Explosive Decompression Testing

Precision Polymer Engineering offers independent materials consultancy and laboratory services for plastics and rubbers. Materials technology is at the core of the business supported by an extensive purpose built **Material Characterisation Centre** (MCC), equipped with the latest testing apparatus. PPE's facility is one of the leading resources in Europe for the development, characterisation, testing and analysis of polymeric materials.

Explosive decompression (ED) damage of elastomer seals occurs when seals are under high pressure for some time and then rapidly de-pressurised. Gases absorbed into the elastomer rapidly expand causing the seal to rupture.

PPE's ED test equipment can pressurise seals of various geometries up to 70 MPa (10,000 psi) and can decompress over any desired cycle or time, whilst at temperatures of up to 300°C. Using this equipment, compounds can be developed and tested to overcome this condition, with pressure, temperature and pressure release cycles simulating actual field operation, the performance of seal types and grades can be confirmed before installation.

With a 3L cylinder, the ED test rig has been designed to meet Total, NACE, NORSOK and Shell test requirements with all temperatures, pressures, gas mixtures and depressurisation rates detailed there-in. The O-ring carrier insert is interchangeable to allow O-rings to be tested at various squeeze levels, in face and piston geometries. This equipment also tests high-pressure sealing capability v's diametral clearance and back-up ring performance.

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