



# Fusion<sup>®</sup> 938

## Rapid Gas Decompression Resistant



### Applications

- Compressor components
- Valves
- Pump

### Availability

- O-rings
- G-T<sup>®</sup> rings
- Custom-molded shapes

### NORSOK and Total Qualified FKM

Most elastomers experience severe blistering or cracking when expanding gas forces overcome the strength of the surrounding material, but Fusion<sup>®</sup> 938 provides superior RGD-resistant properties, enabling seal integrity. Fusion<sup>®</sup> 938 also offers an improved lower temperature operating window. Its compression set resistance provides superior sealing and leak prevention unmatched by the leading competitive material. In addition, Fusion<sup>®</sup> 938 offers much better resistance to methanol, sour gas, hot water, steam, and corrosion inhibitors than conventional fluorocarbon elastomers, extending seal lifetime. Rapid gas decompression (RGD) is a phenomenon that often occurs when high-pressure gas molecules migrate into an elastomer at a compressed state. When the pressure surrounding the elastomer is suddenly released, the compressed gas inside the elastomer tries to expand and exit the elastomer, thus causing RGD (also known as explosive decompression).

Greene Tweed's Fusion<sup>®</sup> 938 is a fluorocarbon elastomer specifically designed to withstand RGD in compressor components, valves, and pumps.

### Features and Benefits

- Fusion<sup>®</sup> 938 has successfully passed the stringent NORSOK M-710/ISO 23936-2, and TotalFinaElf test protocols at third-party laboratories
- Provides reliable RGD resistance at low temperatures down to -35°F (-37°C), maintaining sealing properties and extending equipment life
- Offers reliable RGD resistance with compression set values that are much lower than existing material while preventing leakage and equipment failure
- Extends the life of refining, pipeline, and oilfield equipment exposed to unanticipated process upsets, resulting in pressure drops
- Superior RGD resistance reduces maintenance and increases MTBF (mean time between failures)



Typical Properties	
Original Properties (ASTM Standard)	Typical
Color	Black
Hardness, Shore A, Points (D2240)	90
<b>Mechanical (ASTM Standard)</b>	
Compression Set, 22 Hours @ 392°F (200°C) @ 25% Deflection, % of Original Deflection, Method B (D395)	9
<b>O-ring Properties (ASTM Standard)</b>	
Elongation @ Break, % (D1414)	100
Tensile Strength, psi [MPa] (D1414)	3,140 (21.6)
<b>Slab Properties (ASTM Standard)</b>	
Elongation @ Break, % (D1414)	85
Tensile Strength, psi [MPa] (D1414)	3,070 (21.2)
<b>Thermal</b>	
Service Temperature Range, °F (°C)	-35°F to 450°F (-37°C to 232°C)

## Testing Protocol

**NORSOK** defines aging and RGD tests at various gas, temperature and pressure variations. Fusion® 938 was tested under the following criteria:

- Media: 10% CO<sub>2</sub>, 90% CH<sub>4</sub>
- Temperature: 212°F (100°C)
- Pressure: 2,175 psi (150 bar)
- Exposure: 72 hours with ten 24-hour cycles at temperature
- Test specimen: size 312 o-ring

**Totalfinaelf** defines RGD tests at these gas, temperature, and pressure conditions:

- Medium: 20% CO<sub>2</sub>, 80% CH<sub>4</sub>
- Temperature: 167°F (75°C)
- Pressure: 2,755 psi (190 bar)
- Decompression rate, max. 1,840 psi/min. (127 bar/min.)
- Exposure: 48 hours with five 24-hour cycles at temperature
- Test specimen: size 425 o-ring

## Greene Tweed

1930 Rankin Road | Houston TX 77073 USA | Phone: (+1) (281) 765-4500 | [www.gtweed.com](http://www.gtweed.com)

Statements and recommendations in this publication are based on our experience and knowledge of typical applications of this product and shall not constitute a guarantee of performance nor modify or alter our standard warranty applicable to such products.

© 2021, Greene Tweed all rights reserved. All trademarks are property of their respective owners.

12/21-GT EN-DS022-US