



EXPERIENCE THE EXCEPTIONAL

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## APPLICATION GUIDELINES – F.E.P. ELASTOMERS

AESSEAL plc can confirm that the least favoured choice of an elastomer will always be a FEP encapsulated 'O' ring.

Despite the fact that an FEP encapsulated 'O' ring is resistant to virtually all chemicals (in theory at least) and is obtainable at a relatively low cost compared to other relatives, AESSEAL plc would strongly recommend that it is only ever used after careful consideration by the customer.

FEP is a derivative of PTFE and shares some characteristics. The FEP tube on the outside covers an elastomeric, either Viton or Silicon, rubber core. AESSEAL plc has seen many examples of FEP encapsulated 'O' rings where chemicals have permeated through the FEP, causing the rubber core to swell and to split the FEP coating. This causes immediate failure of a mechanical seal.

The FEP coating is hard, compared to other elastomers and has no recovery properties. This is supposedly compensated for by the elastomeric core and indeed up to a point, it does work.

However, during the assembly process we experience above average failures, due to the inherent rigidity, lack of flexibility and tendency of FEP encapsulated 'O' rings to kink or split and AESSEAL plc has little or no control over the installation process.

In service, even minimal movement in the equipment may cause the hard FEP coating to induce fretting of the cartridge seal, where an elastomeric 'O' ring would have had sufficient rebound capabilities to prevent the damage taking place.

AESSEAL plc pressure test all FEP encapsulated 'O' rings at the standard pressure (like all seals) and at a low pressure, after assembly into our seals and before despatch, ensuring that at point of despatch all products fulfil the requirement of the purchase order.

**General Rule - AESSEAL recommends: Only ever use a FEP encapsulated 'O' ring after all other options have been considered.**

Stephen M Shaw  
Group Engineering Director

