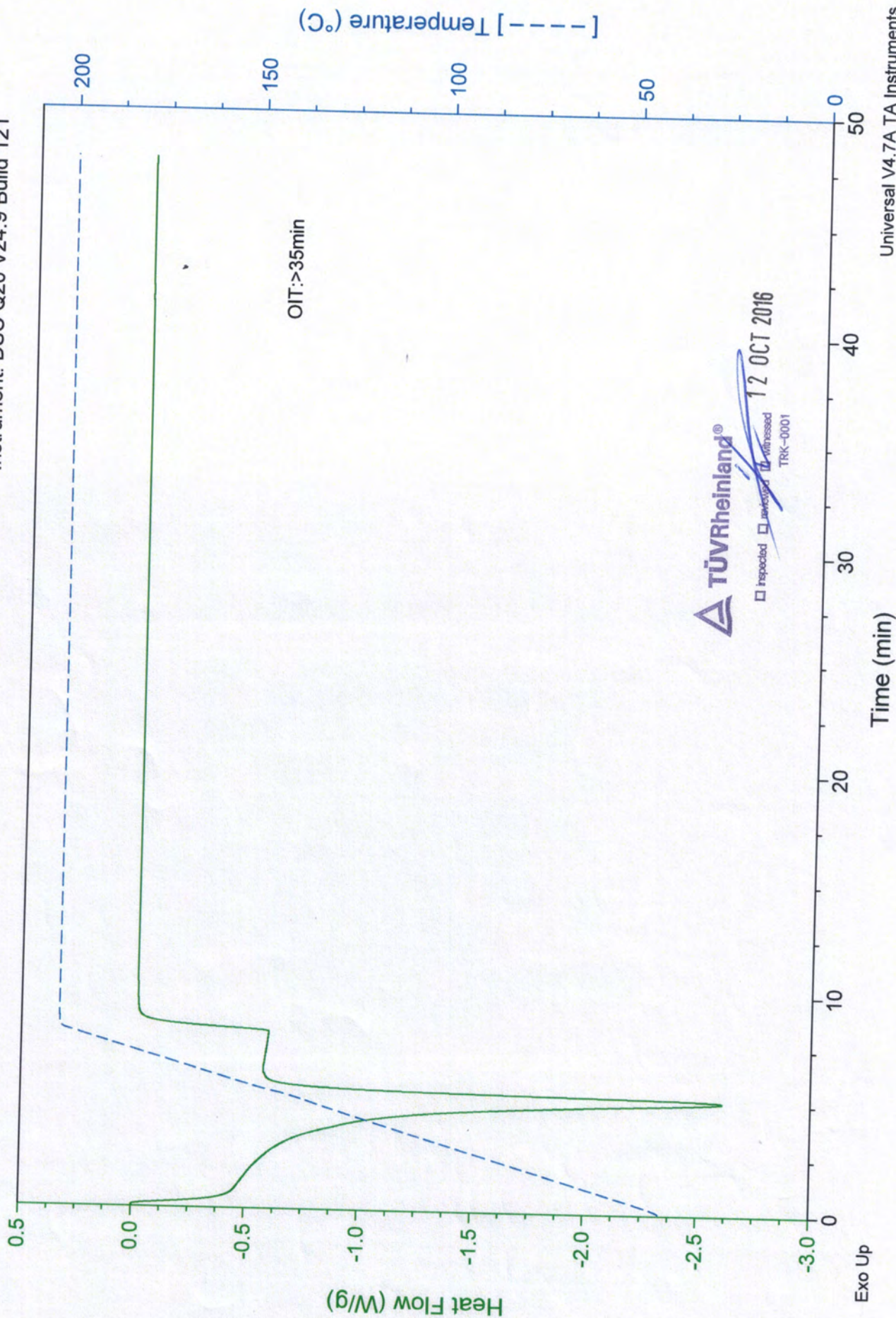




Attachment NO: 48 of 49  
 belongs to Test Report No: COC 1304244-300-1  
 File: C:\201610\PE-315X90 SDR11-1316095.001  
 Operator: xx  
 Run Date: 12-Oct-2016 10:52  
 Instrument: DSC Q20 V24.9 Build 121

# DSC

Sample: PE-315X90 SDR11-1316095  
 Size: 15.0000 mg  
 Method: OIT







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Fax: +86(0)1059202784, +86(0)1084290301 Web site: www.plastic-test.net

No.2017(G)03125

CUSTOMER:

Yonggao Co., Ltd.

SAMPLES FOR TESTING

Name:

PE Tapping Tee

Manufacturer:

Yonggao Co., Ltd.

Brand:

ERA®

Appearance:

Black

d<sub>n</sub>63×63

DATE OF RECEIPT:

2016-11-05

ISSUE DATE:

2017-03-20

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## TESTING RESULTS

No.2017(G)03125

| No. | Test Items                             | Requirements         | Results                                           |
|-----|----------------------------------------|----------------------|---------------------------------------------------|
| 1   | Impact resistance of tapping tees (0℃) | No failure, no leaks | Pass                                              |
| 2   | Pressure drop                          | /                    | Air flow rate (average):<br>25.6m <sup>3</sup> /h |

Note: The samples of the product referred to in this report have been tested in accordance with the standard of EN 1555-3:2010+A1:2012 "Plastics piping systems for the supply of gaseous fuels --Polyethylene (PE)--Part 3: Fittings".

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Test: 胡法 武志军





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Fax: +86(0)1059202784, +86(0)1084290301 Web site: www.plastic-test.net

No.2017(G)03126

CUSTOMER:

Yonggao Co., Ltd.

SAMPLES FOR TESTING

Name:

PE Tapping Tee

Manufacturer:

Yonggao Co., Ltd.

Brand:

ERA®

Appearance:

Black

$d_n 110 \times 63$

DATE OF RECEIPT:

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ISSUE DATE:

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Attachment NO: 47 07 49  
belongs to Test Report No: CDC-13304284-300-1



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TESTING RESULTS

No.2017(G)03126

| No. | Test Items                             | Requirements         | Results                                           |
|-----|----------------------------------------|----------------------|---------------------------------------------------|
| 1   | Impact resistance of tapping tees (0℃) | No failure, no leaks | Pass                                              |
| 2   | Pressure drop                          | /                    | Air flow rate (average):<br>34.3m <sup>3</sup> /h |

Note: The samples of the product referred to in this report have been tested in accordance with the standard of EN 1555-3:2010+A1:2012 "Plastics piping systems for the supply of gaseous fuels --Polyethylene (PE)--Part 3: Fittings".

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Test: 胡法 武志军





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Fax: +86(0)1059202784, +86(0)1084290301 Web site: www.plastic-test.net

No.2017(G)03127

CUSTOMER:

Yonggao Co., Ltd.

SAMPLES FOR TESTING

Name:

PE Tapping Tee

Manufacturer:

Yonggao Co., Ltd.

Brand:

ERA®

Appearance:

Black

$d_n 315 \times 90$

DATE OF RECEIPT:

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ISSUE DATE:

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Fax: +86(0)1059202784, +86(0)1084290301 Web site: www.plastic-test.net

## TESTING RESULTS

No.2017(G)03127

| No.                                                                                                                                                                                                                                     | Test Items                              | Requirements         | Results                                           |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------|----------------------|---------------------------------------------------|
| 1                                                                                                                                                                                                                                       | Impact resistance of tapping tees (0°C) | No failure, no leaks | Pass                                              |
| 2                                                                                                                                                                                                                                       | Pressure drop                           | /                    | Air flow rate (average):<br>36.1m <sup>3</sup> /h |
| Note: The samples of the product referred to in this report have been tested in accordance with the standard of EN 1555-3:2010+A1:2012 "Plastics piping systems for the supply of gaseous fuels --Polyethylene (PE)--Part 3: Fittings". |                                         |                      |                                                   |

(THE PART BELOW IS BLANK)



Test: 胡法 武志军