



# KATON<sup>®</sup> FKM FK1 NORSOK M710

AnTi explosive decompression 90 Duro Series

#### **KATON<sup>®</sup> FKM FK1 NORSOK M710** AnTi explosive decompression 90 Duro Series

Fluorocarbon (FPM, FKM) and KATON<sup>®</sup> O-rings: These high-pressure O-rings exhibit exceptional chemical resistance, oil resistance, temperature stability, and low compression set. They perform well in ozone, high temperatures, oxygen, mineral oils, synthetic hydraulic fluids, fuels, aromatics, and various solvents and chemicals.

**Applications include:** hydraulic oils, petroleum-based oils, silicone oils and greases, mineral oils, plant-based oils and greases, aliphatic hydrocarbons (fuels, butane, propane, natural gas), aromatic hydrocarbons (benzene, toluene), chlorinated hydrocarbons (trichloroethylene and carbon tetrachloride), chlorine water, gasoline, fuels, liquefied petroleum gas (LPG), natural gas, propane, diesel, high vacuum, ozone, and weather conditions.

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General		
Features	<ul> <li>High-pressure resistance, corrosion resistance, Explosive decompress</li> <li>Approved to NORSOK M710 RGD.</li> </ul>	sion resistant,
Applicability	<ul> <li>Industrial heavy machinery</li> <li>Oil well drilling, *subsea use,control systems and valves</li> </ul>	
Color	Black	
Processing method	Compression molding	

Material	Results/unit	Test method
Mooney viscosity (ML 1+10, 121°C)	40MU	N/A
Fluorine content	66%	N/A
Temperature Range	<b>-5°C~220°</b> C	AST <mark>M D573</mark>



Results	Test method	
Black		
90	D2240-05	
2385	D412-06a	
72%	D412-06a	
17.15	D412-06a	
20.5%	D395-16B	
21.5%	D395-16B	
	Results           Black           90           2385           72%           17.15           20.5%           21.5%	ResultsTest methodBlack90D2240-052385D412-06a72%D412-06a17.15D412-06a20.5%D395-16B21.5%D395-16B

HEAT AGE 70hrs, 250°C AS568-214 O-ring	Requirments	Results	ts Test method	
Hardness change	+10(max)	+2	D573-04	
Tensile strength change,%	-25(max)	-10	D573-04	
Elongation change,%	-25(max)	+7	D573-04	
Weight Change,%		-3%		

ASTM FUEL C resistance 70hrs, 23°C AS568-214 O-ring	Requirments	Results	Test method
Hardness change	+-5	-3	D471-16a
Tensile strength change ' %	-25(max)	-18	D471-16a
Elongation change,%	-20(max)	-18	D471-16a
Volume Change,%	0~+10	+6	D471-16a

ASTM NO.101 oil resistance 70hrs, 200°C AS568-214 O-ring	Requirments	Results Test method	
Hardness change	-15~+5	-11	D471-16a
Tensile strength change ' %	-40(max)	-29	D471-16a
Elongation change,%	-20(max)	-12	D471-16a
Volume Change,%	0~+15	+14.2	D471-16a

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NORSOK





_		Material #FK2 F4
Subject: —	Rapid Gas Decompr Annex B.	ression (RGD) testing on one (1) material per NORSOK M-710 Rev.2,
Received:	Ten (10) No325 O-	Rings labeled FK2 F4. Five (5) o-rings tested.
Testing:	Туре:	Rapid Gas Decompression
	Media:	10% Carbon Dioxide (CO <sub>2</sub> ), 90% Methane (CH <sub>4</sub> ).
	Test Temperature:	100 ± 2 °C
	Test Pressure:	150 +10/-5 bar (2176 psi +145/-73 psi)
	Sample Type:	Number 325 O-Ring: 5.33 mm cross sectional diame <mark>ter (CSD)</mark> 37.47 mm inner diameter (ID)
	Exposure Period and	d Number of Cycles:
		1) Saturate minimum 68 hours at test temperature an <mark>d test pressure</mark>
		2) Decompress test vessel at 30 ± 2 bar per minute
		3) Hold 100°C test temperature and zero pressure for 1 hour +10/-0
		4) Resume 150 bar test pressure
		5) Cycle 10 each $23 \pm 10$ bour for each cycle
		6) Repeat steps 2 through 5 (for a total of 10 Rapid Gas Decompression
		{RGD} sequences)
		<ul> <li>7) Following 10<sup>th</sup> rapid decompression, reduce pressure as before and cool to room temperature for 24+4/-0 hours</li> <li>8) Section O-Rings with a razor blade and photograph as soon as practical after removal from sample test fixtures</li> </ul>



Maxmold Polymer Co., Ltd

Material #FK2 F4





Specification: 20 to 40 bar/min (300 +150/-75 seconds), Remain at zero PSI for 3600 seconds.



Maxmold Polymer Co., Ltd

Material #FK2 F4

Test Housing: Such that nominal cross sectional diameter is compressed by  $20 \pm 2\%$ 

Results: The FK2 F4 samples passed the NORSOK M-710 Rev.2 Appendix B RGD test. .

Compound	Rating in Circumferent Order	Final Rating	Pass/Fail	
#FK2 F4	1 3301	3301	Pass	
	2 3311	3311	Pass	
	3 1113	1113	Pass	
	4 3111	3111	Pass	
	5 3111	3111	Pass	
		Overall Rating:	Pass	







Maxmold Polymer Co., Ltd

Material #FK2 F4

Photographs for Material Sample F4:



Figure 1 F4 Material as Received



Figure 2 F4 Material installed on Tooling Before Test



Figure 3 F4 Material installed on Tooling After Test

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