SES 26 - 320 A

# MATERIAL SPECIFICATION
# FLUOROCARBON (VITON) ELASTOMER

| Rev | Reason of Change | Date | Made By | Reviewed By | Approved By | Status |
|---|---|---|---|---|---|---|
| 0 | | 20-10-2012 | KKM | USR | KKD | Released |

# MATERIAL SPECIFICATION
# FLUOROCARBON (VITON) ELASTOMER

## 1.0 PURPOSE

**1.1** It is the purpose of material specification to list in a concise from of the material requirements for Fluorocarbon Elastomers to be used in Sour Service at temperature from – 15° F to +400 °F. (-26°C to +205°C)

**1.2** This material specification is intended to aid the purchasing department in procuring and the vendor in supplying a product which meets the needs of its intended use, and the quality control department in the inspection and release of incoming material.

## 2.0 SCOPE

**2.1** This material specification covers sour services, medium- high CAN, Sulphur cure compounds recommended for service with petroleum oils and fuels, water, and glycols.

## 3.0 Pressure Limits:

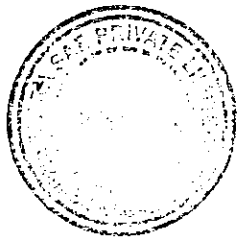
| | |
|---|---|
| Static: | 20,000 PSI, Liquid / 10,000 PSI, Gas |
| Dynamic: | 10,000 PSI, Liquid / 5,000 PSI, Gas |

**4.0 Chemical composition**: The standard formulas for Viton Rubber compounds are as in ASTM D-1418.

| | |
|---|---|
| Polymer Type | Vinylidenefluoride/hexafluoropropylene/tetrafluoroethylene Terpolymer |
| Trade Designation | VF2/HFP/TFE |
| ASTM D1418 designation | FKM |
| Trade names | Viton GF |

### 4.1 Chemical Compatibility:

| | |
|---|---|
| $H_2O$ (Water) | Yes |
| $CH_4$ (Methane) | Yes |
| $N_2$ (Nitrogen Gas) | Yes |
| $CO_2$ (Carbon Dioxide) | Yes |
| $H_2S$ (Hydrogen Sulfide) | Yes |
| Chlorides | Yes |
| HCl (Hydrochloric Acid) | Yes, Cold |
| $H_2SO_4$ (Sulfuric Acid) | Yes, Cold |
| $H_2CO_3$ (Carbonic Acid) | Yes, Cold |
| $O_2$ (Oxygen) | Yes |



**5.0 Physical Properties:** The ASTM standard specifications to determine the physicals are given below.

| PROPERTIES | RANGE |
|---|---|
| HARDNESS (ASTM D-2240) Shore "A" Durometer | 70 ± 5 Pts. |
| TENSILE STRENGTH ( ASTM D-412) Min. | 2,000 PSI |
| ELONGATION ( ASTM D-412) Min. | 150% |
| 100% Modules ( ASTM D-412) Min. | 700 PSI |
| SPECIFIC GRAVITY ( ASTM D-792, A) | 1.15 ± 0.05 |
| COMPRESSION SET ( ASTM D-395, B) Method 'B' Max. 22 HRS @ 212° F | 15 |

**6.0 Fluid Immersion Data**

*70 Hours @ 212° F, IRM 903 Oil, ASTM D-471*

| | | |
|---|---|---|
| VOLUME CHANGE, %, Max. | 10 | ASTM D471 |
| HARDNESS CHANGE, %, Max. | 56 | |
| TENSILE STRENGTH CHANGE %, Max. | 25 | |
| ELONGATION CHANGE %, Max. | 20 | |