
TEST REPORT

This document certifies that

**Q2Q
(30% Carbon filled PEEK)**

from

TRELLEBORG SEALING SOLUTIONS

has been tested according to the requirements of

**ISO 10423 Appendix F.1.13.5.2 in respect of sour fluid (FF/HH)
resistance**

Test fluid: 10% Hydrogen sulphide/hydrocarbon oil/water

Test pressure: 1000 psi

Passed by: Dr Keyur Somani

Date: 29th September 2016

Element Hitchin verify that tensile specimens of Q2Q (30% Carbon filled PEEK) by Trelleborg Sealing Solutions Southwest have been tested according to ISO 10423:2009, annex F.1.13.5.2 (immersion).

Test Conditions

Five replicate tensile specimens (type 1, ASTM D638) of Q2Q were exposed in the hydrocarbon liquid phase to the following conditions for 160 hours. The test was run between 4th August and 12th August 2016.

Temperature	350 ± 3 °F
Pressure	1000 ± 100 psi (69 ± 6.9 bar)
Gas phase (35%)	FF/HH: 10/80/10 mol% H ₂ S/CO ₂ /CH ₄
Liquid phases (65%)	60% vessel volume 70/20/10 heptane/cyclohexane/toluene 5% vessel volume water

Changes in physical and mechanical property levels were measured at room temperature, with non-exposed material serving as the point of reference. The material was not visibly altered by the exposure conditions.

The acceptance criteria given in section 8.2.2 of the NORSOK M-710 standard¹ were applied. The results are tabulated below.

PROPERTY	ACCEPTABLE CHANGE RANGE	ACTUAL CHANGE AFTER IMMERSION (%)
Volume change (swelling)	-1%/+5%	+2.7
Young's Modulus	±50%	-5
Tensile strength	±50%	-15
Elongation at break	±50%	-22

¹ NORSOK M-710, "Qualification of Non-Metallic Sealing Materials and Manufacturers", Edition 3, September 2014.