Isolast® XploR™ J9513

RAPID GAS DECOMPRESSION RESISTANT MATERIALS
FULLY COMPLIANT WITH NORSOK M-710




Rapid Gas Decompression (RGD) is a major concern to the oil and gas industry. It occurs when applied system pressure is released, causing absorbed gas to expand, potentially damaging elastomer seals.

Trelleborg Sealing Solutions has focused on this issue and presents the XploR™ range, an entire family of advanced elastomers specially developed for oil and gas applications. The portfolio includes compounds in HNBR, FKM, Aflas® and Isolast® Perfluoroelastomer, each of which demonstrates best-in-class RGD resistance for its material type.

Isolast® XploR™ J9513 offers the ultimate sealing solution for oil and gas applications where there is a risk of rapid gas decompression. It is resistant to virtually all media, including cocktails of various hydrocarbons mixed with brines, corrosion inhibitors and completion fluids. It will withstand high pressures up to 100 bar/1,450 psi and even higher when used in conjunction with anti-extrusion devices and is capable of operating in extreme temperatures.

In independent tests, Isolast® XploR™ J9513 was able to satisfy the requirements of NORSOK M-710 (now encompassed by ISO 23936-2:2011) for both aging in sweet and sour media and rapid gas decompression resistance. It was the first ever perfluoroelastomer to meet the requirements of these stringent tests.

Find contact details at www.tss.trelleborg.com.

Features and benefits

- Fully compliant with NORSOK M-710 / ISO 23936-2:2011 (aging and RGD)
- Unrivalled RGD resistance within its material type
- Temperature resistance from -5 °C/23 °F to +225 °C/437 °F
- Exceptional mechanical performance
- Outstandingly low long-term compression set
- Almost universal chemical compatibility
- Long life in the most aggressive media, including hydrocarbons and aqueous media, common within oil & gas applications
- High modulus, high strength

Applications

- Logging tools
- Wireline tools
- Drilling motors
- Swivel stacks on Floating Production Storage and Offloading (FPSO) vessels
- Flowline equipment
- Packers
- Chemical injection equipment

XploR™ is available in all standard international O-Ring sizes and cross-sections along with custom-engineered solutions and specially designed seal profiles.

ISOLAST® XPLOR™ J9513 COMPOUND DATA

Rapid Gas Decompression Facts

Inherently, elastomer seals contain voids. Gas or gas mixtures in contact with elastomer surfaces are absorbed and will saturate elastomer seals. At high-pressure, this absorbed gas is in a compressed state. When external pressure is reduced, either rapidly or over a relatively short period of time, the compressed gas nucleates at the voids, expanding within the elastomer.

The voids inflate leading to high tensile stresses or strains in the void walls. Depending on the strength and hardness of the elastomer, this can cause the elastomer to break or crack.

No elastomer can be completely resistant to rapid gas decompression; however, the XploR™ range demonstrates unrivalled RGD resistance inline with limits set by NORSOK M-710 Rev. 3."Qualification of Non-metallic Materials and Manufacturers-Polymers" and ISO 23936-2:2011.

	Standard	J9513
Elastomer base		FFKM
NORSOK M-710		Yes
Hardness	DIN 53505	95+ / -5 Shore A
Color		Black
Specific Gravity	DIN EN ISO 1183-1	1.97+ / -0.03
Tensile Strength	DIN 53 504	18.6 MPa / 2,700 psi
Elongation at Break	DIN 53 504	68 %
Modulus at 100 %	DIN 53 504	N / A
Compression Set 72 hrs @ +150 °C / +302 °F	DIN ISO 815 Type B	25 %
Air Aging 70 hrs @ +150 °C / +302 °F Hardness Change Tensile Strength Change	DIN 53508	0 Shore A -5 % -15 %
Fluid Immersion Testing: Oil ASTM No. 1: 903 70 hrs @ +150 °C / +302 °F Change in Hardness Change in Volume	DIN ISO 1817	 -1 Shore A +1.4 %
Fluid Immersion Testing: Oil IRM 903 70 hrs @ +150 °C / +302 °F Change in Hardness Change in Volume	DIN ISO 1817	 -1 Shore A +3 %
Fluid Immersion Testing: Water 70 hrs @ +100 °C / +212 °F Change in Hardness Change in Volume	DIN ISO 1817	 -1 Shore A 0.9 %
Fluid Immersion Testing: Methanol 70 hrs @ +40 °C / +104 °F Change in Hardness Change in Volume	DIN ISO 1817	 -1 Shore A 0.5 %
TR 10 Point	TBS 00036	-3 °C / +26.6 °F
Service Temperature		-5 °C to +225 °C/ -23 °F to +437 °F
Excursion Temperature		+250 °C / +482 °F

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