

Zelon

Technical Information

Tensile Strength, psi (MPa)	2000 to 3200 (13.8-22.1)
Hardness	60 Shore A to 70 Shore D
Elongation, %	55 to 400
Compression Set (70 hrs @ 392°F [200°C] ASTM D395, Method B)	As Low as 18%
Abrasion Resistance	Good to Excellent

Electrical Resistance
Volume Resistivity of Vulcanized Polymer (ohms-cm)
Measured at 76°F (24°C).....3.0 x 10¹⁶
Measured at 400° F (204°C)).....1.7 x 10¹³

Zelon

...provides such *benefits* as:

- * Better resistance to many individual chemicals as well as resistance to an exceptionally wide variety of chemicals.
- Excellent electrical resistance properties.

...resists a wide variety of *chemicals* including:

Oils and Lubricants
 Hydraulic Fluids - All Types
 Brake Fluids - All Types
 Transmission. Fluids
 Power Steering Fluids
 Sour (H₂S) Oil and Gas

Amine Corrosion Inhibitors
 Ozone/Weathering
 Solvents - Many Types
 Steam/Hot Water
 Acids
 Bases

Oxidizing Agents
 Bleaches
 Pulp and Paper Liquors
 Insecticides, Herbicides
 Gamma Radiation
 Alcohols

...out performs other rubber materials
 in such **Oilfield applications** as:

Sour (H₂S) Oil and Gas
 Amine Corrosion Inhibitors
 High pH and Water Based Drilling and Completion Fluids
 Fracturing Acids
 Oil/Water Combinations

...is not as resistant to some
chemicals including:

High Aromatic Fluids (i.e., Toluene)
 Ethers and Ketones
 Organic Acetates and Acetic Acid
 Some Chlorinated and Non-polar Solvents

...is more resistant in **vehicular applications to new types of:**
 Engine Oils (i.e., SF and SG series)
 Power Steering Fluids
 Automatic Transmission Fluids

...out performs other elastomers
 at **high temperatures** in:
 Engine Coolants With Rust Inhibitors
 EP Lubricants
 Glycol Type Brake Fluids

...is used in a variety of different
facilities including:
 Chemical Plants
 Petrochemical Plants
 Agrochemical Plants
 Chemical Applicators
 Pulp and Paper mills
 Steel and Aluminum Plants
 Semiconductor Manufacturing
 Other Industrial Environments

...provides service life advantages
 in such **solutions** as:
 Acids and Bases
 Steam/Hot Water
 Corrosion and Scale Inhibitors
 Pulp and Paper Liquors
 Oils and Hydraulic Fluids
 Amines and Oxidizing Agents
 Sour (H₂S) Oil and Gas
 Gamma Radiation
 Sewage and Waste Products

**For use in steam injection and geothermal applications, Zeion. is more resistant to high temperature steam/brine/hot water than other resistant rubber materials. Zeion's unique ability to resist both oil and high temperature steam/brine has been valuable in many oilfield applications.

- 1 = Excellent property retention
- 2 = Good property retention, moderate vol. Swell
- 3 = Fair property retention, volume swell <40%
- 4 = Poor property retention, volume swell >40%

Zelon Chemical Resistance

The following Chart provides an indication of the chemical resistance of Zelon. This chart provides guidelines only since many factors such as chemical concentration, temperature and mixture of chemicals can affect performance. The chemical resistance ratings shown in the chart are based on total immersion of the sample in the chemical. This test condition is more severe than normally experienced in actual use where only a small portion of the rubber part is exposed to the chemical.

CHEMICAL	RATING	CHEMICAL	RATING
Acetamide	1	Chloroform	4
Acetic acid	4	Chloroprene	1
Acetic acid / 10% Sodium chlorite	2	Chlorosulfonic acid	1
Acetone	4	(mineral filled compound)	1
Acetylene Acetone	4	Chromic acid (62%)	1
Alum saturated solution	1	Chromic acid (46%)/ Sulfuric acid (25%)	1
Amine corrosion inhibitors	1	Citric Acid	
Ammonia (28%)	1		
Ammonium carbonate (saturated)	1		
Ammonium hydroxide (28%)	1	Cottonseed oil	1
Ammonium nitrate (saturated)	1	Creosylic acid	1
Aniline	1	Cresol	1
Automatic transmission fluid	1	Cupric sulfate (saturated)	1
ASTMO Oil #1	1	Cyclohexane	2
ASTMO Oil #3	1	Cyclohexanone	2
Barium Sulfide (saturated sol.)	1	Dichlorobutane	1
Benzaldehyde	2	Diesel fuel #2	2
Benzene	3	Diethylether	4
Benzene/methanol 30/70	2	Dinitro chlorobenzene	1
50/50	2	Dioxane	4
Benzyl alcohol	1	Diphenyl	2
Benzyl chloride	1	Diphenyl oxide	2
Bleaching powder 10% (CACl 0)	1	DMF	1
Brake fluid (glycol base)	1	Dowtherm TM 209	1
Brake fluid (mineral oil)	1	Engine Oils (SF, SF CD)	1
Brake fluid (silicone oil)	1	EP Lubricants	1
Bromine	1	Ethanolamine	1
Butyl acetate	4	Ethyl acetate	4
Butyl stearate	1	Ethyl alcohol	1
N-Butyl alcohol	1	Ethyl benzene	2
Calcium acetate (saturated)	1	Ethyl benzoate	3
Calcium chloride (saturated)	1	Ethylene chlorohydrin	1
Calcium hydroxide (saturated)	1	Ethylene dichloride	2
Calcium hypochlorite 10%	1	Ethylene glycol/water/rust inhibitor	1
Calcium nitrated (saturated sol.)	1	Formaldehyde	1
Calcium sulfide (saturated sol.)	1	Formic acid	2
Caproic acid	2	Freon TM TF	4
Carbon disulfide	1	Fuel B	4
Carbon tetrachloride	4	Fuel C	4
Castor oil	1	Furfural	2
Chlorine solution (Sat.) / 35%	1	Gasoline	2-3
Sodium chloride/ 10% Sodium Hypochlorite			
		Glycerol	1

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CHEMICAL	RATING	CHEMICAL	RATING
Heptane	3	Phosphate tributyl	3
Hexane	2	Phosphate tricresyl	1
Hydrazine (mineral filled compound)	1-2	Phosphate Triphenyl	1
Hydrochloric acid (37%)	1	Phthalate dibutyl	2
Hydrochloric acid (20%)	1	Phthalate dioctyl	2
Hydrofluoric acid (50%)	1	Pine oil	1
Hydrogen peroxide (30%)	1	Potassium acetate (saturated)	1
Iso-amylacetate	4	Potassium chloride (saturated)	1
Iso-amylalcohol	1	Potassium hydroxide (30%)	1
Iso-octane	2	Potassium nitrate (saturated)	1
Isophorone	2	Power steering fluid	1
Isopropylether	4	Propyl alcohol	1
Jet turbine oils	1-2	Pyridine oil	2
Kerosene	1-2	Skydrol TM 500 B4	2
KF/HF (1/1.8)	1	Sodium bisulfite (saturated)	1
Lacquer thinner	4	Sodium borate (saturated)	1
Light oil	1	Sodium carbonate (saturated)	1
Linseed oil	1	Sodium chloride solutions	1
Lithium bromide (58%)	1	Sodium chlorite (10%)	2
Lithium chromate	1	Sodium hydroxide (50%)	1
Magnesium chloride (18%)	1	Sodium hypochlorite (10%)	1
Mesityl oxide	4	Sodium nitrate (saturated)	1
Methyl alcohol	1	Sodium phosphate (saturated)	1
Methyl cellosolve	1	Sodium silicate (saturated)	1
Methyl chloroform	4	Sodium sulfate (saturated)	1
Methyl chloride (18%)	2	Sour gas, wet (35% H ₂ S) with 5% Amine corrosion inhibitor	1-2 1-2
Methyl ethyl ketone	4	Sour oil, wet (35% H ₂ S) with 5% Amine corrosion inhibitor	2 2
Methyl isbutyl ketone (MIBK)	4	Stauffer TM 7700	2
Mil-H-5606	1-2	Steam	1
Mil-H-83282A	1	Stearic acid	2-3
Mil-L-7808	1-2	Styrene	1
Monobromobenzene	2	Sulfur dioxide (5%)	1
Naphtha	1	Sulfuric acid fuming	1
Naphthalene	2	Sulfuric acid (96%)	1
Naphthenic acid	1	Sulfuric acid (60%)	1
Nitric acid fuming	2	Sulfuric acid (20%)	1
Nitric acid (98%)	2	Tanning solution	4
Nitric acid (60%)	1	Toluene	1
Nitric acid (20%)	1-2	Tributyl phosphate	4
Nitrobenzene	1	Trichloroethylene	4
1 - Nitropropane	2	Trichlorotrifluoroethane	2
NMP	2	Trichloryl benzene	1
Oleic acid	1-2	Triethanolamine	3
Paradichlorobenzene	1	Turpentine	4
Phenol	3	Vinyl acetate	1-2
	1	Vinyl chloride	1
		Water	3
		Xylene	1
		Zinc chloride (saturated sol.)	1
		Zinc sulfate (saturated sol.)	1

