



# Arbetsrapport - Technical Note

Projektidentifikation - project identification P-7495	Datum - Date 2002-07-12	Rapport nr - Report No P-02/114
Titel och författare - Title and author  <b>Condensate testing of the PE pipe grade P600BL from Korea Petrochemical Ind. Co. Ltd.</b>  Mattias Svedberg		
Granskad av - Reviewed by Joakim Jansson 	Godkänd av - Approved by Jarno Hassinen 	Kontering - Internal code 7495
Huvudinnehåll - Abstract  <b>Introduction</b> The aim of this work was to evaluate, according to Annex B in ISO 4437, the PE 100 pipe grade P600BL's resistance to gas constituents (condensate testing). The internal pipe code at Bodycote is 2857, see Appendix A for details.  The work was ordered on March 14, 2002, by Korea Petrochemical Ind. Co. Ltd. The project has been carried out between 2002-04-03 and 2002-07-12.  <b>Procedure</b> The dimensions of the pipe specimens were first measured. The pipe specimens were then conditioned in air for 1 500 h at 23±2°C. The conditioning medium was a synthetic mixture of 50% (m/m) n-decane (99%) and 50% (m/m) 1-3-5-trimethylbenzene. After the conditioning the pipes were subjected to a hydrostatic pressure of 2.0 MPa at 80°C. To pass the test the pipes must withstand >20 h of hydrostatic pressure testing.  <b>Results</b> As all three pipes were still ongoing after >40 h of testing at 2.0 MPa and 80°C, the PE 100 pipe grade P600BL passes the resistance to gas constituents test stated in ISO 4437.  The results are shown in detail in Appendix B.		

**Bodycote Polymer** (formerly Studsvik Polymer)

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**Table A.1**

Investigated pipe materials. KPIC sent the pipes to Bodycote Polymer.

**P600BL**

*Pipe manufacturer*

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*Resin manufacturer*

KPIC

*Pipe color*

Black

*Pipe dimension*

32 x 3 mm

*Pipe marking*

No marking

*Amount of specimen*

5 straight pipes each 1.2 m in length

*Arrival date at Bodycote*

2002-04-03

*Bodycote code*

2857-

2002-07-12

**Table B.1**

Hydrostatic pressure testing at 80°C of the PE 100 pipe grade P600BL from KPIC using condensate as the internal and water as the external test medium. Bodycote internal code is 2857.

Test laboratory:	Bodycote Polymer AB
Test method:	ISO 4437 and ISO 1167
Test medium (internal):	50% (m/m) n-decane (99%) and 50% (m/m) 1-3-5-trimethylbenzene
(external):	Water
Conditioning time:	1 500 h
Fittings:	Beulco brass
Nominal dimension:	32 x 3 mm
Pipe length (total/free):	350/310 mm
Responsible person for the tests:	Anders Granath

Specimen <sup>1)</sup> (internal code)	Temp °C	Start	t <sup>2)</sup> mm	D <sup>3)</sup> mm	p <sup>4)</sup> bar	σ <sup>5)</sup> MPa	Failure time h	Failure mode	Remarks
2857-3	80	020710	3.31	32.35	4.51	1.98	-	-	6) >40 h
2857-4	80	020710	3.31	32.35	4.51	1.98	-	-	6) >40 h
2857-5	80	020710	3.31	32.35	4.51	1.98	-	-	6) >40 h

- 1) Internal reference code at Bodycote
- 2) Minimum wall thickness
- 3) Mean outside diameter
- 4) Internal over pressure
- 5) Circumferential stress (hoop stress)
- 6) The pipe specimen has been terminated