

MARKEZ® Z1352 PERFLUOROELASTOMER

TECHNICAL DATASHEET

GENERAL PURPOSE HIGH TEMPERATURE BLACK PERFLUOROELASTOMER

Z1352 offers an almost universal chemical compatibility for use in semiconductor, Oil and Gas, and general chemical applications. Its unique cross-linking processing results in an enhanced chemical resistance to strong acids and amine resistance. Used as a cost effective alternative to 6380, 1050LF and 605. Available in o-rings and custom shapes. Our experienced application engineers welcome the opportunity to assist you in selecting the compound that provides the best value for your application.

FEATURES AND BENEFITS

- Cost effective
- Nearly universal chemical compatibility
- Hot Amine Resistance
- Excellent Acid Resistance
- Good dynamic properties - Long service life
- Compatible with steam < 480°F
- Compatible with amines < 400°F

APPLICATION EXAMPLES

- Chemical Industry
- Connectors, Controls & Filters
- Petro-Chem equipment, Sour gas
- Hot Amines
- Inorganic & Organic Acids & Alkine
- Ketones, Esters, Ethers, Aldehydes
- Solvents
 - Acetone, Heptane
 - Glycol ethers, Naphtha
 - Toluene, Turpentine
 - White spirit, Xylene
 - Methyl ethyl ketone (MEK)
 - Dimethylformamide (DMF)
- Lab Instrumentation
- Liquid chromatography equipment
- Mechanical seals
- Painting equipment
- Pumps & Valves
- Aerospace Fuels, Skydrol & Oils
- Semiconductor Applications
 - Dry etch
 - Strip
 - LPCVD
 - Litho/Track
 - ECP
 - Exhaust valves

TYPICAL PHYSICAL PROPERTIES

PROPERTIES	ASTM	TYPICAL VALUE
Color		Black
Material Type	FFKM	FFKM
Hardness, Shore A	D1415	77
Tensile Strength, MPa (psi)	D412	15.9 (2,305)
Elongation at Break	D412	120%
Modulus @ 100%, MPa (psi)	D412	13.9 (2,016)
Compression Set 70 hrs. @ 200°C, (392°F)	D395	24.7%
Specific Gravity, g/cm ³		1.99
Min Operating Temp (lower spikes)		-15°C (5°F)
Max Operating Temp (higher spikes)		260°C (500°F)



TESTING RESULTS OF MARKEZ® Z1352 UNDER VARIOUS CONDITIONS

CHEMICAL RESISTANCE

CHEMICAL	RATING
Inorganic acid	A
Organic acid	A
Alkalis	A
Amines (RT)	A
Hot amines ($\leq 100^{\circ}\text{C}$)	A*
Hot amines ($> 100^{\circ}\text{C}$)	B*
Water / Steam	A
Ketons	A
Esters	A
Ethers	A
Adelhydes	A
Alcohols	A
Hydrocarbons	A
Sour gas	A
Lubricants	A
Fluorinated fluids	C

*Markez Z1352 provides excellent chemical compatibility with most chemicals, including hot Amines up to 200°C . Performance of the material may vary depending on the Amine and temperature used.

RATING SYMBOL	VOLUME SWELLING
A	<10%
B	10-30%
C	30-50%
D	>50%

Markez Z1352 shows good compatibility with hot acids with minor physical property changes.

ACIDS

Nitric Acid 65%	80°C for 72 hrs.
Tensile strength change, %	-30
Elongation change, %	+6
Hardness, Shore A	-5
Volume change, %	+5

Glacial Acetic Acid	100°C for 336 hrs.
Tensile strength change, %	-13
Elongation change, %	-15
Hardness, Shore A	-5
Volume change, %	+5

Formic Acid 85%	200°C for 168 hrs.
Tensile strength change, %	-14
Elongation change, %	-5
Hardness, Shore A	-5
Volume change, %	+7

Sulfuric Acid 98%	180°C for 168 hrs.
Tensile strength change, %	-10
Elongation change, %	+25
Hardness, Shore A	-8
Volume change, %	+4

WATER AND STEAM

Water	200°C for 672 hrs.
Tensile strength change, %	+2
Elongation change, %	+16
Hardness, Shore A	-3
Volume change, %	+4.1

Water	225°C for 168 hrs.
Tensile strength change, %	-16
Elongation change, %	+4
Hardness, Shore A	-3
Volume change, %	+3

Steam	200°C for 168 hrs.
Tensile strength change, %	-19
Elongation change, %	+44
Hardness, Shore A	-4
Volume change, %	+3

Steam	200°C for 672 hrs.
Tensile strength change, %	-17
Elongation change, %	+41
Hardness, Shore A	-6
Volume change, %	+3

ALKALINE AND AMINES

Ethylenediamine	100°C for 72 hrs.
Tensile strength change, %	-35
Elongation change, %	+13
Hardness, Shore A	-4
Volume change, %	+6

N-methyl-diethanolamine (MDEA)	150°C for 168 hrs.
Tensile strength change, %	-22
Elongation change, %	-2
Hardness, Shore A	-2
Volume change, %	+2

N-methyl-diethanolamine (MDEA)	200°C for 168 hrs.
Tensile strength change, %	-38
Elongation change, %	-6
Hardness, Shore A	-5
Volume change, %	+8

Diglycolamine	150°C for 168 hrs.
Tensile strength change, %	-35
Elongation change, %	+11
Hardness, Shore A	-10
Volume change, %	+20

Ethanolamine	150°C for 72 hrs.
Tensile strength change, %	-30
Elongation change, %	+9
Hardness, Shore A	-9
Volume change, %	+17

Dipropylamine	150°C for 168 hrs.
Tensile strength change, %	-27
Elongation change, %	-14
Hardness, Shore A	-4
Volume change, %	+6

Dipropylamine	200°C for 168 hrs.
Tensile strength change, %	-29
Elongation change, %	-10
Hardness, Shore A	-5
Volume change, %	+7

NH₃, 28%	100°C for 336 hrs.
Tensile strength change, %	-19
Elongation change, %	-16
Hardness, Shore A	-3
Volume change, %	+4