



Arbetsrapport - Technical Note

Projektidentifikation - project identification P-7496	Datum - Date 2002-07-09	Rapport nr - Report No P-02/113
Titel och författare - Title and author Condensate testing of the PE pipe grade P502BL from Korea Petrochemical Ind. Co. Ltd. Mattias Svedberg		
Granskad av - Reviewed by Joakim Jansson 	Godkänd av - Approved by Jarno Hassinen 	Kontering - Internal code 7496
Huvudinnehåll - Abstract Introduction The aim of this work was to evaluate, according to Annex B in ISO 4437, the PE 80 pipe grade P502BL's resistance to gas constituents (condensate testing). The internal pipe code at Bodycote is 2856, 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 2002-07-09. Procedure 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. Results As all three pipes were still ongoing after >40 h of testing at 2.0 MPa and 80°C, the PE 80 pipe grade P502BL 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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2002-07-09

Table A.1

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

P502BL

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

2856-

Table B.1

Hydrostatic pressure testing at 80°C of the PE 80 pipe grade P502BL from KPIC using condensate as the internal and water as the external test medium. Bodycote internal code is 2856.

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 hours
Fittings:	Beulco brass
Nominal dimension:	32 x 3 mm
Pipe length (total/free):	350/310 mm
Responsible person for the tests:	Anders Granath

Specimen ¹⁾ (internal code)	Temp °C	Start	t ²⁾ mm	D ³⁾ mm	p ⁴⁾ bar	σ ⁵⁾ MPa	Failure time h	Failure mode	Remarks
2856-2	80	020708	3.37	32.35	4.71	2.02	-		6) >40 h
2856-3	80	020708	3.38	32.35	4.71	2.02	-		6) >40 h
2856-4	80	020708	3.39	32.35	4.71	2.02	-		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