



materials engineering research
laboratory

TEST CERTIFICATE

This document certifies that

FFKM compound Perlast® G92E

from

PRECISION POLYMER ENGINEERING LTD.

meets the requirements of

NORSOK M-710 in respect of sour fluid resistance

Test fluid: 25% hydrogen sulphide/hydrocarbon oil/water
Test pressure: 30 bar
Passed by : Barry Thomson
Date: 14th December 2012

MERL verify that specimens of the PPE FFKM compound Perlast[®] G92E have been subjected to a series of sour multi-phase fluid exposures at three elevated temperatures.

Test Conditions

Exposure fluid composition and distribution

VOLUME (%)	COMPOSITION
30	25/3/72 mol% H ₂ S/CO ₂ /CH ₄
10	Distilled water
60	70% heptane, 20% cyclohexane, 10% toluene

The FFKM tensile testpieces were placed in the hydrocarbon oil phase for the exposure tests.

Test temperatures and exposure periods used in the NORSOK M-710 programme are shown in the table below; test pressure was 25-35 bar.

Exposure test conditions

TEMPERATURE (°C)	SAMPLING INTERVALS (days)
150	7, 14, 28, 42, 56
162	10, 15, 32, 42, 57
175	7, 15, 28, 42, 54

Summary for Perlast[®] G92E

TYPE	Swell¹	Hardness	50/100% modulus²	Tensile strength²	Elongation at break²	NORSOK acceptable
FFKM	PASS	PASS	PASS	PASS	PASS	YES

¹ <10%

² changes within ±50% range, from oil-saturated level

FFKM grade Perlast[®] G92E behaves as expected when immersed in a low viscosity hydrocarbon oil phase with a high level of H₂S present in the gas phase. Swelling is low and tensile property levels do not show evidence of chemical ageing having occurred. The changes in room temperature tensile property levels are within the allowable range after exposure periods at 150-175 °C of up to 8 weeks. The absence of clear changes with time and temperature means that life estimation calculations are not possible.

FFKM grade Perlast[®] G92E meets the requirements of the NORSOK M-710 standard for multi-phase fluid exposure with up to 25 mol% H₂S in the gas phase.