

## Material test report FKM 90

Colour Black

Property	Unit	Test method	Test parameter	Value
Hardness	Shore A	ASTM D 2240		90 ±5
Specific gravity	g/cm <sup>3</sup>	ASTM D 1817		1,82 ±0,03
Tensile strength	MPa	ASTM D 412		20
Ultimate elongation	%	ASTM D 412		150
Tear resistance	N/mm	ASTM D 624 B		36,3
Compression set	%	ASTM D 395 B/1	70h / 200°C	29
Brittleness temperature	°C	ASTM D 746		-40
Low temp. resistance	°C	ASTM D 3418 B	TG midpoint (on O-ring)	-28,3
Low temp. resistance	°C	ASTM D 3418 B	TG midpoint	-33
Low temp. resistance	°C	ASTM D 3418 B	glass transition (DSC)	-30
Low temp. resistance	°C	ASTM D 1329	TR10	-30

### Changes of properties after ageing

Medium	Test method	Time	Temperature	Hardness Points	Tensile strength	Ultimate elongation	Volume
		H	°C		%	%	%
Air	ASTM D 573	168	200	+3,5	-13	-24,5	
Reference fuel FAM B	ASTM D 471	168	23	-13			+33,5
ASTM fuel C	ASTM D 471	168	23	-5,5			+6,5
ASTM fuel C + 5% methanol	ASTM D 471	168	23	-9			+11
M15 (15% methanol + 85% fuel C)	ASTM D 471	168	23	-12			+35
Methanol	ASTM D 471	168	23	-20			+90
Benzene	ASTM D 471	70	40	-12			+23

Specifications OIL/GAS APPL. - LOW TEMP. ANTI EXPLOSIVE DECOMPRESSION  
NORSOK M710 APPROVED - 5,33 mm  
NACE TM0297 APPROVED - 5,33 mm  
TOTALFINA AED APPROVED  
ITN 84700/A APPROVED  
NACE TM0187 TESTED - SOUR FLUID TEST ( 5% H<sub>2</sub>S )  
NACE TM0187 TESTED - SOUR FLUID TEST ( 20% H<sub>2</sub>S )  
API6A ( Sour Fluid Test ) - 10% H<sub>2</sub>S  
API6A ( Sour gas environment ) - 10 % H<sub>2</sub>S [FF/HH]  
Sour fluid test Arrhenius ISO 23936-2 / Norsok M710-3  
Life prediction test & AED - Arrhenius ISO 23936-2  
SHELL - MESC SPE 85/301 (09/2012)

Temp. range - 41 +220°C (-46 +250°C short time)

The above indicated data were determined to the best knowledge according to modern laboratory standards on standardised test specimen. If these data are compared with data which were determined on finished parts it may come to variations.