

Marco Compound # V1090

90 Durometer ED Resistant FKM for the Gas and Oil Industries

Technical Datasheet

General Description:

Marco compound V1090 is a high durometer FKM specifically designed for use in Oil and Gas drilling applications. This material is highly versatile and has a wide range of chemical compatibility. This compound passed testing for NORSOK M-710 and NACE TM0297 standards for Rapid Gas Decompression (RGD) / Explosive Decompression (ED).

Features:

- Excellent explosive decompression resistance
- Tested to NORSOK M-710 and NACE TM0297
- Excellent resistance to acids, fuels, mineral oils, greases, aliphatic, aromatic and chlorinated hydrocarbons, non-flammable hydraulic fluids (HFD) and many organic solvents and chemicals.
- Superior resistance to RGD reduces maintenance and increases MTB (mean time between failures)

Applications:

- Low temperature and high pressure environments
- Exploration and drilling equipment
- Subsea Valves and pumps
- Compressors

Service Temperature:

-40 to 437°F (-40 to 225°C)

Excursions up to 450°F (232°C)

Specification:

ASTM 2000 M3HK914 A1-10 B37 B38 EO78 EF31

PHYSICAL PROPERTIES

ORIGINAL PROPERTIES	ASTM D2000 Requirements	Typical Test Results
Hardness, Shore A (ASTM D2240-05)	90 +/- 5	90
Color	Black	Black
Tensile Strength, MPa (psi) (ASTM D412-06a)	14.0 (2,031)	21.01 (3,047)
Ultimate Elongation, % (ASTM D412-06a)	100 min.	204
Compression Set, 22 hrs @175° C (ASTM D395-03, Method B)	30 max.	18.2
Compression Set, 22 hrs @200° C (ASTM D395-03, Method B)	30 max.	18.9
TR-10 (ASTMD1329-08)	----	-30° C

HEAT RESISTANCE – ASTM D 573 (70 hrs. @ 250°C)	ASTM D2000 Requirements	Typical Test Results
Hardness Change, points	+10 max.	+3
Tensile Strength Change, %	-25 max.	-10
Ultimate Elongation Change, %	-25 max.	+10
Weight Change, %		-2.2

FLUID RESISTANCE – FUEL C – ASTM D471-12 (70 hrs. @ 23°C)	ASTM D2000 Requirements	Typical Test Results
Hardness Change, points	+/- 5	-5
Tensile Strength Change, %	-25 max.	-18
Ultimate Elongation Change, %	-20 max.	-16
Volume Change, %	0 to +10	+4.3

FLUID RESISTANCE – SERVICE FLUID 101 – ASTM D 471 (70 hrs. @ 175°C)	ASTM D2000 Requirements	Typical Test Results
Hardness Change, points	-15 to +5	-12
Tensile Strength Change, %	-40 max.	-24
Ultimate Elongation Change, %	-20 max.	-4
Volume Change, %	0 to +15	+14.7

RAPID GAS DECOMPRESSION – NORSOK M-710	NORSOK M-710 Requirements	Test Result
Test gas of 90/10 mol % CH ₄ /CO ₂ compressed to 150 bar and decompressed at a rate of 20.5 bar/min. 10 decompression cycles @ 100°C	Pass	Pass

RAPID GAS DECOMPRESSION – NACE TM0297 (100°C)	NACE TM0297 Requirements	Test Result
Test gas of 100% CO ₂ compressed to 380 bar @ 150°C (maintained for 24 hrs) and decompressed at a rate of 70 bar/min	NACE Rating of 1 No RGD Damage	Pass

Date: 2016-10-3