

Isolast® XploR™ J9513

Explosive Decompression Resistant Materials



Fully approved to NORSOK M710



Your Partner for Sealing Technology

Explosive Decompression 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 especially developed for oil and gas applications. The portfolio includes compounds in HNBR, FKM, Aflas® and Isolast® Perfluoroelastomer, each of which demonstrates best-in-class Explosive Decompression Resistance (EDR) for its material type.

Isolast®XploR™ J9513 offers the ultimate sealing solution for oil and gas applications where there is a risk of explosive decomposition. It is resistant to virtually all media even in a cocktail of various hydrocarbons mixed with brines, corrosion inhibitors, and completion fluids. It will withstand high pressures up to 100 Bar/1,450 psi, 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 M710, Rapid Gas Decompression. It is the first perfluoroelastomer to meet the requirements of this stringent test. **Find contact details at www.tss.trelleborg.com.**

Features and benefits

- Fully approved to NORSOK M710
- Unrivalled Explosive Decompression Resistance (EDR) within its material type
- Temperature resistance from -20°C/-4 °F to 240°C/464°F
- Exceptional mechanical performance
- Outstanding low long-term compression set
- Almost universal chemical compatibility
- Long life in the most aggressive media, including hydrocarbon and aqueous media, common within oil & gas applications
- High modulus, high strength
- Material compliant to NORSOK M710

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.

Explosive 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 explosive decompression resistant; however, the XploR™ range demonstrates unrivalled EDR inline with limits set by NORSOK M710 Rev. 2.

“Qualification of Non-metallic Sealing Materials and Manufacturers.”

	Standard	J9513
Elastomer base		FFKM
NORSOK M710		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/200 °C/392 °F	DIN ISO 815 Type B	25%
Air Aging 70 hrs @ 250 °C/482 °F	DIN 53508	0 Shore A
Hardness Change		-5%
Tensile Strength Change		-10%
Fluid Immersion Testing: Oil ASTM No. 1 70 hrs @ 150 °C/302 °F	DIN ISO 1817	
Change in Hardness		-1 Shore A
Change in Volume		+1.4 %
Fluid Immersion Testing: Oil IRM 903 70 hrs @ 150 °C/302 °F	DIN ISO 1817	
Change in Hardness		-1 Shore A
Change in Volume		+3 %
Fluid Immersion Testing: Water 70 hrs @ 100 °C/212 °F	DIN ISO 1817	
Change in Hardness		-1 Shore A
Change in Volume		0.9%
Fluid Immersion Testing: Methanol 70 hrs @ 40 °C/104 °F	DIN ISO 1817	
Change in Hardness		-1 Shore A
Change in Volume		0.5%
TR 10 Point	TBS 00036	-4 °C/+25 °F
Service Temperature		-20 °C to +240 °C/ -4 °F to +464 °F
Excursion temperature		+250 °C/+482 °F

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