

# Technical Report

## NORSOK Certified Plastic Materials

To better serve customers manufacturing high-performance valves and chokes for the oil and gas industry, CDI Energy Products™ has evaluated several CDI thermoplastic seal compounds to the NORSOK M-710 standard. These compounds are used extensively in OptiSeal® and OptiPak® sealing solutions.

This testing was contracted with an independent laboratory, Materials Engineering Research Laboratory (MERL) located in the United Kingdom.

Six polymers were immersed in a sour multi-phase fluid at 210-230°C / 100 bar for periods of 10-30 days, for evaluation according to procedures given in NORSOK M-710, Annex-C. The gas mixture was per Table C.1 for sour service conditions.

VOLUME %	COMPOSITION
30	3% CO <sub>2</sub> 2% H <sub>2</sub> S 95% CH <sub>4</sub>
10	Distilled Water
60	70% Heptane 20% Cyclo-Hexane 10% Toluene

The group of compounds consisted of five PTFE grades and one unfilled PEEK. Their performance is summarized in the grid below.

CDI COMPOUND	DESCRIPTION	NORSOK ACCEPTANCE CRITERIA		
		TENSILE	VISUAL	VOLUME
700	Virgin PTFE	PASS	PASS	PASS
701	25% Glass Filled PTFE	PASS	PASS	PASS
711	25% Carbon Filled PTFE	PASS	PASS	PASS
716	15% Graphite Filled PTFE	PASS	PASS	PASS
745	Unfilled ARYLEX® PEEK	PASS	PASS	PASS
777	Virgin PTFE-High Modulus	PASS	PASS	PASS

Per MERL Test Report C1773, certification according to NORSOK M-710 applies to CDI grades 700, 701, 711, 716, 777 and 745. More detailed test information is available upon request from CDI Energy Products.

CDI-TR001GL-1012-R02-US – Release October 15, 2012