



materials engineering research  
laboratory

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## TEST CERTIFICATE

This document certifies that elastomer compound

XploR™ V9T82

from

Trelleborg Sealing Solutions

meet the requirements of the Norsok M-710 Standard [Rev. 2, October 2001] with respect to rapid gas de-pressurization (RGD) resistance at 150 barg and 100 °C.

MERL verify that O-rings manufactured by Trelleborg Sealing Solutions from compound XploR V9T82 (batch 110308388) have been subjected to a multi-cycle RGD test under the following conditions.

Test gas:	90/10 mol% CH <sub>4</sub> / CO <sub>2</sub>
Test temperature:	100 °C
Test pressure:	150 barg
De-pressurization rate:	20 barg/minute
Test period:	23 <sup>rd</sup> February to 9 <sup>th</sup> March, 2012
Passed by:	Barry Thomson

## **Test seals and groove dimensions**

Seal geometry	O-ring, housed radially
Size	312 (BS 1806)
Replication level	Three
Cross section diameter	5.33 mm, nominal
Cross section diameter	5.11 mm, actual (measured radially)
Groove dimensions	BS 1806
Groove fill	61%, measured on area basis
Radial deflection	8%, calculated

## **Test Gas**

10% CO<sub>2</sub> in methane; certified.

## **Procedure and Test Conditions**

For each test cycle the following procedure and conditions applied:

- 1) heat test vessel to 100 °C and maintained this temperature throughout;
- 2) apply test gas pressure to 150 barg;
- 3) maintain pressure for 72 hours;
- 4) release pressure from vessel at 20 barg/minute;
- 5) maintain ambient pressure for one hour;
- 6) re-apply test gas pressure to 150 barg;
- 7) repeat pressure cycle nine times, with soak time of 24 hours;
- 8) after cycle 10, allow seals to degas at test temperature for 24 hours, before retrieval.

After the RGD test, each of the three replicate test O-rings was quartered and the exposed surfaces rated according to the Standard (Annex B, Table B.2); the results are shown in the grid below.

### **NORSOK ratings for tested O-ring seals of XploR V9T82**

<b>RATINGS</b>	<b>PASS/FAIL</b>
0000, 0000, 0000	PASS

## **Summary**

The Trelleborg Sealing Solutions fluoroelastomer compound XploR™ V9T82 meets the RGD acceptance criterion given in the NORSOK M-710 standard [Rev. 2, October 2001]. This acceptance applies at all pressure and temperature combinations up to the test levels, but only for O-ring seals having nominal cross section diameter of 5.33 mm and housed in the fashion described herein.