

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 ₂ 2% H ₂ S 95% CH ₄ |
| 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.

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