




Technical Note

RESTRICTED DISTRIBUTION

Project identification P-10131	Date 2007-07-25	Report No P-07/94a
Title and author Condensate testing of the PE pipe grade P502YE from Korea Petrochemical Ind. Mattias Svedberg		
Abstract Introduction The aim of this work was to evaluate, according to Annex B in ISO 4437, the PE 80 pipe grade P502YE's resistance to gas constituents (condensate testing). The internal pipe code at Bodycote is 3684, see Appendix A for details. 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 five pipes were still ongoing after >20 h of testing at 2.0 MPa and 80°C, the PE 80 pipe grade P502YE passed the resistance to gas constituents test stated in ISO 4437. The results are shown in detail in Appendix B.		
Written by  Mikael Werkelin, Lab manager	Reviewed by  Joakim Jansson, Project manager	Approved by  Mattias Svedberg, Operations manager

2007-07-25

Client info

Client: Korea Petrochemical Ind. Co., Ltd.

Street address: 178 Bukok-Dong, Nam-Ku,

Postal code: Ulsan, Metropolitan City

Country: South Korea

Contact person: Mr. Boohui Yoon

Phone: +82-52-278-8623

E-mail: cerestin@kpic.co.kr

Web: <http://www.kpic.co.kr>

2007-07-25

Material info

Bodycote code:	3684
Trade name:	P502YE
Material:	PE
Colour:	Yellow
Nominal dimension:	32 x 3 mm
Arrival date at Bodycote:	2006-01-10
Amount:	124 x 1.2 m
Consignor:	KPIC
Marking:	No marking
Resin producer (date, batch no.):	KPIC
Pipe producer (date, lot no.):	KPIC

Test info

Test laboratory:	Bodycote Polymer
Responsible:	Björn Carlsson
Test method:	ISO 1167:2006, ISO 4437
Length (total/free):	350/310 mm
Fittings:	Brass fittings, type A unless otherwise remarked
Internal medium:	50% (m/m) n-decane (99%) and 50% (m/m) 1-3-5-trimethylbenzene
External medium:	Water
Conditioning time:	1 500 h
Situation on:	2007-07-19

Table remarks

Code	Internal Bodycote code
T	Test temperature
Start date	Beginning of test
Reg date	Registration date for failure/termination of the pipe specimen
e_{\min}	Minimum wall thickness
d_{em}	Mean outside diameter
p	Internal pressure
σ	Circumferential stress (hoop stress)
->	The pipe is under test

2007-07-25

Pipe remarks

- 1 The pipe was terminated as it had reached the required time of 20 h

2007-07-25

Hydrostatic pressure testing

Code	T	Start date	Reg date	e_{min}	d_{em}	p	σ	Failure time	Failure mode	Test time	Remark
	[°C]	[yymmdd]	[yymmdd]	[mm]	[mm]	[bar]	[MPa]	[h]			
3684-129	80	070712	070713	32.20	3.47	4.90	2.03	28	Terminated		1
3684-130	80	070712	070713	32.20	3.48	4.90	2.02	28	Terminated		1
3684-131	80	070712	070713	32.20	3.48	4.90	2.02	28	Terminated		1
3684-132	80	070712	070713	32.20	3.48	4.90	2.02	28	Terminated		1
3684-133	80	070712	070713	32.20	3.49	4.90	2.02	28	Terminated		1