SEALING ELEMENT MATERIALS

TROSTEL COMPOUND NO.

NATURAL RUBBER (Polyisoprene - NR) SERIES 100

Earliest polymer - general purpose rubber - not used in oil resistant applications. Satisfactory with many corrosive chemicals, both acids and bases. Temperature range is —65°F. to 225°F.

STYRENE - BUTADIENE RUBBER (Buna S-SBR) SERIES 200

These compounds find little use in seal applications and are used primarily where oil resistance is not a requirement. Suitable for brake fluids, and alcohol water mixture. Temperature range is —65°F. to 225°F.

BUTYL (11R) SERIES 400

A saturated polymer with excellent ozone resistance and impermeability to air. Generally used with phosphate esters as well as ketones, chlorinated solvents, animal and vegetable oil and concentrated acid. Temperature range is —40°F. to 300°F.

NEOPRENE (Chloroprene or CR) SERIES 500

These compounds are used where increased oil resistance with good weathering or ozone aging characteristics are desired. Temperature range is —40°F. to 250°F.

BUNA-N (Nitrile or NBR) SERIES 600 & 700

The most widely used polymer for oil resistant seal applications with a temperature range of —65°F. to 275°F. Buna N has excellent resistance to hydrocarbon solvents, petroleum, mineral and vegetable oils and gasoline. It has a good compression set and good resistance to chemical and diluted acid.

ETHYLENE PROPYLENE RUBBER (EPM-EPDM) SERIES 900

These compounds are based on a saturated polymer and have outstanding weathering and ozone resistance. They have good resistance to mild acids and dilute alkalis as well as steam and hot water. Temperature range is —65°F. to 350°F.

TROSTEL COMPOUND NO.

POLYACRYLATES (ACM) SERIES 1000

Polyacrylates show outstanding resistance to type A transmission fluids and hot air aging. They also have excellent resistance to ozone, oxygen and hydrocarbon solvents. These materials have a temperature range of —10°F. to 350°F. Not recommended for use with steam or water soluble materials such as Methanol or Ethylene Glycol.

VITON (1) FLUOREL (2) (Fluorocarbons) SERIES 1100

Compounds of these elastomers have excellent qualities for a wide range of applications with a temperature range of —20°F. to 500°F. Viton has excellent resistance to ozone, hydrocarbons, chemical solvents, oils and gasoline, as well as diester based lubricants. Viton is used where the performance of other polymers is unsatisfactory and a premium material is justified.

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(2) Registered trade name of 3M Co.

SILICONES SERIES 1200

These polymers have a wide temperature range from —80°F. to 500°F. They have excellent resistance to ozone, animal and vegetable oils as well as outstanding aging properties. Not recommended for use with concentrated acids, ketones or chlorinated solvents.

HYPALON SERIES 1400

A synthetic saturated polymer characterized by resistance to oxidation, ozone and heat. It has a serviceable temperature range of —40°F. to 350°F. Hypalon compounds are resistant to oxidizing acids, chemicals and oils.

POLYURETHANE SERIES 1500

Trostel's castable Series 1500 Polyurethane has outstanding abrasion and wear resistance and excellent mechanical strength. The oil resistance of this material is comparable to nitriles. Temperature range is —40°F. to 225°F.

FELT

Felt lends itself well to simple grease or oil seal applications and can be used effectively to seal out dust or dirt. Primarily used on slow speed applications. Felt maintains a constant sealing pressure regardless of wear and can therefore tolerate excessive end play, minor misalignment or out-of-round conditions.

LEATHER

Leather is less sensitive to shaft finish than synthetic rubber and being absorbent it can be used under intermittently dry conditions. The leather used in Trostel seals is impregnated with a special silicone compound to seal the leather and to provide built in lubrication. Leather is excellent for use with most types of oil and grease and with a wide range of chemicals.

LIP MATERIAL CODE LETTERS

The code letters used to denote lip material in the size and numerical seal listing in this catalog are defined below:

L = Leather
S = Synthetic - Nitrile
P = High Temp Polyacrylate
R = Silicone
F = Felt
T = Teflon
U = Polyurethane

MAJOR PROPERTIES OF POLYMER COMPOUNDS AND LEATHER

TROSTEL SERIES NO.	100	200	400	500	600 & 700	900	1000	1100	1200	1400	1500	
TYPE	NATURAL RUBBER (Polyisoprene NR)	STYRENE-BUTADIENE RUBBER (Buna S-SBR)	BUTYL (11R)	NEOPRENE (Chloroprene or CR)	BUNA N (Nitrile or NBR)	ETHYLENE PROPYLENE RUBBER (EPM-EPDM)	POLY-ACRYLATES (ACM)	VITON ① FLUOREL ② (Fluorocarbons)	SILICONE	HYPALON	(Castable) POLY-URETHANE	LEATHER
SUFFIX CODE					S		P		R			
Durometer Range	50-100	50-100	50-90	50-90	50-100	50-90	50-90	60-90	50-80	50-90	50-90	
Tensile psi	3500	2000	2000	3000	3000	2000	2000	2000	1000	3000	8000	
Heat Resistance	225°F.	225°F.	300°F.	250°F.	275°F.	350°F.	300°F.	500°F.	500°F.	350°F.	225°F.	200°F.
Low Temperature	—65°F.	—65°F.	—40°F.	—40°F.	—65°F.	—65°F.	—30°F.	—20°F.	—80°F.	—40°F.	—40°F.	—60°F.
Ozone Resistance	Poor	Poor	Good	Fair	Excel.	Excel.	Excel.	Excel.	Excel.	Excel.	Excel.	
Compression Set	Good	Poor	Fair	Good	Good	Good	Good	Good	Excel.	Good	Good	
Acid Resistance												
Dilute	Good	Fair	Excel.	Excel.	Good	Excel.	Fair	Excel.	Fair	Excel.	Fair	
Concentrated	Fair	Fair	Excel.	Good	Fair	Excel.	Poor	Excel.	Poor	Excel.	Poor	
Solvent Resistance												
Hydrocarbon	Poor	Poor	Poor	Good	Excel.	Poor	Good	Excel.	Fair	Good	Fair	
Ketone	Excel.	Excel.	Good	Fair	Poor	Excel.	Poor	Poor	Poor	Fair	Poor	Excel.
Chlorinated	Fair	Fair	Good	Fair	Fair	Fair	Fair	Excel.	Poor	Fair	Poor	
Oil and Gasoline	Poor	Poor	Poor	Good	Excel.	Poor	Excel.	Excel.	Fair	Good	Excel.	
Animal and Vegetable Oil	Poor	Poor	Good	Good	Excel.	Poor	Excel.	Excel.	Good	Good	Excel.	
Chemical Resistance	Poor	Poor	Good	Good	Good	Good	Good	Excel.	Fair	Excel.	Fair	
Phosphate Esters	Poor	Poor	Excel.	Fair	Fair	Excel.	Fair	Excel.	Fair	Fair	Fair	Good ③

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② Registered trade name of 3M Co.

③ Not recommended above 150°F.