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Marco Compound # M1004
90 Durometer, Black, AMS-P-5510 Buna-N
Technical Datasheet

Common Names:
NBR (acrylonitrile butadiene rubber)**, Buna-N, Nitrile.**

General Description:
NBR is the most commonly used general purpose o-ring material because of relative low cost, good mechanical properties, and basic resistance to many common lubricants. Specific physical and chemical resistances vary by compound formulation. M1004 is formulated to provide value with balance cost and performance. Please contact sales@marcorubber.com for assistance in selecting a specialized compound when increased resistance to temperature, lubricants, or physical properties is required.

Features:
- Meets AMS-P-5510 (MS28778)
- Relative low cost
- Good/Excellent resistance to compression set and tear/abrasion
- Good/Excellent resistance to many petroleum oils/greases, hydraulic fluids, alcohol, ambient water, silicone greases, Di-ester base lubricants and ethylene-glycol based fluids

Limitations:
- Ozone, direct sunlight, UV, weathering, aromatic fuels, glycol-based brake fluids, polar solvents, non-flammable hydraulic fluids (HFD), aromatic/chlorinated hydrocarbons, ketones, esters, and aldehydes, 15 year shelf life

Cure System:
Sulfur
(Peroxide cured CPDs available with improved physical, chemical, and thermal properties)

Service Temperature:
-65 to 275° F

Specification:
ASTM 2000 M7BG910 A14 B14 EA14 EF11 EF21 EO14 EO34 Z1 Z2 (Z1 = BRITTLENESS, Z2 = TR-10)

PHYSICAL PROPERTY STANDARDS

ORIGINAL PROPERTIES	ASTM D2000 Requirements	Typical Test Results
Hardness, Shore A	90 +/- 5	88
Color	Black	Black
Tensile Strength, psi	1,450 min.	1,975
Ultimate Elongation, %	100 min.	126

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HEAT RESISTANCE – A14, ASTM D 573 (70 hrs. @ 100°C)	**ASTM D2000 Requirements**	**Typical Test Results**
Hardness Change, points	+/- 15	+2
Tensile Strength Change, %	+/- 30	-6
Ultimate Elongation Change, %	-50 max.	-23

COMPRESSION SET – B14, ASTM D 325 Method B (22 hrs. @ 100°C)	**ASTM D2000 Requirements**	**Typical Test Results**
Permanent Set %	25 max.	11

FLUID RESISTANCE, Water – EA14, ASTM D 471 (70 hrs. @ 100°C)	**ASTM D2000 Requirements**	**Typical Test Results**
Hardness Change, points	+/- 10	0
Volume Change, %	+/- 15	+2

FLUID RESISTANCE – ASTM Fuel A – EF11, ASTM D 471(70 hrs. @ 23°C)	**ASTM D2000 Requirements**	**Typical Test Results**
Hardness Change, points	+/- 10	-7
Tensile Strength Change, %	-25 max.	-21
Ultimate Elongation Change, %	-25 max.	-6
Volume Change, %	-5 to +10	+3

FLUID RESISTANCE – ASTM Fuel B – EF21, ASTM D 471 (70 hrs. @ 23°C)	**ASTM D2000 Requirements**	**Typical Test Results**
Hardness Change, points	-30 to 0	-7
Tensile Strength Change, %	-60 max.	-21
Ultimate Elongation Change, %	-60 max	-6
Volume Change, %	0 to +40	+3

FLUID RESISTANCE –ASTM #1 Oil – EO14, ASTM D 471 (70 hrs. @ 100°C)	**ASTM D2000 Requirements**	**Typical Test Results**
Hardness Change, points	-5 to +5	+4
Tensile Strength Change, %	-25 max.	0
Ultimate Elongation Change, %	-45 max.	-30
Volume Change, %	-10 to +5	-8

FLUID RESISTANCE – IRM 903 Oil, -EO34, ASTM D 471 (70 hrs. @ 100°C)	**ASTM D2000 Requirements**	**Typical Test Results**
Hardness Change, points	-10 to +5	-10
Tensile Strength Change, %	-45 max.	-14
Ultimate Elongation Change, %	-45 max.	-27
Volume Change, %	-0 to +25	+10

LOW TEMPERATURE RESISTANCE – Z1, Z2	**ASTM D2000 Requirements**	**Typical Test Results**
Brittle point, °C (°F)	Report	-62 (-80)
TR-10, °C (°F)	Report	-49 (-56)

Date: 2016-7-1

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