

TABLE OF PROPERTIES

O-RINGS

Nomenclature	Nitrile (Buna N)	Silicone	Fluorocarbon (Viton, Fluorel)	Fluorosilicone	Ethylene-Propylene
ASTM D2000 Prefix	BG, BK, CH	FG, FE, GE	HK	FK	CA
ASTM D1418 Designation	NBR	PVMO, VMO	FKM	FYMO	EPDM, EPM
PROPERTIES					
Compression set resistance	Very Good	Excellent	Very Good	Very Good	Very Good
Continuous high temp. limit	250°F, 121°C	450°F, 150°C	400°F, 204°C	400°F, 204°C	300°F, 149°C
Dynamic service/abrasion resistance	Excellent	Poor	Very Good	Poor	Very Good
Hardness range, "A" scale	40-90	40-80	70-90	60-80	50-90
Low temp. capability	-40°F, -40°C	-75°F, -59.5°C	-20°F, -29°C	-75°F	-70°F, -57°C
Relative o-ring cost	Low	Moderate	Mod./High	High	Low
FLUID COMPATABILITY SUMMARY					
Acid, inorganic	Fair	Good	Excellent	Good	Good
Acid, organic	Good	Excellent	Good	Good	Very Good
Aging (oxygen, ozone, weather)	Fair/Poor	Excellent	Very Good	Excellent	Very Good
Air	Fair	Excellent	Very Good	Very Good	Very Good
Alcohols	Very Good	Very Good	Fair	Very Good	Excellent
Aldehydes	Fair/Poor	Good	Poor	Poor	Very Good
Alkalis	Fair/Good	Very Good	Good	Good	Excellent
Amines	Poor	Good	Poor	Poor	Very Good
Animal oils	Excellent	Good	Very Good	Excellent	Good
Esters, Alkyl Phosphate (Skydrol)	Poor	Good	Poor	Fair/Poor	Excellent
Esters, Aryl Phosphate	Fair/Poor	Good	Excellent	Very Good	Excellent
Esters, Silicate	Good	Poor	Excellent	Very Good	Poor
Ethers	Poor	Poor	Poor	Fair	Fair
Gasoline	Poor	Poor	Good	Good	Poor
Hydrocarbon fuels, Aliphatic	Excellent	Fair	Excellent	Excellent	Poor
Hydrocarbon fuels, Aromatic	Good	Poor	Excellent	Very Good	Poor
Hydrocarbon fuels, Halogenated	Fair/Poor	Poor	Excellent	Very Good	Poor
Hydrocarbon fuels, High Aniline	Excellent	Very Good	Excellent	Excellent	Poor
Hydrocarbon oils, Low Aniline	Very Good	Fair	Excellent	Very Good	Poor
Impermeability to gases	Good	Poor	Very Good	Poor	Good
Ketones	Poor	Poor	Poor	Fair/Poor	Excellent
Silicone oils	Excellent	Good	Excellent	Excellent	Excellent
Vegetable Oils	Excellent	Excellent	Excellent	Excellent	Good
Water/steam	Good	Fair	Fair	Fair	Excellent

MATERIAL	ADVANTAGES	DISADVANTAGES
NITRILE (Buna N)(NBR) Nitrile is the most widely used elastomer for general purpose sealing. Nitrile has excellent resistance to petroleum products and is superior to the most elastomers with regard to compression set (cold flow), tear and abrasion resistance.	<ul style="list-style-type: none"> •Excellent general sealing characteristics •Excellent resistance to petroleum oils and fluids •Good cold water resistance •Can service a wide variety of temps. •Low cost 	<ul style="list-style-type: none"> •Poor weather resistance •Poor resistance to ozone •Moderate heat resistance •Poor resistance to strong acids
SILICONE RUBBER (Si) Silicone possesses excellent resistance to temperature extremes. Silicone's retention of its properties at extremely high temperatures is superior to other elastic materials.	<ul style="list-style-type: none"> •Excellent high/low temp resistance •Excellent resistance to dry heat •Excellent compression set (cold flow) resistance 	<ul style="list-style-type: none"> •Poor physical strength •Poor resistance to petroleum products •Poor dynamic sealing
FLUOROCARBON RUBBER (Viton) (FKM) Fluorocarbon is recommended for seal use in aircraft, automobile and other mechanical devices requiring maximum resistance to elevated temperature and to a wide variety of functional fluids.	<ul style="list-style-type: none"> •Excellent resistance to petroleum products •Excellent resistance to organic acids •Excellent high temperature resistance •Good Compression set resistance 	<ul style="list-style-type: none"> •Moderate low temperature resistance •High cost
FLUROSILICONE (FSi) Fluorosilicone combines the good high and low temperature properties of silicone with basic fuel and oil resistance. Its primary use is in high temp fuel systems or where the dry heat resistance of silicone is required.	<ul style="list-style-type: none"> •Good heat resistance •Good resistance to petroleum products •Good low temperature resistance 	<ul style="list-style-type: none"> •Poor physical strength and abrasion resistance •High cost
ETHYLENE-PROPYLENE (EP) Ethylene-Propylene is very effective in brake systems and for sealing hot water and steam. Ethylene-Propylene performs in a wide temperature range and is very weather resistant.	<ul style="list-style-type: none"> •Excellent weather resistance •Good high/low temperature resistance •Good abrasion resistance •Relatively low cost •Good chemical resistance 	<ul style="list-style-type: none"> •Poor resistance to petroleum products

This data has been obtained from numerous sources. While it is believed to be correct, we cannot assume responsibility for its use.