ELECTRO-CHEMICAL DEVICES, INC.

Sensor/Cartridge O-Ring Selection Guide

O-ring selection is an important decision in sensor/cartridge selection due to the different process environments encountered. ECD provides a variety of materials to accommodate different processes. The most frequently used materials are described below.

VITON

This is ECD's standard o-ring material. Viton is a fluorocarbon material with a wide spectrum of chemical compatibility and temperature range.
Temperature range: -15°F to +400°F.
FDA approved (Parker compound #V680-70)

Recommended for:	NOT recommended for:
Most acids (low pH)	Caustic solutions (high pH)
Petroleum oils	Steam
Silicone fluids and greases	Ketones
Halogenated hydrocarbons (carbon tetrachloride, trichloroethylene)	Amines, anhydrous ammonia
Selected phosphate ester fluids	Hot hydrofluoric or chlorosulfonic acids
Di-ester base lubricants	
Silicate ester base lubricants	

ETHYLENE PROPYLENE (EPR)

Ethylene propylene rubber is a good material for steam and hot water service. EPR is also a good material for alkaline solutions.
Temperature range: -65°F to +300°F
FDA approved (Parker compound #E1028-70)

Recommended for:	NOT recommended for:
Water/hot water	Petroleum oils
Steam to 400°F/204°C	Di-ester base lubricants
Dilute acids	
Dilute alkalies	
Silicone oils and greases	
Alcohols	
Ketones (MEK, acetone)	
Automotive brake fluids	
Phosphate ester base hydraulic fluids	

SILICONE (SIL)

An elastomer made from silicone, oxygen, hydrogen and carbon. Silicone has poor tensile strength, tear resistance and abrasion resistance, but has excellent resistance to temperature extremes.
Temperature range: -80°F to +400°F.
FDA approved (Parker compound #s S802-40, S1130-60)

Recommended for:	NOT recommended for:
Dry heat	Most petroleum fluids
High-aniline point oils	Ketones (MEK, acetone)
Chlorinated di-phenyls	Water and steam
	Dynamic sealing applications

KALREZ/CV75 (KLZ/CV75)

This perfluoroelastomer combines the elastomeric properties of Viton with the chemical resistance of Teflon. Kalrez has excellent chemical resistance with the exception of some fluorinated solvents. Kalrez should be considered for service in hot, corrosive environments, or where pH swings are nominal and pronounced. Unless the customer specifies Kalrez for the application, ECD will supply the CV75 compound, a generic Kalrez.
Temperature range: Up to 500°F.

Recommended for:	NOT recommended for:
Polar solvents (ketones, esters, ethers)	Some fluorinated solvents
Strong organic solvents	Fully halogenated freons (F11, F12)
Inorganic and organic acids	Uranium hexafluoride
Strong oxidizing agents	
Metal halogen compounds	
Hot mercury	
Hot caustic soda	
Chlorine, wet and dry	
Inorganic salt solutions	
Fuels (gas, kerosene, aviation, JP-5 jet)	
Hydraulic and transmission fluids	
Oil well sour gas	
Steam	

FLUOROSILICONE (FSIL)

Combines the good high and low-temperature properties of silicone with basic fuel and oil resistance. Fluorosilicone is generally recommended for static service only.
Temperature range: -80°F to +350°F.

Recommended for:	NOT recommended for:
Petroleum oils	Acids
Hydrocarbon fuels	

* When using a pH, ORP, pION or DO sensor, the o-rings are installed on the En-garde™ cartridges. When using a Conductivity sensor, the o-rings are installed on the guard (inside and outside pairs).