



Inspection Order No. : IN-WH-5802-13016  
Page No. : 1 of 10  
Date of issue: 22 Jul, 2013

**INSPECTION REPORT**

- **Description and Quantity of Commodity:** PE PIPES: DN315 101 PCS  
DN355 393 PCS  
DN110 9 PCS  
PE Fittings
- **Name & Address Of Buyer:** BMG-KDAW JV,  
8/16 THALAPATHPITIYA RD, NUGEGODA, SRI LANKA ON A/C  
OF NATIONAL WATER SUPPLY AND DRAINAGE BOARD,  
GALLE ROAD, RATHMALANA, SRI LANKA.
- **Name & Address Of Seller** WUHAN KINGBULL ECONOMIC DEVELOPMENT CO.,LTD  
No. 8. WUHANGANG INDUSTRIAL PARK, ECONOMIC  
TECHNOLOGICAL DEVELOPMENT ZONE. EZHOU, HUBEI,  
CHINA
- **Inspection Date & Place:** 9<sup>th</sup> Jul, 11<sup>th</sup> Jul, 18<sup>th</sup> Jul. 2013 in Ezhou city, Hubei Province, China
- **PI No.:** KB13051205T
- **L/C No.:** DB2003LC1304480
- **Nature Of Inspection:**
  1. Random visual quality check
  2. Dimension check
  3. Sampling
  4. Witness physical characteristics test
  5. Chemical composition test at SGS lab
  6. Review test report

- **Inspector:** Fly Cai  
This is to report that we, SGS-CSTC Wuhan Branch on 9<sup>th</sup> Jul, 11<sup>th</sup> Jul, 18<sup>th</sup> Jul 2013 at the request of the client at Wuhan Kingbull Economic development Co., Ltd conducted the following inspection:

**Inspection Finding:**

When SGS inspector arrived at the inspection location on Jul 9<sup>th</sup>, 2013, the status of the 3 different diameters polyethylene pipes and PE fittings were as below:

No.	PE Pipes	Status
1	DN315	Not finished yet
2	DN355	Laid in the workshop, 146pcs have been delivered

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3	DN110	Been delivered
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SGS inspector took the following sample size to perform the inspection according to ANSI/ASQ Z1.4 and the clients' requirements:

Specification	Inspection item (Unit: PCS)				Remark
	Dimension check	Sampling	Witness physical characteristics test	Witness hydrostatic test	
DN315	8	2	1	1	
DN355	20	0	0	0	
PE fittings	1	0	0	0	

1. Random visual quality check

Random visual quality check for PE pipes and PE fittings were performed by SGS inspector. PE pipes and PE fittings were in good formation and no obvious defects and flaws were found on inside and outside surface of PE pipes and PE fittings by naked eyes. The end of PE pipes was protected by plastic bag. The color of PE pipes and PE fittings were blue. The result of the visual quality check was satisfactory.

2. Dimension check

Dimension check was performed by SGS inspector, the result was as below:

Unit: mm

For PE pipe DN315:

No.	Mean outside diameter (315.0~316.9)	Out-of-roundness ( $\leq 11.1$ )	Wall thickness (18.7~20.7)	Length (11900)
1	316.5	2.2	19.9/20.4	11909
2	316.8	3.3	19.8/20.2	11910
3	316.6	2.2	20.1/19.5	11903
4	316.5	2.5	20.4/19.7	11992
5	316.7	2.5	20.3/19.9	11989
6	316.6	2.3	20.5/19.8	11990
7	316.4	2.2	19.7/20.6	11991
8	316.6	2.8	20.5/19.9	11992

Remark: 1. The results of mean diameter, out-of-roundness, wall thickness were acceptable according to ISO 4427-2 2007.

2. For the tolerance of length was not supplied, the result of length need to be evaluated by the buyer.

For PE pipe DN355:

No.	Mean outside diameter (355.0~357.2)	Out-of-roundness ( $\leq 12.5$ )	Wall thickness (21.1~23.4)	Length (11900)
1	356.5	2.5	22.0/22.1	11914
2	357.0	3.5	21.9/22.6	11916
3	356.7	2.5	21.9/22.2	11910
4	356.6	2.8	22.2/22.5	11915
5	356.3	2.8	22.4/22.6	11913
6	355.8	2.8	22.1/22.0	11920
7	356.0	2.5	22.4/22.1	11912
8	356.9	3.1	22.5/22.2	11913
9	356.5	2.2	22.3/21.9	11915

10	356.6	2.6	22.2/22.6	11912
11	356.9	2.7	22.1/22.5	11916
12	356.4	2.4	22.0/22.5	11915
13	356.2	2.9	22.0/22.6	11910
14	356.7	2.4	21.9/22.3	11913
15	356.5	2.3	22.1/22.4	11917
16	356.7	2.6	22.0/22.5	11916
17	356.6	2.4	21.9/22.6	11914
18	356.5	2.9	22.0/22.5	11916
19	356.3	2.5	22.1/22.4	11917
20	356.1	3.0	22.0/22.6	11918

Remark: 1. The results of mean diameter, out-of-roundness, wall thickness were acceptable according to ISO 4427-2 2007.  
 2. For the tolerance of length was not supplied, the result of length need to be evaluated by the buyer.

For PE fitting (DN355 22.5° bend):

No.	Mean outside diameter (355.0~357.2)	Out-of-roundness (≤12.5)	Wall thickness (29.2~35.2)	Length (530±3)
1	356.6	2.8	33.7/31.6	528/530

Remark: 1. The results of mean diameter, out-of-roundness, wall thickness, length were acceptable according to ISO 4427-2 2007.  
 2. When SGS inspector arrived at the inspection location on Jul 11<sup>th</sup>, 2013, PE fittings had finished 1pcs. The others were in producing.

Note: 1. For the PE pipes DN110 had been delivered before SGS inspector arrived at the inspection location that the dimension had not been checked.  
 2. The calibration status for the used measuring instrument was verified by SGS inspector. The detail was as below:

Instrument	Instrument No.	Validity Period
Small vernier caliper	1106164587	Jan 6 <sup>th</sup> , 2014
Big vernier caliper	1300250	Jan 6 <sup>th</sup> , 2014
Steel tape	10825	Jan 6 <sup>th</sup> , 2014

### 3. Sampling

SGS inspector randomly selected 2 samples about 1m length from PE pipe DN315 to take physical characteristics test, hydrostatic test and chemical composition according to the client's requirement. The sample was marked by SGS inspector.

### 4. Witness physical characteristics test

Physical characteristics test was performed in Kingbull lab. According to the client's requirement, SGS inspector witnessed the test process of DN315 pipe sample.

The test result was as below:

1) For DN315 pipe physical characteristics test

Size	Elongation at break (%) ≥350	Oxidation induction time(OIT) 200°C (min) ≥20	Density (g/cm3) ≥0,930	Melt mass flow rate (%) -20 ~ +20
DN315	1006.07	>25	0.958	-8.2

2) Hydrostatic test at 80°C

SGS inspector witnessed hydrostatic test of DN315 pipe. The sample was immersed into the hot water, the temperature of hot water was maintained at 80°C. The pressure rose to 0.727Mpa at the first 2 minutes, the pressure was kept 0.727Mpa. After holding pressure 165 hours, SGS inspector checked the pipe, no leakage was found on the pipe body.

Note: 1. The result of physical characteristics test was acceptable according to ISO 4472-2 2007  
 2. The calibration status for the test equipment was verified by SGS inspector. The detail was as below:

Test equipment	Equipment No.	Validity Period
Tensile test equipment	10805025	Jan 30 <sup>th</sup> , 2014
Density balance	P9916471	Jan 6 <sup>th</sup> , 2014
Differential scanning calorimeter	JN-29-051	Apr 15 <sup>th</sup> , 2014
Melting index tester	21208051	Jan 6 <sup>th</sup> , 2014
Hydrostatic equipment	21210027	Jan 6 <sup>th</sup> , 2014

5. Chemical composition in SGS lab

SGS inspector randomly selected about 1Kg sample from PE pipe DN315 to take chemical composition. Then the sample was sent to SGS Guangzhou lab to perform the test. The test report was sent to SGS inspector on July 22<sup>th</sup> by E-mail. The test report No. was "GZMR130711065". The test result of chemical composition was as below:

Composition	Content
Polyethylene(PE)	97%
Paraffin wax	2%
Fatty acid ester	
Hindered phenol antioxidants	
Calcium carbonate	1%
Titanium dioxide	
Calcium hydroxide	
Pigment	A little

Note: "A little" means the content of the substance is less than 1%.

Chemical composition was not supplied by ISO 4427, the result of chemical composition need to be evaluated by the buyer. The detail report was as below:



GZMR130711065-WHM  
 L130701245.pdf

6. Review test report

The test report for PE pipe DN315 with the report No. "20130704115" was submitted to SGS inspector to review, the result was acceptable.

## RELATED PHOTOS



The pipes in the workshop



The PE fittings in the workshop



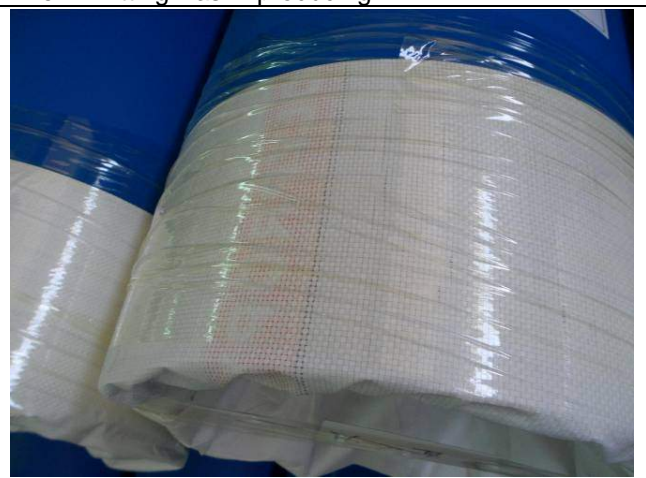
The pipe DN315 was in producing



The PE fitting was in producing

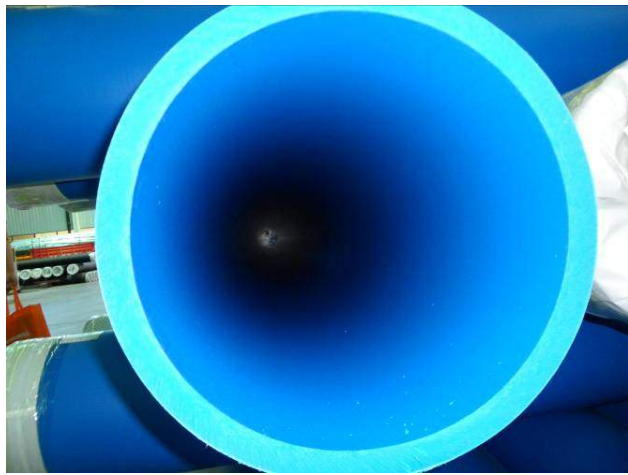


Visual quality check



Visual quality check





Visual check for inside of the PE pipe



Visual check for inside of the PE fitting



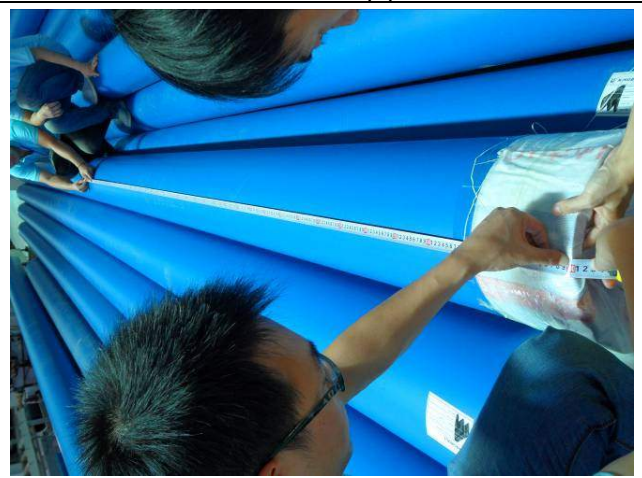
Mean outside diameter check of PE pipe



Out-of-roundness check of PE pipe



Wall thickness check of PE pipe



Length check of PE pipe



Mean outside diameter check of PE fitting



Wall thickness check of PE fitting



Length check of PE fitting



The instruments



The sample



Take sample to physical characteristics test





The sample to chemical composition



Oxidation induction time(OIT) 200°C test



Density check



MFR test

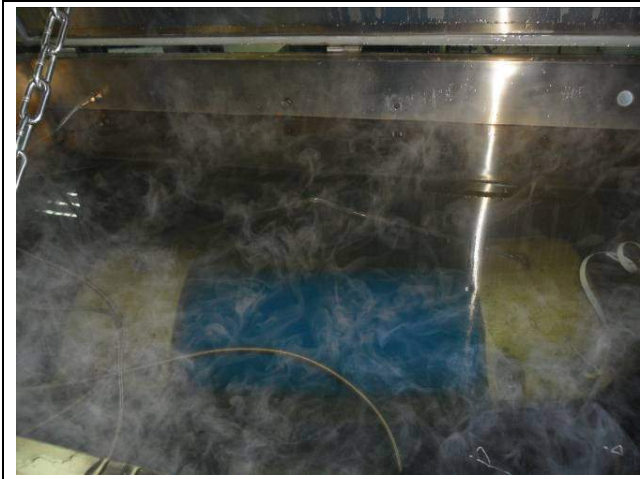


Elongation test



The status of the testing machine

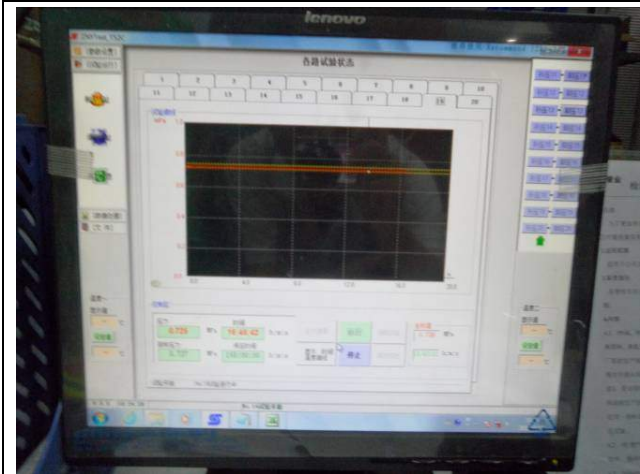




Hydrostatic test



the temperature of hot water



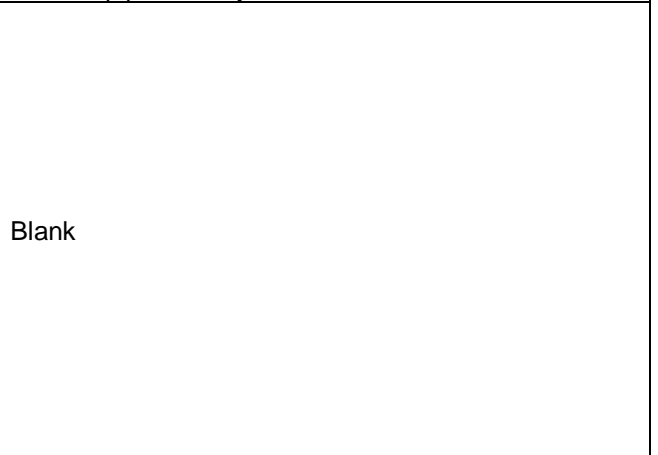
The pressure kept 0.727Mpa



The PE pipe after hydrostatic test



Test report



Blank

Blank



**Timesheet**

Inspector: Fly Cai

<b>Used for Inspection (Including Traveling and Reporting)</b>	<b>Date</b>	<b>Working Hours</b>	<b>Over Time</b>
	9 Jul, 2013	8	1
	11 Jul, 2013	5	
	18 Jul, 2013	8	
<b>Total time charged</b>		21	1

**THIS REPORT ONLY REFLECTED OUR ACTUAL FINDINGS. THE INSPECTION WAS DONE TO THE BEST OF OUR KNOWLEDGE AND ABILITY AND WITH DUE CARE. THE FINDINGS ARE VALID AS FOR TIME AND PLACE OF INSPECTION.**

**Issued by  
Fly Cai  
Inspector  
Industrial Services  
SGS-CSTC Wuhan office  
22 Jul, 2013**

**Reviewed by  
John Zhao  
Department Manager  
Industrial Services  
SGS-CSTC Wuhan office  
22 Jul, 2013**

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