



GENERAL

Chemical Resistance Guide

For Thermoplastics and Elastomers

Westlake
Pipe & Fittings

Chemical Resistance Guide

For Thermoplastics and Elastomers

Introduction

This guide is intended to provide information on the transport of various chemicals using thermoplastic materials, PVC and ABS, and elastomers, SBR, EPDM, Santoprene and NBR. The information contained herein is believed to be reliable; however Westlake Pipe & Fittings does not warrant the information.

Thermoplastics and elastomers are generally resistant to attack from many chemicals, which make them ideal to use in many process applications. However, the suitability for use in a particular application is a function of:

1. The materials used in the system (both for piping and joining).
2. Conditions
 - Chemical and its concentration
 - Operating temperature –maximum, minimum and cyclical variations
 - Operating pressure – maximum, minimum and cyclical variations
 - Life cycle information – material cost, installation costs, service life, maintenance, replacement costs, etc.

The data used to compile the following tables was obtained from numerous sources in the industry. The information is based on immersion of unstressed strips in the chemical at ambient temperatures, and to a lesser degree on field experience. When using chemicals in specific applications it is necessary to carry out tests using the actual product that will be encountered in service, especially in pressure applications.

Thermoplastics and Elastomers

PVC – Polyvinyl Chloride – The maximum service temperature for PVC is 60 Celsius (140 Fahrenheit).

SBR Elastomer – Styrene-Butadiene Rubber – Can be used with water, alcohol and weak acids, not resistant to mineral oils, petroleum greases and fuels.

NBR Elastomer– Nitrile Rubber – It is an oil resistant polymer that has good resistance to solvent, oils, water and hydraulic fluids. It is not resistant to acetone and methyl ethyl ketone, chlorinated hydrocarbons, ozone or nitro hydrocarbons.

EPDM – Ethylene Propylene – Ideal for applications involving hydrocarbon oils and petroleum products. It is more resistant to wear from abrasion and is formulated to resist harsh chemicals such as acids and alkalis.

Santoprene – A thermoplastic rubber designed to offer chemical resistance equivalent to neoprene. It is resistant to a wide variety of solvents and chemicals. It is not readily soluble in common solvents but will swell in aromatic solvents and halogenated organic solvents.

Resistance Legend

H – The material is resistant to the chemical at the temperature indicated under the normal conditions.

L – The material has limited resistance to the chemical at the temperature indicated.

N – The materials is not resistant to the chemical.

(Blank) – Test data not available

CHEMICAL	PVC			SBR GASKET	NITRILE GASKET	EPDM	SANTOPRENE
Temperature	20 °C (68 °F)	40 °C (104 °F)	60 °C (140 °F)				
Acetaldehyde, CH ₃ CHO	N	N	N	N	N	H	H
Acetaldehyde Aqueous 40%, CH ₃ CONH ₂	L	N		N	N	N	
Acetamide				N	H	H	
Acetic Acid, Vapour	H		H				
Acetic Acid, 10%	H	H	H				H
Acetic Acid, 25%	H	H	H	L	L	H	H
Acetic Acid, 60%	H	L	N				
Acetic Acid, 85%	H		N				
Acetic Acid Glacial, 100% CH ₃ OOH	L	N	N	N	N	H	H
Acetic Anhydride, (CH ₃ CO) ₂ O	N		N	L	N	L	H
Acetone, CH ₃ •CO•CH ₃	N		N	L	N	H	H
Acetophenone, C ₆ H ₅ COCH ₃				N	N	H	L
Acetyl Acetone	N						H
Acetyl Bromide	N						
Acetyl Chloride, CH ₃ COCl	N		N				N
Acetylene, HC•CH	N		N	L	L	H	H
Acetylnitrile	N		N				
Acrylic Acid	N		N				H
Acrylonitrile, CH ₂ = CHCN	N		N	N	N	N	
Adipic Acid Aqueous	H	H	H		H		
Allyl Alcohol	L		N				H
Allyl Chloride	N	N	N				L
Aluminum Acetate	H		H	L	L	H	H
Aluminum Ammonium Sulfate	H		H				
Aluminum Bromide	H		H				
Aluminum Chloride, AlCl ₃	H	H	H	N	H	H	H
Aluminum Fluoride	H		N	H	H	H	H
Aluminum Hydroxide, Al(OH) ₃	H		H				H
Aluminum Nitrate	H		H	H	H	H	H
Aluminum Oxychloride	H		H				
Aluminum Potassium Sulfate	H		H			H	
Aluminum Sulfate, Al ₂ (SO ₄) ₃	H		H	L	H	H	H
Ammonia Gas	H	H	H	H	H	H	
Ammonia Liquid	N		N				
Ammonium Acetate	H	H	H				
Ammonium Bifluoride	H		H			L	
Ammonium Bisulfide	H		H				
Ammonium Carbonate, (NH ₄) ₂ CO ₃	H	H	H	H	N	H	H
Ammonium Chloride, NH ₄ Cl	H		H	H	H	H	H
Ammonium Dichromate	H		N				
Ammonium Fluoride 10%	H		H				
Ammonium Fluoride 25%	H		L				
Ammonium Hydroxide 10%, NH ₄ OH	H	H	H	N	N	H	H

H = High Resistance L = Limited Resistance N = No Resistance (Blank) = No Test Data Available

CHEMICAL	PVC			SBR GASKET	NITRILE GASKET	EPDM	SANTOPRENE
Temperature	20 °C (68 °F)	40 °C (104 °F)	60 °C (140 °F)				
Ammonium Nitrate, NH_4NO_3	H		H	H	H	H	H
Ammonium Persulfate, $(\text{NH}_4)_2\text{S}_2\text{O}_8$	H		H	N	N	H	
Ammonium Phosphate Monobasic	H	H	H	H	H	H	
Ammonium Phosphate Dibasic, $(\text{NH}_4)_2\text{HPO}_4$	H	H	H			H	H
Ammonium Sulfate, $(\text{NH}_4)_2\text{SO}_4$	H	H	H	L	L	H	
Ammonium Sulfide, Dilute, $(\text{NH}_4)_2\text{S}$	H		L				
Ammonium Thiocyanate, NH_4SCN	H		H				
Amyl Acetate, $\text{CH}_3\text{CO}_2\text{C}_5\text{H}_{11}$	N		N	N	N	H	N
Amyl Alcohol, $\text{C}_4\text{H}_9\text{CH}_2\text{OH}$	N		N	L	L	H	H
Amyl Chloride, $\text{CH}_3(\text{CH}_2)_3\text{CH}_2\text{Cl}$	N		N			N	N
Aniline, $\text{C}_6\text{H}_5\text{NH}_2$	N		N	N	N	L	H
Aniline Chlorohydrate	N		N				
Aniline Hydrochloride	N		N	N	L	L	
Anthraquinone	H		H				
Anthraquinone Sulfonic Acid	H		H				
Antimony Trichloride	H		H				
Aqua Regia (80% HCl, 20% Nitric)	L		N	N			L
Arsenic Acid, H_3AsO_4	H		H	H	H	H	H
Aryl Supfonic Acid	H		H				
Asphalt	N		N	N	L		
Barium Carbonate, BaCO_3	H		H	H	H		
Barium Chloride, BaCl_2	H		H			H	H
Barium Hydroxide, $\text{Ba}(\text{OH})_2$	H		H	H	H	H	H
Barium Nitrate, BaNO_6	H		N				
Barium Sulfate, BaSO_4	H		H	H	H	H	
Barium Sulfide, BaS	H		H	L	H	H	H
Beer	H		H	H	H	H	H
Beet Sugar Liquors	H		H	H	H	H	H
Benzaldehyde, $\text{C}_6\text{H}_5\text{CHO}$	H		N	N	N	H	L
Benzene, C_6H_6	N		N			N	N
Benzene Sulfonic Acid 10%, $\text{C}_6\text{H}_5\text{SO}_3\text{H}$	H		H				
Benzene Sulfonic Acid >10%, $\text{C}_6\text{H}_5\text{SO}_3\text{H}$	N		N				
Benzoic Acid, $\text{C}_6\text{H}_5\text{COOH}$	H		H				
Benzyl Alcohol	N				N	L	L
Bismuth Carbonate, $(\text{BiO})_2\text{CO}_3$	H		H				
Black Liquor	H	H	H				H
Bleach 12%	H	H	H	N		H	L
Bleach 5%	H	H	H	N		H	L
Borax	H		H	L	L	H	H
Boric Acid	H		H	H	H	H	H
Brine	H		H		H	H	H
Bromic Acid	H		H				
Bromine Vapour	H		H				

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Temperature	20 °C (68 °F)	40 °C (104 °F)	60 °C (140 °F)				
Bromine Liquid	N		N				
Bromine Water	H		H				
Bromobenzene	N		N	N	N		N
Bromotoluene	N		N				
Butadiene	H		H	N	N	N	L
Butane	H		H	N	H	N	L
Butynediol	H		N				
Butyl Acetate	N		N			H	N
Butyl Alcohol	H		H	H	H	L	H
Butyl Cellosolve	H		N		N	H	H
Butyl Chloride (Chlorobutane)							L
Butyl Phenol	L		N				
Butyl Phthalate							L
Butyl Stearate	H		N	N	L	L	L
Butylene (Liquefied Petroleum Gas)	H		H	N	L	N	L
Butyric Acid, CH ₃ (CH ₂) ₂ COOH	H		N				H
Cadmium Cyanide	H		H				
Calcium Bisulfide	N		N				L
Calcium Bisulfite	H		H	N	H	N	
Calcium Carbonate, CaCO ₃	H		H				
Calcium Chlorate, Ca(ClO ₃) ₂	H		H				
Calcium Chloride, CaCl ₂	H		H	H	H	H	H
Calcium Hydroxide, Ca(OH) ₂	H		H	H	H	H	H
Calcium Hypochlorite, Ca(ClO) ₂	H		H	N	N	H	L
Calcium Nitrate	H		H	N	H	H	H
Calcium Oxide	H		H				
Calcium Sulfate, CaSO ₄	H		H				
Camphor	H		N				
Cane Sugar Liquors	H		H	H	H	H	
Carbitol (Methyl Alcohol)	H		N	L	L	L	H
Carbon Dioxide (Wet or Dry), CO ₂	H		H	L	H	L	H
Carbon Disulfide, CS ₂	N		N				N
Carbon Monoxide, CO	H		H	L	H	H	H
Carbon Tetrachloride, CCl ₄	H		N	N	N	N	N
Carbonic Acid, H ₂ CO ₃	H		H	L	H	H	H
Castor Oil	H		H	H	H	L	L
Caustic Potash (Potassium Hydroxide)	H		H	L	L	H	
Caustic Soda (Sodium Hydroxide)	H		H	H	L	H	H
Cellosolve	H		N	N		L	
Cellosolve Acetate	H		N	N	N	L	H
Chloral Hydrate	H		H				
Chloracetic Acid 50%	H		H				N
Chloramine, Dilute	H		N				

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Temperature	20°C (68°F)	40°C (104°F)	60°C (140°F)				
Chloric Acid 10%	H		H				
Chloric Acid 20%	H		H				
Chlorine Gas, Dry	L		N	N		N	
Chlorine Gas, Wet	N		N	N		N	
Chlorine Liquid, Cl ₂	N		N			N	
Chlorine Water	H		H			N	
Chloroacetyl Chloride	H		N				
Chlorobenzene	N		N	N	N	N	N
Chlorobenzyl Chloride	N		N				
Chloroform	N		N	N	N	N	N
Chloropicrin	N		N				
Chlorosulfonic Acid, ClSO ₂ HO	H		N	N	N	N	L
Chromic Acid 10%	H		H	N	N	N	L
Chromic Acid 30%	H		H	N	N	N	L
Chromic Acid 40%	H		L	N	N	N	L
Chromic Acid 50%, H ₃ CrO ₄	N		N	N	N	N	L
Chromic Potassium Sulfate							
Citric Acid, C ₃ H ₅ O ₇ •H ₂ O	H		H	H	H	H	H
Coconut Oil	H		H	N	H	H	L
Coffee	H		H				
Coke Oven Gas	H		H	N			L
Copper Acetate	H		N		L	H	
Copper Carbonate	H		H				
Copper Chloride, CuCl ₂ •H ₂ O	H		H	H	H	H	L
Copper Cyanide, Cu(CN) ₂	H		H	H	H	H	L
Copper Fluoride, CuF ₂	H		H				
Copper Nitrate, Cu(NO ₃) ₂	H		H				
Copper Sulfate, CuSO ₄ •5H ₂ O	H		H	L	H	H	L
Corn Oil	H		H	N	H	N	L
Corn Syrup	H		H				
Cottonseed Oil	H		H	N	H	H	L
Creosote	N		N	N	L	N	L
Cresol, C ₆ H ₄ OH•CH ₃	N		N	N	N	N	L
Cresylic Acid	H		H	N	N	N	L
Croton Aldehyde	N		N				H
Crude Oil, Sour	H		H				L
Cupric Chloride							
Cupric Fluoride	H		H				
Cupric Sulfate	H		H				H
Cuprous Chloride	H		H			N	
Cyclohexane	N		N	N	H	N	N
Cyclohexanol, C ₆ H ₁₁ OH	N		N	N	L	N	L
Cyclohexanone, C ₆ H ₁₀ O	N		N		N	L	L

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Temperature	20°C (68°F)	40°C (104°F)	60°C (140°F)				
Detergents, Heavy Duty	H		H	L	H	H	H
Dextrin	H		H				
Dextrose	H		H				
Diacetone Alcohol	N		N	N	N	H	H
Dibutoxyethyl Phthalate	N		N				
Dibutyl Ether, $\text{CH}_3(\text{CH}_2)_3\text{O}(\text{CH}_2)_3\text{CH}_3$				N	N	N	L
Dibutyl Phthalate	N		N	N	N	H	L
Dibutyl Sebacate	H		N	N	N	L	L
Dichloroacetic Acid							H
Dichlorobenzene	N		N	N	N	N	L
Dichloroethylene	N		N				
Diesel Fuel	H		H	N	H	N	
Diethanolamine, $(\text{HOCH}_2\text{CH}_2)_2\text{NH}$							
Diethylamine	N		N	L	N	L	
Diethyl Ether	H		N	N	N	N	L
Diglycolic Acid	H		H				
Dimethylamine	H		H				H
Dimethyl Formamide	N		N		L		
Dimethylhydrazine	N		N				
Dimethyl Phthalate	N		N	N	N	L	
Diethyl Phthalate	N		N			L	L
Dioxane	N		N			L	L
Diphenyl Oxide						H	
Disodium Phosphate	H		H				H
Dowtherm A	N		N	N		N	
Ethanol (Ethyl Alcohol)	H	H	H				
Ether	N		N				L
Ethyl Acetate, $\text{CH}_3\text{COO}\cdot\text{C}_2\text{H}_5$	N		N	N	N	L	H
Ethyl Acetoacetate	N		N	N	N	L	H
Ethyl Acrylate, $\text{CH}_2\text{CHCOOC}_2\text{H}_5$	N		N			L	H
Ethyl Alcohol	H	H	H	H	H	H	H
Ethyl Benzene	N		N	N	N	N	N
Ethyl Chloride (Chloroethane), $\text{CH}_3\text{CH}_2\text{Cl}$	N		N	L	H	H	L
Ethyl Chloroacetate, $\text{CCH}_2\text{ClCO}_2\text{C}_2\text{H}_5$	N		N				
Ethyl Ether, $\text{C}_2\text{H}_5\text{OC}_2\text{H}_5$	N		N		N	N	L
Ethylene Bromide	N		N				
Ethylene Chloride	N		N			N	
Ethylene Chlorohydrin	N		N	L	N		H
Ethylene Diamine	N		N	L	H	H	H
Ethylene Dichloride, $\text{CH}_2\text{Cl}\cdot\text{CH}_2\cdot\text{Cl}$	N		N	N	N	N	L
Ethylene Glycol, $\text{HOCH}_2\cdot\text{CH}_2\text{OH}$	H		H	H	H	H	H
Ethylene Oxide, $(\text{CH}_2)_2\text{O}$	N		N		N	N	H
Ethylhexanol							

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Temperature	20°C (68°F)	40°C (104°F)	60°C (140°F)				
Fatty Acids	H		H	N	L	N	L
Ferric Chloride, Anhydrous, FeCl ₃	H		H	H	H	H	
Ferric Hydroxide	H		H				
Ferric Nitrate, FeNO ₃	H		H	H	H	H	H
Ferric Sulfate, Fe(SO ₄) ₃	H		H	H	H	H	H
Ferric Chloride, FeCl ₂	H		H			H	H
Ferrous Hydroxide	H		H				
Ferrous Nitrate	H		H				
Ferrous Sulfate, FeSO ₃	H		H				
Fish Oil	H		H		H		
Fluoboric Acid (Fluoro Boric Acid), HBF ₄	H		H	H	H		H
Fluorine Gas, Wet or Dry	H		N				N
Fluosilicic Acid 50%, H ₂ SiF ₆	H		H		H		H
Formaldehyde, HCHO	H		H		L	H	H
Formaldehyde 35%	H		H			H	
Formaldehyde 50%	H		H			H	
Formic Acid, HCOOH	H		N	H	L	H	H
Freon 11 (MF), CCl ₃ F	H		H	N	H	N	
Freon 12	H		H	H	H	L	N
Freon 21	N		N		N	N	
Freon 22, CClF ₂	N		N	H	N	H	N
Freon 113 (TF), C ₂ Cl ₃ F ₃	H		H	L	H	N	N
Freon 114	H		H	H	H	H	
Fructose	H		H				
Furfural (Ant Oil) (Bran Oil), C ₄ H ₃ OCHO	N		N	N	N	L	L
Gallic Acid	H		H	L	L	L	L
Gas, Natural	H		H			N	L
Gasoline, Leaded	H		H	N	H	N	N
Gasoline, Sour	H		H	N	H	N	N
Gasoline, Unleaded	H		H	N	H	N	N
Gelatin	H		H	H	H	H	
Glucose, C ₆ H ₁₂ O ₆	H		H	H	H	H	H
Glue	H		H	H	H	H	
Glycerine	H		H	H	H	H	H
Glycol	H		H	H	H	H	H
Glycolic Acid	H		H				
Glyoxal							
Grape Sugar	H		H				
Green Liquor	H		H	L	L	H	H
Heptane, CH ₃ (CH ₂) ₅ CH ₃	H		H				N
Hexane, CH ₃ (CH ₂) ₄ CH ₃	H		N	N	H	N	N
Hexanol (Hexyl Alcohol)	H		H	H	H		L

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Temperature	20°C (68°F)	40°C (104°F)	60°C (140°F)				
Hydraulic Oil	H		N	N	H	N	L
Hydrazine	N		N		L	H	H
Hydrobromic Acid 20%	H		H	N	N	H	H
Hydrobromic Acid 50%				N	N	H	H
Hydrochloric Acid 10%	H		H			H	H
Hydrochloric Acid 37%	H		H	L	L	H	H
Hydrocyanic Acid, HCN	H		H	L	L	H	
Hydrofluoric Acid 30%	H		N			L	N
Hydrofluoric Acid 50%	H		N			L	N
Hydrofluoric Acid 100%	N		N	N	N	L	N
Hydrofluosilicic Acid, H ₂ SiF ₆	H		H	L	L		
Hydrogen, H	H		H	L	H	H	H
Hydrogen Cyanide	H		H				
Hydrogen Fluoride	N		N				
Hydrogen Peroxide 50%	H		H				L
Hydrogen Peroxide 90%	H		H			N	L
Hydrogen Phosphide	H		H				
Hydrogen Sulfide, Dry	H		H				
Hydrogen Sulfide, Wet	H		H	N	N	H	H
Hydroquinone	H		H	L	N		
Hydroxylamine Sulfate	H		H				
Hypochlorous Acid	H		H	L	N	L	
Inks							
Iodine, I ₂	N		N				H
Isobutyl Alcohol, (CH ₃) ₂ CHOH				L	L	H	
Isooctane, (CH ₃) ₃ CCH ₂ CH(CH ₃) ₂				N	H	N	N
Isopropyl Acetate					N	H	
Isopropyl Alcohol	H		H	L	L	H	H
Isopropyl Ether	N		N	N	L	N	L
Jet Fuel JP-4	L		L				N
Jet Fuel JP-5	L		L				N
Kerosene	H		H	N	H	N	N
Ketchup	H		N				
Ketones	N		N				L
Kraft Paper Liquors	H		H				
Lactic Acid (Milk Acid) 25%, CH ₃ CHOHCOOH	H		H	H	H	H	H
Lard Oil	H		H	N	H	N	L
Lauric Acid	H		H				
Lauryl Chloride, C ₁₂ H ₂₅ Cl	H		H				
Lead Acetate, Pb(C ₂ H ₃ O ₂) ₂ ·H ₂ O	H		H		L	H	
Lead Chloride, PbCl ₂	H		H				
Lead Nitrate, Pb(NO ₃) ₂	H		H	H	H	H	H
Lead Sulfate	H		H				H

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Temperature	20°C (68°F)	40°C (104°F)	60°C (140°F)				
Lime Sulfur	H		N	N	N	H	H
Linoleic Acid	H		H		L	N	L
Linoleic Oil	H		H				
Linseed Oil (Flaxseed Oil)	H		H	N	H	L	
Liqueurs	H		H				
Lithium Bromide, LiBr	H		H				
Lithium Chloride, LiCl	H		H				
Lubricating Oil	H		H	N	H	N	N
Magnesium Carbonate, MgCO ₃	H		H				
Magnesium Chloride, MgCl ₂	H		H	H	H	H	H
Magnesium Citrate	H		H				
Magnesium Hydroxide, Mg(OH) ₂	H		H	L	L	H	H
Magnesium Nitrate, Mg(NO ₃) ₂ •6H ₂ O	H		H				
Magnesium Oxide							
Magnesium Sulfate (Epson Salts), MgSO ₄	H		H	L	H	H	H
Maleic Acid	H		H	L		N	H
Malic Acid (Apple Acid)	H		H	L	H	N	H
Maganese Sulfate	H		H				
Mercuric Chloride, HgCl ₂	H		H	H	H	H	
Mercuric Cyanide, Hg(CN) ₂	H		H				
Mercuric Sulfate	H		H				
Mercurous Nitrate	H		H				
Mercury (Quicksilver), Hg	H		H	H	H	H	H
Methane	H		H	N	H	N	
Methanol (Methyl Alcohol), CH ₃ OH	H		H	H	H		H
Methoxythyl Oleate	H		N				
Methyl Acetate, CH ₃ CO ₂ CH ₃	N		N	N	N	L	H
Methyl Acrylate, CH ₂ =CHCOOCH ₃				N	N	L	
Methyl Amine	N		N				
Methyl Bromide	N		N		L		L
Methyl Cellosolve	N		N	N		L	H
Methyl Chloride (Chloromethane), CH ₃ Cl	N		N	N	N	L	L
Methyl Chloroform (Trichloroethane)	N		N				
Methyl Ethyl Ketone (MEK), CH ₃ CH ₂ COCH ₃	N		N	N	N	H	
Methyl Isobutyl Carbinol	N		N				L
Methyl Isobutyl Ketone, CH ₃ CH ₂ CH ₂ COCH ₃	N		N	N	N	N	L
Methyl Isopropyl Ketone	N		N				L
Methyl Methacrylate, CH ₂ C(CH ₃)COOCH ₃	H		N	N	N	N	L
Methyl Sulfate	H		N				
Methylene Bromide, BrCH ₂	N		N				L
Methylene Chloride, CH ₂ Cl ₂	N		N	N	N		L
Methylene Chlorobromide, CH ₂ ClBr	N		N				
Methylene Iodine, CH ₂ I ₂	N		N				

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CHEMICAL	PVC			SBR GASKET	NITRILE GASKET	EPDM	SANTOPRENE
Temperature	20°C (68°F)	40°C (104°F)	60°C (140°F)				
Methylsulfuric Acid	H		H				
Milk	H		H	H	H	H	
Mineral Oil	H		H	N	H	N	L
Molasses	H		H				
Monochloroacetic Acid (Chloroacetic Acid)	H		H				
Monochlorobenzene (Chlorobenzene), C ₆ H ₅ Cl	N		N	N	N	N	N
Monoethanolamine	N		N	L	N	L	H
Motor Oil	H		H			N	L
Naphtha	H		H	N	N	N	N
Naphthalene (Tar Camphor), C ₁₀ H ₈	N		N	N	N	N	L
Natural Gas	H		H	N	H	N	L
Nickel Acetate	H		N		L	H	H
Nickel Chloride, NiCl ₂	H		H	H	H	H	H
Nickel Nitrate, Ni(NO ₃) ₂ •6H ₂ O	H		H				H
Nickel Sulfate, NiSO ₄	H		H	L	H	H	H
Nicotine	H		H				
Nicotinic Acid	H		H				
Nitric Acid 10%	H		H	N	N	L	H
Nitric Acid 30%	H		H	N	N	L	L
Nitric Acid 40%	H		H	N	N		L
Nitric Acid 50%	H	H	N	N	N		L
Nitric Acid 70%	H		N	N	N		L
Nitric Acid Concentrate, HNO ₂	N		N	N	N		N
Nitrobenzene (Oil of Mirbane), C ₆ H ₅ NO ₂	N		N	N	N	N	N
Nitroglycerine	N		N				
Nitroglycol	N		N				
Nitrous Acid	H		H				
Nitrous Oxide	H		N				H
Octane				N		N	
Oleic Acid	H		H	N	N	L	L
Oleum	N		N		L		N
Olive Oil	H		H	N	H	L	L
Oxalic Acid, (COOH) ₂	H		H	L	L	H	H
Oxygen Gas	H		H	L	L	H	
Ozone	H		H	N	N	H	H
Palmitic Acid 10%	H		H	L	H	L	H
Palmitic Acid 70%	H		N	L	H	L	H
Paraffin	H		H				L
Pentane (Amyl Hydride)	H		L				L
Peracetic Acid 40%	H		N				
Perchloric Acid 15%	H		N			L	
Perchloric Acid 70%, HClO ₄	H		N			L	

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Temperature	20°C (68°F)	40°C (104°F)	60°C (140°F)				
Perchloroethylene, (CCl ₂) ₂	L		L	N	N	N	N
Perphosphate	H		N				
Phenols 100% (Carbolic Acid), C ₆ H ₅ OH	H		N			L	
Phenylhydrazine	N		N	L	N		
Phosphoric Acid 10%	H		H			H	H
Phosphoric Acid 20%	H		H	N	L	H	H
Phosphoric Acid 40%	H		H	N	N	L	H
Phosphoric Acid 50%	H		H				H
Phosphoric Acid 80%	H		H				H
Phosphoric Acid 85%	H		H				H
Phosphoric Acid 100%	H		H				
Phosphoric Anhydride	H		N				
Phosphorus Pentoxide	H		N				
Phosphorus Red	H		N				
Phosphorus Trichloride, PCl ₃	N		N	N	N		L
Phosphorus Yellow	H		N				
Photographic Solutions	H		H				
Phthalic Acid (Terephthalic Acid)	L		L				
Picric Acid	N		N	L	L	L	H
Pine Oil				N	L	N	N
Plating Solutions, Brass	H		H		H	H	H
Plating Solutions, Cadmium	H		H		H	H	H
Plating Solutions, Chrome	H		H	N		H	H
Plating Solutions, Copper	H		H		H	H	H
Plating Solutions, Gold	H		H		H	H	H
Plating Solutions, Lead	H		H		H	H	H
Plating Solutions, Nickel	H		H		H	H	H
Plating Solutions, Rhodium	H		H		H	H	H
Plating Solutions, Silver	H		H		H	H	H
Plating Solutions, Tin	H		H		H	H	H
Plating Solutions, Zinc	H		H		H	H	H
Potash (Potassium Carbonate), K ₂ CO ₃	H		H				
Potassium Alum	H		H				
Potassium Aluminum Sulfate	H		H				
Potassium Amyl Xanthate	H		N				
Potassium Bicarbonate, KHCO ₃	H		H				
Potassium Bisulfate, KHSO ₄	H		H				H
Potassium Borate	H		H				
Potassium Bromate, KBrO ₃	H		H				
Potassium Bromide, KBr	H		H				
Potassium Carbonate (Potash), K ₂ CO ₃	H		H				
Potassium Chlorate Aqueous, KClO ₃	H		H				

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CHEMICAL	PVC			SBR GASKET	NITRILE GASKET	EPDM	SANTOPRENE
Temperature	20°C (68°F)	40°C (104°F)	60°C (140°F)				
Potassium Chloride	H		H	H	H	H	H
Potassium Chromate	H		H				H
Potassium Cyanide, KCN	H		H	H	H	H	H
Potassium Dichromate, K ₂ Cr ₂ O ₇	H		H	L	H	H	H
Potassium Ethyl Xanthate	H		N				
Potassium Ferricyanide	H		H				
Potassium Ferrocyanide, K ₄ Fe(CN) ₆	H		H				
Potassium Fluoride, KF	H		H				
Potassium Hydroxide (Caustic Potash) 25%, KOH	H		H	L	L	H	H
Potassium Hypochlorite	H		H				
Potassium Iodide, KI	H		N				
Potassium Nitrate (Salt Peter), KNO ₃	H		H	H	H	H	H
Potassium Perborate	H		H				
Potassium Perchlorate, KClO ₄	H		H				
Potassium Permanganate 10%, KMnO ₄	H		H				
Potassium Permanganate 25%	H		N				
Potassium Persulfate	H		H				
Potassium Sulfate, K ₂ SO ₄	H		H	L	H	H	H
Potassium Sulfide, K ₂ S							H
Potassium Sulfite							
Propane (Dimethyl-methane), C ₃ H ₈	H		H	N	H	N	N
Propargyl Alcohol	H		H				
Propionic Acid							H
Propyl Alcohol, CH ₃ CH ₂ CH ₂ OH	H		H	H	H	H	H
Propylene						H	N
Propylene Dichloride	N		N				
Propylene Oxide	N		N			L	
Pyridine, C ₅ H ₅ N	N		N	N	N	L	
Pyrogalic Acid (Pyrogallol)	H		N				
Rayon Coagulating Bath	H		H				
Salicylaldehyde	N		N				
Salicylic Acid, C ₆ H ₄ (OH)(COOH)	H		H	L	H	H	
Selenic Acid, H ₂ SeO ₄	H		H				
Silicic Acid, SiO ₂ •nH ₂ O	H		H				
Silicone Oil	H		N	H	H	H	H
Silver Chloride, AgBr	H		H				
Silver Cyanide, AgCN	H		H				
Silver Nitrate, AgNO ₂	H		H	H	L	H	
Silver Sulfate, AgSO ₄	H		H				
Soap Solutions	H		H	L	H	H	
Sodium Acetate, NaC ₂ H ₃ O ₂	H		H	N	L	H	H
Sodium Alum	H		H				

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CHEMICAL	PVC			SBR GASKET	NITRILE GASKET	EPDM	SANTOPRENE
Temperature	20°C (68°F)	40°C (104°F)	60°C (140°F)				
Sodium Aluminate, $\text{Na}_2\text{Al}_2\text{O}_4$	H		H				H
Sodium Benzoate, $\text{C}_6\text{H}_5\text{COOH}_2$	H		H				
Sodium Bicarbonate, NaHCO_3	H		H	H	H	H	H
Sodium Bichromate	H		H				
Sodium Bisulfate, $\text{NaHSO}_4 \cdot \text{H}_2\text{O}$	H		H				
Sodium Bisulfite, NaHSO_3	H		H	L	H		H
Sodium Borate (Borax), $\text{Na}_2\text{B}_4\text{O}_7$	H		H	H	H	H	
Sodium Bromide, NaBr	H		H				
Sodium Carbonate (Soda Ash), Na_2CO_3	H		H				H
Sodium Chlorate, NaClO_3	H		N				
Sodium Chloride (Salt), NaCl	H		H	H	H	H	H
Sodium Chlorite, NaClO_2	N		N				
Sodium Chromate, Na_2CrO_4							
Sodium Cyanide, NaCN	H		H	H	H	H	H
Sodium Dichromate, $\text{Na}_2\text{Cr}_2\text{O}_7$	H		H				H
Sodium Ferricyanide, $\text{Na}_3\text{Fe}(\text{CN})_6$	H		H				
Sodium Ferrocyanide, $\text{Na}_4\text{Fe}(\text{CN})_6$	H		H				
Sodium Fluoride, NaF	H		H				
Sodium Hydroxide 15%	H		H	H	L	H	H
Sodium Hydroxide 30%	H		H	H	L	H	H
Sodium Hydroxide 50%	H		H	H	L	H	H
Sodium Hydroxide 70%	H		H	H	L	H	H
Sodium Hypochlorite Concentrate, NaClO	H		N	N	L	L	L
Sodium Iodide	H		H				
Sodium Metaphosphate, $\text{Na}(\text{PO}_3)_n$	H		H	H	H	H	H
Sodium Nitrate, NaNO_3	H		H	L	L	H	H
Sodium Nitrite, NaNO_2	H		H				
Sodium Palmitate	H		H				
Sodium Perborate, NaBO_3	H		H	L	L	H	H
Sodium Perchlorate	H		H				
Sodium Peroxide, Na_2O_2	H		H	L	L	H	H
Sodium Phosphate Acid (Dibasic), Na_2HPO_4	H		H	H	H	H	
Sodium Phosphate Alkaline (Monobasic), NaH_2PO_4	H		H	H	H	H	
Sodium Phosphate Neutral (Tribasic), Na_3PO_4	H		H	H	H	H	
Sodium Silicate, NaSiO_3	H		H	H	H	H	H
Sodium Sulfate, Na_2SO_4	H		H	L	H	H	H
Sodium Sulfide, Na_2S	H		H				H
Sodium Sulfite, Na_2SO_3	H		H				H
Sodium Thiosulfate, $\text{Na}_2\text{S}_2\text{O}_3 \cdot 5\text{H}_2\text{O}$	H		H	L	L	H	H
Stannic Chloride, SnCl_4	H		H	H	H	L	H

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Temperature	20°C (68°F)	40°C (104°F)	60°C (140°F)				
Stannous Chloride (Tin Salts)	H		H				H
Starch (Amylum), C ₆ H ₁₀ O ₅	N		N				
Stearic Acid, CH ₃ (CH ₂) ₁₆ COOH	H		H	L	L	L	H
Stoddard's Solvent	H		H	N	H	N	L
Succinic Acid (Butanedioic Acid), CO ₂ H(CH ₂) ₂ CO ₂ H	H		H				
Sugar Solutions	H		H	H	H		
Sulfamic Acid, HSO ₃ NH ₂	N		N				H
Sulfate Liquors	H		H				
Sulfite Liquors	H		H	L	L	L	
Sulfur	H		H	N	N	H	L
Sulfur Chloride, S ₂ Cl ₂				N	N	N	L
Sulfur Dioxide, Dry	H		H	N	N	H	H
Sulfur Dioxide, Wet	H		N	N	N	H	H
Sulfur Trioxide, Dry, SO ₃	H		H	N	N	L	H
Sulfur Trioxide, Wet	H		N	N	N	L	
Sulfuric Acid up to 80%	H		H	N	N	L	L
Sulfuric Acid 90 - 93%	H		N	N	N	L	L
Sulfuric Acid 94 - 100%	N		N	N	N	L	N
Sulfurous Acid, H ₂ SO ₃	H		H	L	L	L	H
Tall Oil	H		H				L
Tannic Acid, C ₇₆ H ₅₂ O ₄₆	H		H	L	H	H	H
Tanning Liquors	H		H				
Tar	N		N	N	L	N	N
Tartaric Acid (Dihydroxysuccinic Acid), C ₄ H ₆ O ₆	H		H	L	H	L	H
Terpineol	L		L	N	L	N	L
Tetrachloroethane, (Cl ₂ HC) ₂	L		L				N
Tetrachloroethylene				N	N	N	N
Tetraethyl Lead, Pb(C ₂ H ₅) ₄	H		N	N	L	N	
Tetrahydrofuran	N		N	N		L	
Tetralin, C ₁₀ H ₁₂	N		N	N	N	N	
Tetra Sodium Pyrophosphate	H		H				
Thionyl Chloride	N		N	N		N	
Thread Cutting Oils	H		N				
Titanium Tetrachloride	L		N	N	N	N	
Toluene, CH ₃ C ₆ H ₅	N		N	N	N	N	N
Tomato Juice	H		H				
Transformer Oil	H		H	N	H	N	N
Tributyl Citrate	H		N				
Tributyl Phosphate, (C ₄ H ₉) ₃ PO ₄	N		N	N	N	H	H
Trichloroacetic Acid, CCl ₃ COOH	H		H	L	L	L	H
Trichloroethylene, ClCH=CCl ₂	N		N	N	N	N	L

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Temperature	20 °C (68 °F)	40 °C (104 °F)	60 °C (140 °F)				
Triethanolamine	H		H				H
Trimethylpropane	H		N				
Trisodium Phosphate	H		H				H
Turpentine, C ₁₀ H ₁₆	H		H	N	N		N
Urea, CO(NH ₂) ₂	H		H				H
Urine	H		H				
Vaseline	N		N				
Vegetable Oil	H		H	N	H	H	L
Vinegar	H		H	L	L		H
Vinyl Acetate	N		N				H
Water, Acid Mine	H		H				
Water, Deionized	H		H	H	H	H	H
Water, Distilled	H		H	H	H	H	H
Water, Potable	H		H	H	H	H	H
Water, Salt	H		H	H	H	H	H
Water, Sea	H		H	H	H	H	H
Water, Soft	H		H	H	H	H	H
Water, Waste	H		H	H	H	H	H
Whiskey	H		H	H	H	H	H
White Liquor	H		H			H	
Wines	H		H	H	H	H	H
Xylene, C ₆ H ₄ (CH ₃) ₃	N		N	N	N	N	N
Zinc Acetate				N	L	H	
Zinc Chloride, ZnCl ₂	H		H	H	H	H	H
Zinc Nitrate	H		H				
Zinc Sulfate, ZnSO ₄ •7H ₂ O	H		H	L	H	H	H