

Epichlorohydrin Rubber (ECO)

ECO, often called Hydrin, is a copolymer of epichlorohydrin and ethylene oxide. It has excellent resistance to hydrocarbon oils, fuels, high temperature, ageing, ozone and weathering. High temperature resistance is good, but compression set at 135C is only fair. This property, plus the corrosive nature of epichlorohydrin are limiting factors in some applications. Used for hoses, seals, o-rings, gaskets, diaphragms, and printing rollers.

Advantages: Resistant to ozone, weathering and oils; good heat resistance; very low permeability to gasses; fire resistant / flame retardant.

Limitations: Electrically conductive; relatively expensive; low resilience; limited resistance to most organic chemicals; can be corrosive.

Physical & Mechanical Properties

▶ Durometer or Hardness Range	45 – 95 Shore A
▶ Tensile Strength Range	6.9 – 20.7 MPa
▶ Elongation (Range %)	200 % – 800 %
▶ Abrasion Resistance	Fair to Good
▶ Adhesion to Metal	Good
▶ Adhesion to Rigid Materials	Good to Excellent
▶ Compression Set	Good to Excellent
▶ Flex Cracking Resistance	Good to Excellent
▶ Impact Resistance	Fair to Good
▶ Resilience / Rebound	Good to Very Good
▶ Tear Resistance	Fair to Excellent
▶ Vibration Dampening	Good

Thermal Properties

▶ Low Temperature Range	-53 to -40 C (-65° to -40° F)
▶ Minimum for Continuous Use (Static)	-51 C (-60° F)
▶ Brittle Point	-56 C (-70° F)
▶ High Temperature Range	107 to 135C (+ 225°F to + 275 °F)
▶ Maximum for Continuous Use (Static)	135C (+ 275° F)

Environmental Performance

▶ Colorability	Good
▶ Flame Resistance	Fair to Good
▶ Gas Permeability	Good to Excellent
▶ Odour	Good
▶ Ozone Resistance	Excellent
▶ Oxidation Resistance	Excellent
▶ Radiation Resistance	Poor to Good
▶ Steam Resistance	Poor to Good
▶ Sunlight Resistance	Excellent
▶ Taste Retention	Fair to Good
▶ Weather Resistance	Good
▶ Water Resistance	Good

Chemical Resistance

▶ Acids, Dilute	Good
▶ Acids, Concentrated	Poor to Fair
▶ Acids, Organic (Dilute)	Fair
▶ Acids, Organic (Concentrated)	Poor
▶ Acids, Inorganic	Fair to Good
▶ Alcohol's	Fair to Good
▶ Aldehydes	Poor to Fair
▶ Alkalies, Dilute	Poor
▶ Alkalies, Concentrated	Fair to Good
▶ Amines	Poor to Good
▶ Animal & Vegetable Oils	Excellent
▶ Brake Fluids, Non-Petroleum Based	Poor
▶ Diester Oils	Poor to Good
▶ Esters, Alkyl Phosphate	Poor
▶ Esters, Aryl Phosphate	Poor
▶ Ethers	Good
▶ Fuel, Aliphatic Hydrocarbon	Good to Excellent
▶ Fuel, Aromatic Hydrocarbon	Good to Excellent
▶ Fuel, Extended (Oxygenated)	Fair to Good
▶ Halogenated Solvents	Poor
▶ Hydrocarbon, Halogenated	Excellent
▶ Ketones	Fair
▶ Lacquer Solvents	Fair
▶ LP Gases & Fuel Oils	Excellent
▶ Mineral Oils	Excellent
▶ Oil Resistance	Excellent
▶ Petroleum Aromatic	Good to Excellent
▶ Petroleum Non-Aromatic	Poor
▶ Refrigerant Ammonia	Poor
▶ Refrigerant Halofluorocarbons	R-12
▶ Refrigerant Halofluorocarbons w/ Oil	Good to Excellent
▶ Silicone Oil	Good to Excellent
▶ Solvent Resistance	Good to Excellent

For further assistance, please contact:

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- Abbreviation: **ECO**
- ASTM D-2000 Classification: **CH, DK, DJ**
- Chemical Definition: **Epichlorohydrin**
- Primasil Polymers Reference: **PPECO**