

Marco Rubber Compound # E1121

90 Durometer, Black, EPDM for Geothermal Applications

Technical Datasheet

Common Names:

Ethylene-Propylene (EP, EPDM)

General Description:

EPDM rubber (ethylene propylene diene monomer rubber) is an elastomer which is characterized by wide range of applications and good chemical resistance. Our E1121 high durometer EPDM compound has been formulated to have excellent resistance to steam and explosive decompression for use in the Geothermal industry. This material can withstand use in steam up to 550°F (288°C) with excursions up to 600°F (315°C).

Features:

- Excellent resistance to steam and hot water
- Excellent explosive decompression resistance
- Tested to NACE TM0297-97 ED Standard
- Good chemical resistance.
- Resistant to ketones, alkalis, polar solvents, ozone, sunlight, alcohols, glycol engine coolant and Skydrol (phosphate ester hydraulic fluid).

Limitations:

- Not recommended for oils, gasoline, kerosene, aromatic and aliphatic hydrocarbon, halogenated solvents, concentrated acids, non-polar solvents, petroleum oils and aromatic fuels.

Service Temperature:

-58 to 600° F (-50 to 288° C)

PHYSICAL PROPERTY STANDARDS

ORIGINAL PROPERTIES	ASTM Standard	Typical Test Results
Hardness, Shore A	D1415	87
Color	-----	Black
Tensile Strength, MPa (psi)	D412	20 (2900)
Elongation, %	D412	250
Specific Gravity	D792	1.12
Modulus @ 100%, MPa		6.4
TR-10, °C	D1329	-50
Tear Strength, kN/m		40

This information is to the best of our knowledge accurate and reliable. However, Marco Rubber makes no warranty, expressed or implied, that parts manufactured from this material will perform satisfactorily in the customer's application. It's the customer's responsibility to evaluate parts prior to use.

HEAT RESISTANCE, DRY AIR – ASTM D 865 (70 hrs. @ 125°C)	Typical Test Results
Hardness Change, points, max.	+5
Tensile Strength Change, %, max.	-10
Ultimate Elongation Change, %, max.	-23

HEAT RESISTANCE, DRY AIR – ASTM D 865 (168 hrs. @ 125°C)	Typical Test Results
Hardness Change, points, max.	+7
Tensile Strength Change, %, max.	-13
Ultimate Elongation Change, %, max.	-38

COMPRESSION SET – ASTM D 395 Method B	Typical Test Results
24 hrs. @ 135°C, % max	25
70 hrs. @ 135°C, % max	37

STEAM RESISTANCE - ASTM D1414-94, (168hrs. @ 288°C)	Typical Test Results
Hardness, pts.	82
Tensile Strength, MPa	16
Ultimate Elongation, %	280
Volume Change, %	8.2
Compression set, %	75

STEAM RESISTANCE - ASTM D1414-94, (24hrs. @ 316°C)	Typical Test Results
Hardness, pts.	75
Tensile Strength, MPa	4
Ultimate Elongation, %	55
Volume Change, %	12.6
Compression set, %	89

FLUID AGING, SEAWATER – (70 hrs. @ 200°C)	Typical Test Results
Hardness Change, points, max.	+5
Tensile Strength Change, %, max.	+6
Ultimate Elongation Change, %, max.	+11
Volume Change, %, max.	+1.185

FLUID AGING, 37% HCL – (168 hrs. @ 23°C)	Typical Test Results
Hardness Change, points, max.	+1
Tensile Strength Change, %, max.	+9
Ultimate Elongation Change, %, max.	+3
Volume Change, %, max.	1.015

FLUID RESISTANCE, 100% IRM 903 – (70hrs @ 100°C)	Typical Test
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	Results
Volume Change	+100

FLUID RESISTANCE, 10% IRM 903 – (168hrs @ 288°C)	Typical Test Results
Volume Change	+80

Note: Material retains good physical properties and sealing capabilities after the high temperature test. Tests have shown this material can maintain good physical properties when exposed to temperature and steam up to 550° F.

Date: 2016-7-1

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