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Marco Compound # V1052
90 Durometer ED Resistant FKM
Technical Datasheet

General Description:
Our V1052 high durometer FKM compound has been specifically designed for use in Oil and Gas drilling applications, it is Explosive decompression resistant. This compound exhibits excellent extrusion resistance and low compression set at high temperatures.

Features:
- Tested and certified for Explosive Decompression resistance
- Low compression set at high temperatures.
- 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:
- Exploration and drilling equipment
- Subsea Valves and pumps
- Compressors
- Good chemical resistance to carbon tetrachloride, diester synthetic lubricants, gasoline, hot air and toluene.

Service Temperature:
-20° to 400° F

Specification:
ASTM D2000 M3HK910 B37 B38 EF31 EO78 Z1 Z2 Z3 Z4 Z5 Z6 Z7

PHYSICAL PROPERTIES

ORIGINAL PROPERTIES	Specification Requirements	Typical Test Results
Hardness, Shore A (ASTM D2240)	90 +/- 5	93
Color	Black	Black
Tensile Strength, psi (D412)	1,400min.	3410
Ultimate Elongation, % (D412)	100 Min.	103
Specific Gravity, ASTM D297	As determined	1.81

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HEAT RESISTANCE – AIR AGING ASTM D573 (70 hrs. @ 482° F)	**Specification Requirements**	**Typical Test Results**
Hardness Change, Shore A, ASTM D2240	+/- 15	0
Tensile Strength Change, %, ASTM D1414	+/- 30	-30
Ultimate Elongation Change, %, ASTM D1414	-50 (max)	-1

FLUID AGING, IRM 903 OIL - (70 hrs. @ 302° F)	**Specification Requirements**	**Typical Test Results**
Volume Change, %, ASTM D471	0 to + 5	+1

COMPRESSION SET – ASTM D395 Method B (22 hrs. @ 392° F)	**Specification Requirements**	**Typical Test Results**
Permanent Set %	50 (max)	17

FLUID AGING, ASTM FUEL C, ASTM D471 (70 hrs. @ 73° F)	**Specification Requirements**	**Typical Test Results**
Hardness Change, Shore A, ASTM D2240	+/- 5	-3
Tensile Strength Change, %, ASTM D1414	-25 (max)	-12
Ultimate Elongation Change, %, ASTM D1414	-20 (max)	+2
Volume Change, %, ASTM D297	0 to + 10	+3

FLUID AGING, SERVICE LIQUID #101, ASTM D471 (70 hrs. @ 392° F)	**Specification Requirements**	**Typical Test Results**
Hardness Change, Shore A, ASTM D2240	-15 to +5	-8
Tensile Strength Change, %, ASTM D1414	-40 (max)	-16
Ultimate Elongation Change, %, ASTM D1414	-20 (max)	-8
Volume Change, %, ASTM D297	0 to +15	+9

TEMPERATURE RETRACTION – ASTM D1329	**Specification Requirements**	**Typical Test Results**
TR-10, Degrees F	Report	+3

DIFFERENTIAL SCANNING CALORIMETRY	**Specification Requirements**	**Typical Test Results**
Glass Transition, Degrees F	Report	0

ABRASION RESISTANCE 1000 REV. H18, 1000g (D3389)	**Specification Requirements**	**Typical Test Results**
Weight loss in mg per revolution	Report	0.2776

API EXTRUSION 350° F, 7500 psi, gap of 0.090"	**Specification Requirements**	**Typical Test Results**
Height loss, pct	Report	29
Weight loss, pct	Report	17

EXPLOSIVE DECOMPRESION RESISTANCE CO_2 AT 750 psi, (0568-325). 24 Hrs. @ 70° F	Specification Requirements	Typical Test Results
Immediately After Decompression		
Hardness change, pts, Shore A	Report	-15
Cross-section change, pct.	Report	15
Median Visual Rating [a]	Report	1
10 Minutes after Decompression		
Hardness change, pts, Shore A	Report	-14
Cross-section change, pct.	Report	6
Median Visual Rating [a]	Report	1
45 Minutes after Decompression		
Hardness change, pts, Shore A	Report	-10
Cross-section change, pct.	Report	3
Median Visual Rating [a]	Report	1

[a]Visual Rating System (NACE TM0192-92, Section 8.6)
1- No visible damage
2- Minimum damage confirmed to the surface (few blisters and crack)
3- External and internal damage (many blisters and cracks)
4- Extensive damage, fragmentation