TECHNICAL NOTE

Ethylene Propylene Rubber Chemical Resistance

Introduction

Prinsco uses a gasket manufactured from ethylene propylene rubber for gasketed joints. The rubber gaskets are used to seal the spigot of one pipe section to the bell of another. Ethylene propylene rubber (EPR) is highly resistant to heat, oxidation, and many chemicals. This technical note provides a list of chemicals and their effect on EPR gaskets to help serve as a guide for applications where chemical contact is expected. The ratings in this list are based on performance at room temperature.

Chemical	Rating	Chemical	Rating	Chemical	Rating
Acetaldehyde	S	Bordeaux Mixture	S	Chlorotoluene	U
Acetamide	S	Boric Acid	S	Chrome Plating Solutions	U
Acetic Acid, Glacial	S	Brine	S	Chromic Acid	M
Acetic Acid, 30%	S	Bromine, Anhydrous	U	Citric Acid	S
Acetic Anhydride	S*	Bromine Trifluoride	U	Colbalt Chloride	S
Acetone	S	Bromobenzene	U	Coconut Oil	S
Acetophenone	S	Butadiene	M	Cod Liver Oil	S
Acetylene	S	Butane	M	Copper Acetate	S
Acrylonitrile	U	Butene	U	Copper Chloride	S
Alkazene	U	Butter	S	Copper Cyanide	S
Alum-NH3-Cr-K	S	Butyl Acetate	M	Copper Sulfate	S
Aluminum Acetate	S	Butyl Acetyl Ricinoleate	S	Corn Oil	M
Aluminum Chloride	S	Butyl Acrylate	U	Cottonseed Oil	S
Aluminum Fluoride	S	Butyl Alcohol	S*	Creosote	U
Aluminum Nitrate	S	Butyl Benzoate	S	Cresol	U
Aluminum Phosphate	S	Butyl Carbitol	S	Cresylic Acid	U
Aluminum Sulfate	S	Butyl Cellosolve	S	Cyclohexane	U
Ammonia, Anhydrous	S	Butyl Oleate	S*	Cyclohexanol	U
Ammonia Gas, Cold	S	Butyl Stearate	S*	Cyclohexanone	S*
Ammonia Gas, Hot	S*	Butylamine	U	Denatured Alcohol	S
Ammonium Carbonate	S	Butyraldehyde	M	Detergent Solutions	S
Ammonium Chloride	S	Butyric Acid	M	Developing Fluids	S*
Ammonium Hydroxide	S	Calcium Acetate	S	Diacetone	S
Ammonium Nitrate	S	Calcium Bisulfate	U	Diacetone Alcohol	S
Ammonium Nitrite	S	Calcium Chloride	S	Dibenzyl Ether	S*
Ammonium Persulfate	S	Calcium Hydroxide	S	Dibenzyl Sebacate	S*
Ammonium Phosphate	S	Calcium Hypochlorite	S	Dibutyl Ether	M
Ammonium Sulfate	S	Calcium Nitrate	S	Dibutyl Sebacate	S*
Amyl Acetate	S	Cane Sugar Liquors	S	Dibutylamine	U
Amyl Alcohol	S	Carbamate	S*	Dibutylphthalate	S
Amyl Borate	U	Carbitol	S*	o-Dichlorobenzene	U
Amyl Chloronaphthalene	U	Carbolic Acid	S*	Dichloroisopropyl Ether	M
Amyl Naphthalene	U	Carbon Bisulfide	U	Diesel Oil	U
Aniline	S*	Carbon Dioxide	S*	Diethyl Benzene	U
Aniline Dyes	S*	Carbon Monoxide	S	Diethyl Ether	U
Aniline Hydrochloride	S*	Carbon Tetrachloride	U	Diethyl Sebacate	S*
Animal Fats	S*	Carbonic Acid	S	Diethylamine	S*
Aqua Regia	M	Castor Oil	S*	Diethylene Glycol	S
Arsenic Acid	S	Cellosolve	S*	Diisopropyl Benzene	U
Aroclor	M	Cellosolve Acetate	S*	Diisopropyl Ketone	S
Askarel	U	Cellulube	S	Dimethyl Aniline	S*
Asphalt	U	Chlorine, Wet	M	Dinitrotoluene	U
Barium Chloride	S	Chlorine Dioxide	M	Dioctyl Sebacate	S*
Barium Hydroxide	S	Chlorine Trifluoride	U	Diphenyl Oxides	S
Barium Sulfate	S	Chloroacetic Acid	S*	Dowtherm Oil	U
Barium Sulfide	S	Chloroacetone	S	Dry Cleaning Fluids	U
Beer	S	Chlorobenzene	U	Epichlorohydrin	S*
Beet Sugar Liquors	S	Chlorobromomethane	S*	Ethane	U
Benzaldehyde	S	Chlorobutadiene	U	Ethanolamine	S*
Benzene	U	Chlorododecane	U	Ethyl Acetate	S*
Benzoyl Chloride	U	Chloroform	U	Ethyl Acetoacetate	S*
Benzyl Alcohol	S*	o-Chloronaphthalene	U	Ethyl Acrylate	S*
Benzyl Benzoate	S*	1-Chloro-1-Nitroethane	U	Ethyl Alcohol	S
Borax	S	Chlorosulfonic Acid	U	Ethyl Benzene	U

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Chemical	Rating	Chemical	Rating	Chemical	Rating
Ethyl Benzoate	S*	Linoleic Acid	U	Pyranol	U
Ethyl Cellosolve	S*	Liquified Petroleum Gas	U	Pyridine	S*
Ethyl Chloride	S	Linseed Oil	S*	Pyroligneous Acid	S*
Ethyl Ether	M	Lubricating Oils, Petroleum	U	Pyrrole	M
Ethyl Formate	S*	Lye	S	Radiation	S*
Ethyl Mercaptan	U	Magnesium Chloride	S	Rapeseed Oil	S
Ethyl Oxalate	S	Magnesium Hydroxide	S	Red Oil	U
Ethyl Pentachloro-benzene	U	Magnesium Sulfate	S	Salicylic Acid	S
Ethyl Silicate	S	Maleic Acid	M	Salt Water	S
Ethylcellulose	S*	Maleic Anhydride	M	Sewage	S*
Ethylene Chloride	M	Malic Acid	U	Silicate Esters	U
Ethylene Dichloride	M	Mercuric Chloride	S	Silicone Greases	S
Ethylene Oxide	M	Mercury	S	Silicone Oils	S
Ethylene Trichloride	M	Methane	U	Silver Nitrate	S
Ethylenediamine	S	Methyl Acetate	S*	Skydrol 500	S
Ethylene Glycol	S	Methyl Acrylate	S*	Skydrol 7000	S
Fatty Acids	U	Methyl Alcohol	S	Soap Solutions	S
Ferric Chloride	S	Methyl Butyl Ketone	S	Soda Ash	S
Ferric Nitrate	S	Methyl Cellosolve	S*	Sodium Bicarbonate	S
Ferric Sulfate	S	Methyl Chloride	M	Sodium Bisulfite	S
Fluorinated Cyclic Ethers	S	Methyl Ethyl Ketone	S	Sodium Borate	S
Fluorine, Liquid	M	Methyl Formate	S*	Sodium Chloride	S
Fluorobenzene	U	Methyl Isobutyl Ketone	M	Sodium Cyanide	S
Fluoroboric Acid	S	Methyl Oleate	S*	Sodium Dichromate, 20%	S
Fluorocarbon Oils	S	Methyl Salicylate	S*	Sodium Hydroxide, Solution	S
Fluorolube	S	Methylacrylic Acid	S*	Sodium Hypochlorite	S*
Fluorosilicic Acid	S	Methylcyclopentane	U	Sodium Metaphosphate	S
Formaldehyde	S	Methylene Chloride	M	Sodium Nitrate	S
Formic Acid	S	Methyl Methacrylate	U	Sodium Perborate	S
Freon 11	U	Milk	S	Sodium Peroxide, Solution	S
Freon 12	S*	Monochlorobenzene	U	Sodium Phosphate	S
Freon 13	S	Monoethanolamine	S*	Sodium Silicate	S
Freon 21	U	Monomethylether	S	Sodium Sulfate	S
Freon 22	S	Monovinyl Acetylene	S	Sodium Thiosulfate	S
Freon 31	S	Motor Oils	U	Soybean Oil	M
Freon 32	S	Mustard Gas	S	Stannic (ous) Chloride	S*
Freon 112	U	Naphtha	U	Steam over 150°C/300°F	S*
Freon 113	U	Naphthalene	U	Steam under 150°C/300°F	S
Freon 114	S	Naphthenic Acid	U	Stearic Acid	S*
Freon 114B2	U	Natural Gas	U	Stoddard Solvent	U
Freon 115	S	Neatsfoot Oil	S*	Styrene	U
Freon 142b	S	Neville Acid, 30%	S*	Sucrose Solution	S
Freon 152a	S	Nickel Acetate	S	Sulfite Liquors	S*
Freon 218	S	Nickel Chloride	S	Sulfur Chloride	U
Freon C316	S	Nickel Sulfate	S	Sulfur, Molten	S
Freon C318	S	Nitric Acid, Dilute	S*	Sulfur Dioxide, Liquid or Gas	S
Freon 13B1	S	Nitric Acid, Red Fuming	U	Sulfur Hexafluoride	S
Freon TA	S	Nitric Acid, 70%	M	Sulfur Trioxide	S*
Freon TC	S*	Nitrobenzene	U	Sulfuric Acid, Dilute	S*
Freon TF	U	Nitroethane	S*	Sulfuric Acid, 20% Oleum	U
Freon TMC	S*	Nitromethane	S*	Sulfuric Acid to 60%	S*
Freon T-P35	S	Nitrogen	S	Sulfuric Acid, 95%	M
Freon T-WD602	S*	Nitrogen Tetroxide	M	Sulfurous Acid	S*
Fuel Oil	U	Octachlorotoluene	U	Tannic Acid, 10%	S
Furan	M	Octadecane	U	Tar, Bituminous	U
Furfural	S*	n-Octane	U	Tartaric Acid	S*
Gallic Acid	S*	Octyl Alcohol	S	Terpineol	M
Gasoline	U	Oleic Acid	S*	Tertiary Butyl Alcohol	S*
Gelatin	S	Oleum, 25%	M	Tertiary Butyl-Catechol	S*
Glauber's Salt	S*	Olive Oil	S*	Tetrabromomethane	U
Glucose	S	Oxalic Acid	S	Tetrabutyl Titanate	S
Glue	S	Oxygen, Cold	S	Tetrachloroethylene	U
Glycerin	S	Oxygen, 90-200°C/200-400° F	U	Tetraethyl Lead	U
Green Sulfate Liquor	S	Ozone	S	Tetrahydrofuran	M
Halowax Oil	U	Paint Thinner, Duco	U	Tetralin	U
n-Hexaldehyde	S	Palmitic Acid	S*	Thionyl Chloride	U
Hexane	U	Peanut Oil	M	Titanium Tetrachloride	U
n-Hexene-1	U	Perchloric Acid	S*	Toluene	U
Hexyl Alcohol	M	Perchloroethylene	U	Toluene Diisocyanate	S
Hydraulic Oil, Petroleum	U	Petroleum	U	Transformer Oil	U
Hydrazine	S	Phenol	S*	Transmission Fluid A	U

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Chemical	Rating	Chemical	Rating	Chemical	Rating
Hydrobromic Acid	S	Phenyl Hydrazine	M	Triacetin	S
Hydrochloric Acid, 37%, Cold	S	Phenylbenzene	U	Triaryl Phosphate	S
Hydrochloric Acid, 37%, Hot	M	Phenyl Ethyl Ether	U	Tributyl Mercaptan	U
Hydrocyanic Acid	S	Phorone	S*	Tributoxy Ethyl Phosphate	S
Hydrofluoric Acid, Anhydrous	S*	Phosphoric Acid, 20%	S	Tributyl Phosphate	S
Hydrofluoric Acid, Concentrate, Hot	U	Phosphoric Acid, 45%	S*	Trichloroacetic Acid	S*
Hydrogen Gas	S	Phosphorous Trichloride	S	Trichloroethane	U
Hydrogen Peroxide, 90%	M	Pickling Solution	M	Trichloroethylene	U
Hydrogen Sulfide, Wet, Cold	S	Picric Acid	S*	Tricresyl Phosphate	S
Hydrogen Sulfide, Wet, Hot	S	Pinene	U	Triethanolamine	S
Hypochlorous Acid	S*	Pine Oil	U	Trinitrotoluene	U
Iodine Pentafluoride	U	Piperidine	U	Trioctyl Phosphate	S
Iodoform	S	Plating Solution, Chrome	S	Trisodium Phosphate, Solution	S
Isobutyl Alcohol	S	Plating Solution, Others	S	Turbine Oil	U
Isooctane	U	Polyvinyl Acetate Emulsion	S	Turpentine	U
Isophorone	S	Potassium Acetate	S	Unsymmetrical Dimethyl Hydrazine	S
Isopropyl Acetate	S	Potassium Chloride	S	Varnish	U
Isopropyl Alcohol	S	Potassium Cuprocyanide	S	Vegetable Oils	S
Isopropyl Chloride	U	Potassium Cyanide	S	Vinyl Chloride	S*
Isopropyl Ether	U	Potassium Dichromate	S	Vinegar	S
Kerosene	U	Potassium Hydroxide	S	Wagner 21B Fluid	S
Lacquer Solvents	U	Potassium Nitrate	S	Water	S
Lacquers	U	Potassium Sulfate	U	White Oil	U
Lactic Acid	S	Producer Gas	U	White Pine Oil	U
Lard	U	Propane	U	Whiskey, Wines	S
Lavender Oil	U	Propyl Acetate	S*	Wood Oil	U
Lead Acetate	S	n-Propyl Acetate	S	Xylene	U
Lead Nitrate	S	Propyl Alcohol	S	Xylidines	U
Lead Sulfamate	S	Propyl Nitrate	S*	Zeolites	S
Lime Bleach	S	Propylene	U	Zinc Acetate, Solution	S
Lime Sulfur	S	Propylene Carbonate	S*	Zinc Chloride, Solution	S
Lindol	S	Propylene Oxide	S*		
		Pydrauls	S*		

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SOURCES: The test results indicated in this table are based on data provided by Polysar®. The following list is accurate to the best of our knowledge and serves only as a guide to compare the relative resistance of ethylene propylene rubber to various chemical agents. However, any information contained herein cannot be guaranteed since conditions vary and are entirely beyond our control. Anyone who uses this information assumes all risk as to any results associated with its use.

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