



## Rating System

<b>1</b>	<ul style="list-style-type: none"> <li>* Very good suitability.</li> <li>* Elastomer shows little or no effect from exposure.</li> <li>* Little effect on performance and physical properties.</li> </ul>
<b>2</b>	<ul style="list-style-type: none"> <li>* Very good resistance</li> <li>* Good suitability</li> <li>* Some effects from exposure with some loss of physical properties.</li> </ul>
<b>3</b>	<ul style="list-style-type: none"> <li>* Some chemical swelling</li> <li>* Limited suitability.</li> <li>* Significant swell and loss of physical properties after exposure</li> <li>* Additional tests should be done</li> </ul>
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<b>5</b>	Insufficient information available for service in this media

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## General Chemical Resistance of Rubber Materials

The following is offered as a general guide to the suitability of various rubbers in chemicals. Several factors must be considered when specifying a rubber for a given application, the most important of these are:

1	Service Temperature - Higher temperatures cause greater effects of all chemicals on rubbers
2	Service Conditions - A rubber which swells greatly might be suitable for static conditions, but could fail in a dynamic application.
3	Grade of Polymer - Many types of polymer have various grades and this can affect chemical resistance
4	Types of Compound - Compounds designed or specified for other outstanding properties, may not have such good chemical resistance as a compound specifically designed for this property

## ELASTOMER LEGEND

EPDM	ETHYLENE PROPYLENE DIENE MONOMER
FKM	VITON (FLUOROCARBON RUBBER)
CR	NEOPRENE (CHLOROPRENE)
NBR	NITRILE (BUNA N)
HNBR	HYDROGENATED NBR

CHEMICAL	EPDM	FKM	CR	NBR	HNBR
(o)-Chlorophenol	4	1	4	4	4
(p)-Cymene	4	1	4	4	4
1,2-Diaminoethane	1	4	2	2	2
1,4-Dihydroxybenzene	2	4	4	4	4
1-Butanethiol	4	1	4	4	4
1-Hexadecanol	1	5	1	1	1
2-Methylpentane	4	1	5	1	1
2-Propanone (Acetone)	1	4	4	4	4
2-Propene-1-ol	1	1	1	2	2
3,1-Dichloropropene	4	5	4	4	4
3-Methylpentane	4	1	5	1	1
Acet Aldehyde	2	4	5	4	4
Acet Aldehyde	2	4	5	4	4
Acetamide	1	4	1	1	1
Acetic Acid	1	3	2	3	3
Acetic Acid Chloride	4	1	4	4	4
Acetic Acid Vapors	1	4	3	4	4
Acetic acid, 96-99.5% (Glacial)	2	4	4	4	4
Acetic Anhydride	2	4	3	4	4
Acetone	1	4	4	4	4
Acetophenone	1	4	4	4	4
Acetylacetone	1	4	4	4	4
Acetylchloride	4	1	4	4	4
Acetylene Gas	1	1	2	1	1
Acetylene Tetrabromide	1	1	2	4	4
Acrolein	1	4	3	3	3
Acrylonitrile	4	4	4	4	4
Adipic Acid	1	1	1	1	1
Adipic Aciddiethylester	1	4	5	4	4
Aero Lubriplate	4	1	1	1	1
Aero safe 2300	1	4	4	4	4
Aero safe 2300 W	1	4	4	4	4
Aero Shell 1 AC Grease	4	1	2	1	1
Aero Shell 17 Grease	4	1	2	1	1
Aero Shell 7 A Grease	4	1	2	1	1
Aero Shell 750	4	1	4	2	2
Aero Shell Fluid 4	4	1	4	1	1
Aerozene 50 (50%Hydrazine,50%UDMH)	1	4	4	4	4
Air	1	1	1	1	1
Alcohol (Methanol)	1	4	1	1	1
Alkyl Arylsulphonic Acid	1	4	3	3	3
Alkyl Benzene	4	1	4	4	4
Allyl Alcohol (2-Propene-1-ol)	1	2	1	2	2
Allyl Chloride (3-Chloro-1-Propene)	4	5	4	4	4
Allyl Ketone	1	4	3	4	4
Aluminium Acetat	1	4	2	2	2
Aluminium Acetat	1	4	2	2	2
Aluminium Bromide	1	1	1	1	1
Aluminium Fluoride	1	1	1	1	1
Aluminium Nitrate	1	1	1	1	1
Aluminium Phosphate	1	1	1	1	1
Aluminium Sulfate	1	1	1	1	1
Aluminium-Potassiumsulfate Solution	1	5	5	5	5
Aluminum Chloride Solution	1	1	1	1	1
Aluminum Hydroxide Solution	1	1	1	1	1
Aluminum Sulphate Solution	1	1	1	1	1
Ambrex 33 (Mobile)	4	1	2	1	1
Ambrex 830 (Mobile)	4	1	2	1	1
Amines, primary (such as Methyl, Ethyl, Propyl, Allyl)	1	4	4	4	4
Aminoacetic Acid	1	1	1	2	2
Ammonia (gas)	1	4	1	1	1
Ammonia (gas, hot)	2	4	2	4	4
Ammonia (liquid)	1	4	5	2	2
Ammonia Solution	1	4	5	2	2
Ammonia, anhydrous	1	4	1	1	1
Ammonia, aqueous Solution	1	4	1	3	3
Ammonia-Lithium	2	4	4	2	2
Ammonium Acetate	1	4	2	1	1
Ammonium Carbonate	1	4	2	1	1
Ammonium Carbonate Solution	1	5	2	4	4
Ammonium Chloride	1	1	1	1	1
Ammonium Chloride Solution	1	5	1	1	1



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CR	NEOPRENE (CHLOROPRENE)
NBR	NITRILE (BUNA N)
HNBR	HYDROGENATED NBR

CHEMICAL	EPDM	FKM	CR	NBR	HNBR
Ammonium Fluoride	1	2	2	1	1
Ammonium Hydroxide	1	4	1	4	4
Ammonium Hydroxide Solution	1	4	1	4	4
Ammonium Nitrate Solution	1	5	1	1	1
Ammonium Nitrite	1	5	2	1	1
Ammonium Phosphate, Monobasic, Dibasic, Tribasic	1	5	1	1	1
Ammonium Sulfate Solution	1	4	1	1	1
Ammonium Sulfide	1	4	2	2	2
Ammonium Thiocyanate	1	5	5	1	1
Amyl Acetate	1	4	4	4	4
Amyl Alcohol	1	2	2	2	2
Amyl Borate	4	5	1	1	1
Amyl Chloride	4	1	4	4	4
Amyl Naphtalene	4	1	4	4	4
Anderol L-774	4	1	4	1	1
Aniline Chlorohydrate	2	2	2	2	2
Aniline Liquid	1	4	4	4	4
Animal Fats	2	1	2	1	1
Anisole	4	4	4	4	4
Antimony Chloride	1	1	2	1	1
Antimony Chloride, dry	1	1	1	1	1
Aqua Regia (Nitric Acid/Hydrochloric Acid)	4	4	4	4	4
Argon Gas	1	1	1	1	1
Aromatic Fuels (up to 50% Aromatic)	4	1	4	1	1
Aromatic Hydrocarbons (100% Aromatic)	4	1	4	4	4
Arsenic Acid	1	1	1	1	1
Arsenic Acid, Solution	1	1	1	1	1
Asphalt, Emulsion	4	1	2	2	2
ASTM Test Fuel A	4	1	2	1	1
ASTM Test Fuel B	4	1	4	1	1
ASTM Test Fuel C	4	1	4	2	2
ASTM-Oil IRM 902	4	1	2	1	1
ASTM-Oil IRM 903	4	1	4	1	1
ASTM-Oil No.1	4	1	2	1	1
ASTM-Oil No.2	4	1	2	1	1
ASTM-Oil No.3	4	1	4	1	1
ATM-Brake Fluid (Glycolbased)	1	4	2	4	4
Automatic-Transmission Fluid	4	1	2	1	1
Automotive Gasoline	4	1	4	1	1
Barium Carbonate	1	1	5	1	1
Barium Chloride Solution	1	1	1	1	1
Barium Hydroxide Solution	1	1	1	1	1
Barium Nitrate Solution	1	1	1	1	1
Barium Sulfate	1	1	1	1	1
Barium Sulfide Solution	1	1	1	1	1
Battery Acid (Sulfuric Acid diluted)	1	1	4	4	4
Beef Tallow	4	1	2	1	1
Beer	1	1	1	1	1
Beet Sugar Sap	1	1	2	1	1
Benzaldehyde	2	4	4	4	4
Benzenesulfonic Acid	5	1	2	4	4
Benzine (Gasoline)	4	1	4	1	1
Benzine 50 / Benzene 30 / Ethanol 20	4	2	4	4	4
Benzine 50 / Benzene 50	4	2	4	4	4
Benzine 60 / Benzene 40	4	2	4	4	4
Benzine 70 / Benzene 30	4	1	4	2	2
Benzine 80 / Benzene 20	4	1	4	2	2
Benzoic Acid, Solution	2	1	2	2	2
Benzol (Benzene)	4	2	4	4	4
Benzophenone	2	1	5	5	5
Benzyl Alcohol	2	1	2	4	4
Benzyl Chloride	4	1	4	4	4
Biphenyl	4	1	4	4	4
Bitumen	4	1	4	4	4
Black Liquor	2	2	2	2	2
Blast Furnace Gas	4	1	4	4	4
Bleach Solution	1	1	4	4	4
Bleaching Powder Solution	1	1	2	3	3
Boiler Feed Water	1	2	3	2	2
Bone Oil	4	1	4	1	1
Borax (Sodiumborate)	1	1	2	2	2



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CHEMICAL	EPDM	FKM	CR	NBR	HNBR
Borax Solutions	1	2	4	2	2
Boric Acid	1	1	2	1	1
Brake Fluids	1	4	2	4	4
Bromine	4	2	4	4	4
Bromine Solution in Water	4	1	4	4	4
Bromine Vapour	4	2	4	4	4
Bromobenzene	4	1	4	4	4
Bromochlorotrifluoroethan	4	1	4	4	4
Bunker Oil	4	1	4	2	2
Butadiene	4	2	4	4	4
Butandiol	1	4	2	1	1
Butane	4	1	2	1	1
Butanole	2	1	2	1	1
Butantriol	1	1	2	1	1
Butene	4	1	3	2	2
Buthylphenol	4	2	4	4	4
Butter	2	1	2	1	1
Buttermilk	1	1	1	1	1
Butyl Acetate	2	4	4	4	4
Butyl Acetate	2	4	4	4	4
Butyl Acrylate	4	4	4	4	4
Butyl Alcohol	1	1	2	1	1
Butyl Amine	5	4	4	4	4
Butyl Carbitol	1	3	3	4	4
Butyl Cellosolve	1	4	3	3	3
Butyl Diglycol	1	1	5	1	1
Butyl Phthalate	1	4	4	4	4
Butyl Pyrocatechol	2	1	5	4	4
Butyl Stearate	4	1	4	2	2
Butylbenzoate	1	1	4	4	4
Butylene	4	1	3	2	2
Butylether	4	4	4	4	4
Butyraldehyd	2	4	4	4	4
Butyraldehyd	2	4	4	4	4
Butyric Acid	4	1	3	2	2
Butyric Acid Butyl Ester	2	2	4	4	4
Calcium Acetate	1	4	2	2	2
Calcium Bisulfate	1	1	5	1	1
Calcium Bisulfide Solution	1	2	2	2	2
Calcium Carbonate	1	1	1	1	1
Calcium Carbonate Slurry	1	1	1	1	1
Calcium Chloride	1	1	1	1	1
Calcium Chloride, brine	1	1	1	1	1
Calcium Cyanide	1	5	1	1	1
Calcium Hydroxide Solution	1	1	1	1	1
Calcium Hypochlorite Solution	1	1	2	3	3
Calcium Nitrate	1	1	1	1	1
Calcium Oxide	1	1	5	1	1
Calcium Phosphate Slurry	1	1	2	1	1
Calcium Silicate	1	1	1	1	1
Calcium Sulfate	1	1	5	1	1
Calcium Sulfide	1	1	1	1	1
Calcium Sulfite	1	1	1	1	1
Calcium Thiosulfate	1	1	1	2	2
Caliche Solution (Sodium Nitrate)	1	1	2	2	2
Campher	4	2	2	1	1
Campher Oil	4	2	4	1	1
Cane Sugar Sap	1	1	5	1	1
Carbitol	2	2	2	2	2
Carbolic Acid (Penole)	2	1	4	4	4
Carbolineum	2	1	5	2	2
Carbon Dioxide, dry	2	1	2	1	1
Carbon Dioxide, wet	2	1	2	1	1
Carbon Disulfide	4	1	4	4	4
Carbon Disulfide	4	1	4	4	4
Carbon Monoxide	1	2	2	1	1
Carbonic Acid	1	1	2	1	1
Carboxylic Acids	1	1	1	1	1
Casein	2	1	1	1	1
Castor Oil	2	1	1	1	1
Cellosolve (2-Ethoxyethanol)	2	4	4	4	4
Cellulose	2	4	2	2	2



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CHEMICAL	EPDM	FKM	CR	NBR	HNBR
Celluloseacetat	2	4	4	1	1
Chile Salpetre (Sodium Nitrate)	1	1	2	2	2
Chinawood Oil	4	1	2	1	1
Chloracetic Acid	1	4	4	4	4
Chloracetic Acid Ethylester	4	1	4	4	4
Chloric Acid	2	2	4	4	4
Chloride of Lime	1	1	4	4	4
Chlorine Dioxide	3	1	4	4	4
Chlorine gas, anhydrous	1	1	3	3	3
Chlorine Water	2	1	4	4	4
Chlorine, liquid	2	1	4	4	4
Chloroacetaldehyde	1	4	4	4	4
Chloroacetone	1	4	4	4	4
Chloroamine	1	4	1	1	1
Chlorobenzene	4	2	4	4	4
Chlorobromomethane	2	2	4	4	4
Chlorobutadiene	4	2	4	4	4
Chloroform	4	2	4	4	4
Chloroform	4	2	4	4	4
Chloromethyl Ether	3	4	4	4	4
Chloronaphthalene	4	1	4	4	4
Chlorosulfonic Acid	3	4	4	4	4
Chlorothene	4	2	4	4	4
Chlorotoluene	4	1	4	4	4
Chrome Alum	1	1	1	1	1
Chromic Acid	3	1	4	4	4
Chromo sulfuric Acid	4	1	4	4	4
Cider	1	2	2	1	1
Citric Acid	1	1	1	1	1
Citrous Oils	4	1	2	2	2
Coal Tar	4	2	5	2	2
Cobalt Chlorite	1	1	1	1	1
Coca-Cola	1	2	2	1	1
Cocoa Butter	4	1	2	1	1
Coconut Grease	4	1	2	1	1
Coconut Oil	4	1	2	1	1
Coconut, Fatty Acid	4	1	2	1	1
Cod-liver Oil	2	1	2	1	1
Coffee	1	1	1	1	1
Coffee Extract	1	1	1	1	1
Coke Oven Gas	4	1	4	4	4
Copper Acetate Solution	2	4	3	4	4
Copper Ammonium Acetate	2	4	3	4	4
Copper Chloride, Solution	1	1	2	1	1
Copper Cyanide	1	1	1	1	1
Copper Fluoride	1	1	2	2	2
Copper Nitrate	1	1	2	2	2
Copper Sulfate (Blue Vitriol) Solution	1	1	1	1	1
Corn Oil	4	1	2	1	1
Cotton Oil	3	1	3	1	1
Cottonseed Oil	4	1	2	1	1
Cresol	4	1	4	4	4
Crontonaldehyde	1	4	4	4	4
Crude Oil	4	1	4	2	2
Crude Oil	4	1	4	2	2
Cumene	4	1	4	4	4
Cuprous Ammonia Acetate Solution	1	4	4	4	4
Cyanic Acid	1	1	2	2	2
Cyanic Acid Solution	1	1	2	2	2
Cyclohexane	4	1	3	1	1
Cyclohexanole	4	1	4	2	2
Cyclohexanone	4	4	4	4	4
Cyclohexanone	4	4	4	4	4
Cyclohexylamine	3	4	4	4	4
DDT Solutions (Kerosene Solvent)	4	1	3	1	1
DDT Solutions (Toluene Solvent)	4	1	4	4	4
Decalin (Decahydronaphtalene)	4	1	4	4	4
Decane	4	1	4	1	1
Dextrin	1	1	1	1	1
Dextrose	1	1	5	1	1
Diacetone	1	4	5	5	5
Diacetone Alcohol	1	4	2	4	4



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Diamylamine	1	4	4	4	4
Diazinone	4	2	4	4	4
Dibenzyl Sebacate	2	2	4	4	4
Dibenzylether	2	3	5	4	4
Dibromodifluoromethane	2	5	4	4	4
Dibromomethylbenzene	4	1	4	4	4
Dibutyl Ether	4	4	4	4	4
Dibutyl Phthalate	2	3	4	4	4
Dibutyl Sebacate	2	2	4	4	4
Dibutylamine	4	4	4	4	4
Dichloro Acetic Acid	4	4	4	4	4
Dichloro Acetic Acid Methylster	1	4	4	4	4
Dichlorobutane	4	1	4	2	2
Dichlorobutylene	4	2	4	4	4
Dichloroethane	4	2	4	4	4
Dichloroethylene	4	2	4	4	4
Dichloro-iso-propylene ether	4	4	4	4	4
Dichloromethane	4	2	4	4	4
Dichloropentane	4	1	4	4	4
Dichlorobenzene	4	1	4	4	4
Dicyclohexylamine	4	4	4	4	4
Diesel Fuel	4	1	4	1	1
Diesel Oil	4	1	4	1	1
Diethanolamine	2	4	4	4	4
Diethyl Amin	2	4	4	4	4
Diethyl Aniline	1	4	4	4	4
Diethyl Benzene	4	1	4	4	4
Diethyl Carbonate	4	1	4	4	4
Diethyl Ether	4	4	4	4	4
Diethyl Formaldehyde	1	4	4	4	4
Diethyl Hydrazine	1	4	3	3	3
Diethyl Maleate	1	4	3	3	3
Diethyl Sebacate	2	2	4	4	4
Diethyl Sulfate	5	4	5	4	4
Diethylene Glycol	1	1	1	1	1
Diethylene Triamine	1	4	4	4	4
Diglycolic Acid	1	1	2	4	4
Dihexyl Phthalic Acid Ester	5	4	4	4	4
Dihydroxy Tartaric Acid (Tartaric Acid)	2	1	1	1	1
Di-Isobutyl Ketone	1	4	4	4	4
Di-Isobutylene	4	1	4	2	2
Di-Isocetyl Sebacate	2	2	4	4	4
Di-Isopropyl Benzene	4	1	4	4	4
Di-Isopropyl Ketone	1	4	4	4	4
Dimethyl Amine	2	4	4	4	4
Dimethyl Aniline	2	4	4	4	4
Dimethyl Ether	2	4	4	4	4
Dimethyl Formamide	2	4	4	2	2
Dimethyl Hydrazine	1	4	2	2	2
Dimethyl Ketone	1	4	4	4	4
Dimethyl Phenol	4	4	4	4	4
Dimethyl Phthalate	2	2	4	4	4
Dimethylbutane	4	1	2	1	1
Dinitro Toluene	4	4	4	4	4
Dinitrogen Oxid	2	1	1	1	1
Diocetyl Amine	1	4	4	4	4
Diocetyl Phthalate	2	2	4	4	4
Diocetyl Sebacate	2	2	4	4	4
Dioxane	2	4	4	4	4
Dioxolane	2	4	4	4	4
Dipentene	4	1	4	2	2
Diphenyl	4	1	4	4	4
Diphenyl Ether	4	2	4	4	4
Diphenyle Oxide	4	1	5	4	4
Dipropylene Glycol	2	2	2	2	2
Dithionite	1	1	2	2	2
Divinyl Benzene	4	1	4	4	4
DMT (Dimethyl Terephthalate)	1	1	4	4	4
DNCB (Dinitrochlorobenzene)	4	1	4	4	4
Dodecanol	2	1	1	2	2
Dodecanol	2	1	1	2	2
Domestic Fuel Oils	4	1	2	1	1



## Rating System

<b>1</b>	<ul style="list-style-type: none"> <li>* Very good suitability.</li> <li>* Elastomer shows little or no effect from exposure.</li> <li>* Little effect on performance and physical properties.</li> </ul>
<b>2</b>	<ul style="list-style-type: none"> <li>* Very good resistance</li> <li>* Good suitability</li> <li>* Some effects from exposure with some loss of physical properties.</li> </ul>
<b>3</b>	<ul style="list-style-type: none"> <li>* Some chemical swelling</li> <li>* Limited suitability.</li> <li>* Significant swell and loss of physical properties after exposure</li> <li>* Additional tests should be done</li> </ul>
<b>4</b>	The elastomer is unsuitable for application in this media.
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## General Chemical Resistance of Rubber Materials

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## ELASTOMER LEGEND

EPDM	ETHYLENE PROPYLENE DIENE MONOMER
FKM	VITON (FLUOROCARBON RUBBER)
CR	NEOPRENE (CHLOROPRENE)
NBR	NITRILE (BUNA N)
HNBR	HYDROGENATED NBR

CHEMICAL	EPDM	FKM	CR	NBR	HNBR
Dowtherm A	4	1	4	4	4
Dowtherm E	4	1	4	4	4
Duodecanol (Laurylalcohol)	2	1	1	2	2
Epichlorhydrin	2	4	4	4	4
Essential Oils	4	2	4	4	4
Ethane	4	1	2	1	1
Ethanol Amine	2	4	3	3	3
Ether	3	4	4	4	4
Ethyl Acetate	2	4	4	4	4
Ethyl Acetate	2	4	4	4	4
Ethyl Acetate	2	4	4	4	4
Ethyl Acetate	2	4	4	4	4
Ethyl Acrylate	5	4	4	4	4
Ethyl Alcohol, Ethanol	1	4	1	1	1
Ethyl Benzene	4	2	4	4	4
Ethyl Bromide	4	1	4	2	2
Ethyl Cellulose	2	4	2	2	2
Ethyl Hexanole	1	1	1	1	1
Ethyl Oxalate	2	1	4	4	4
Ethyl Pentachlorobenzene	4	1	4	4	4
Ethyl Pyridine	1	4	4	4	4
Ethyl Sulfate (Diethyl Sulfate)	1	4	1	4	4
Ethylacrylate	5	4	4	4	4
Ethylchloride	2	2	2	4	4
Ethylchloroacetate	2	1	2	2	2
Ethylene	4	1	3	1	1
Ethylene Bromide	3	1	4	4	4
Ethylene Chloride	2	2	2	5	5
Ethylene Chlorohydrin	2	4	2	4	4
Ethylene Diamine	1	4	4	4	4
Ethylene Dibromide	4	1	4	4	4
Ethylene Dichloride	4	1	4	4	4
Ethylene Glycol	1	1	2	1	1
Ethylene Glycol Ethylether (Cellosolve)	2	4	4	4	4
Ethylene Oxide	2	4	4	4	4
Ethylene Silicate	1	1	1	1	1
Ethylene Trichloride	3	2	4	4	4
Fats (animal/vegetable)	4	1	1	1	1
Fatty Acids	4	1	2	2	2
Ferric Chloride Solution	1	1	2	1	1
Ferric Nitrates	1	1	1	1	1
Ferric Sulfate (Ferric Vitrinol)	1	1	1	1	1
Ferric Sulfate Solution	1	1	1	1	1
Fir Oil	4	1	4	2	2
Fish Oil	4	1	2	1	1
Fluorine	4	3	5	4	4
Fluorobenzene	4	2	4	4	4
Fluorosilicic Acid	1	1	2	2	2
Formaldehyde (Formalin-Solution)	1	4	4	3	3
Formaldehyde (Methanal)	1	2	4	2	2
Formamide	2	2	4	2	2
Formic Acid	2	4	2	4	4
Freon 11	4	2	4	1	1
Freon 112	4	2	2	2	2
Freon 113	4	2	1	1	1
Freon 114	1	2	1	1	1
Freon 114 B2	4	2	2	2	2
Freon 115	1	2	1	1	1
Freon 12	2	2	1	2	2
Freon 13	1	2	1	1	1
Freon 13 B1	1	2	1	1	1
Freon 134 a	1	5	5	5	1
Freon 14	1	2	1	1	1
Freon 142 b	1	4	1	1	1
Freon 152 a	1	4	1	1	1
Freon 21	4	4	2	4	4
Freon 218	1	1	1	1	1
Freon 22	1	4	1	4	4
Freon 31	1	4	1	4	4
Freon 32	1	4	1	1	1
Freon 502	1	2	1	2	2
Freon BF	4	1	2	2	2



## Rating System

<b>1</b>	<ul style="list-style-type: none"> <li>* Very good suitability.</li> <li>* Elastomer shows little or no effect from exposure.</li> <li>* Little effect on performance and physical properties.</li> </ul>
<b>2</b>	<ul style="list-style-type: none"> <li>* Very good resistance</li> <li>* Good suitability</li> <li>* Some effects from exposure with some loss of physical properties.</li> </ul>
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NBR	NITRILE (BUNA N)
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CHEMICAL	EPDM	FKM	CR	NBR	HNBR
Hydroxylamine Sulfate	1	1	2	1	1
Hypochlorous Acid	2	1	4	4	4
Hypochlorous Acid	2	1	4	4	4
Ink	1	2	1	1	1
Iodine	2	1	4	2	2
Iodine tincture	2	1	2	2	2
Iodoform	1	1	5	5	5
Iodoform	1	1	5	5	5
Iso-Butane	4	1	4	1	1
Iso-Butyl Alcohol	1	2	1	2	2
Iso-Butyl Methyl Ketone	1	4	4	4	4
Iso-Butylene	4	1	4	1	1
Iso-Butyraldehyde	1	4	4	4	4
Iso-Cyanate	1	5	5	5	5
Iso-Dodecane	4	1	2	1	1
Iso-Octane	4	1	2	1	1
Iso-Pentane	4	1	4	1	1
Iso-Propyl-Acetate	2	4	4	4	4
Iso-Propyl-Alcohol	1	1	2	2	2
Iso-Propyl-Benzene	4	1	4	4	4
Iso-Propyl-Chloride	4	1	4	4	4
Iso-Propyl-Ether	5	4	4	4	4
Jet Fuel JP3	4	1	4	1	1
Jet Fuel JP4	4	1	4	1	1
Jet Fuel JP5	4	1	4	1	1
Jet Fuel JP6	4	1	4	1	1
JP3 (Fuel)	4	1	4	1	1
JP4 (Fuel)	4	1	4	1	1
JP5 (Fuel)	4	1	4	1	1
JP6 (Fuel)	4	1	4	1	1
JPX (Fuel)	4	4	2	1	1
Kerosene	4	1	4	1	1
Ketchup	1	1	1	1	1
Lactams	4	4	3	4	4
Lactic Acid	2	1	1	2	2
Lanolin	4	1	2	1	1
Lanolin	4	1	2	1	1
Latex	1	1	1	1	1
Laughing Gas (N2O)	2	1	1	1	1
Lavender Oil	4	1	4	2	2
Lead Acetate Salt Solution	1	4	4	3	3
Lead Arsenate	1	5	5	1	1
Lead Nitrate	1	1	2	1	1
Lead Nitrate Solution	1	5	1	1	1
Lead Sulfate	1	1	1	2	2
Lemon Juice	1	1	2	1	1
Ligroin	4	1	2	1	1
Lindol	1	4	4	4	4
Linoleic Acid	4	2	5	2	2
Linseed Oil	3	1	2	1	1
Liqueurs	1	1	1	1	1
Lithium Bromide Brine	1	1	1	1	1
Lithium Chloride	1	1	1	1	1
Lithium Hydroxide	1	3	4	4	4
Machinery Oil (mineral)	4	1	2	1	1
Maganese Chloride ( Solution )	1	1	1	1	1
Magnesium Acetate Solution	1	4	4	4	4
Magnesium Chloride Solution	1	1	1	1	1
Magnesium Hydroxide (Solution)	1	2	2	2	2
Magnesium Silicate (Talcum)	1	1	1	1	1
Magnesium Sulfate (Epson Salts)	1	1	1	1	1
Maleic Acid	1	1	2	2	2
Maleic Acid	1	1	2	2	2
Maleic Anhydride	4	2	4	4	4
Malic Acid	2	1	2	1	1
Margarine	4	1	2	1	1
Mayonnaise	4	4	4	1	1
Menthol	2	1	2	2	2
Mercaptans	1	4	4	4	4
Mercuric Chloride Solution	1	1	1	1	1
Mercury	1	1	1	1	1
Mercury Nitrate	1	5	1	1	1



## Rating System

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FKM	VITON (FLUOROCARBON RUBBER)
CR	NEOPRENE (CHLOROPRENE)
NBR	NITRILE (BUNA N)
HNBR	HYDROGENATED NBR

CHEMICAL	EPDM	FKM	CR	NBR	HNBR
Freon C316	1	5	1	1	1
Freon C318	1	2	1	1	1
Freon MF	4	2	4	2	2
Freon PCA	4	2	1	1	1
Freon TA	1	4	1	1	1
Freon TC	2	1	1	1	1
Freon TF	4	1	1	1	1
Freon TMC	2	1	2	2	2
Freon T-P35	1	1	1	1	1
Freon TWD602	1	1	2	2	2
Fruit Juices	1	2	2	2	2
Fumaric Acid	5	1	2	1	1
Furan	4	4	4	4	4
Furfural (Furfurylaldehyde)	5	5	5	3	3
Furfurylalcohol	5	5	5	5	5
Gallic Acid	2	1	2	1	1
Gas Oil	4	1	2	1	1
Gasoline / Alcohol Mix	4	2	4	2	2
Gasoline, 100 Octane	4	1	4	1	1
Gasoline, 130 Octane	4	1	4	1	1
Gasoline, aromatic	4	1	4	1	1
Gasoline, Ethyl and Regular	4	1	4	1	1
Gasoline, Refined	4	1	4	1	1
Gasoline, Sour	4	1	4	1	1
Gasoline, with Mercaptan	4	1	4	1	1
Gelatin	1	1	1	1	1
Generator Gas	4	1	2	1	1
Glaubers Salt	2	1	2	4	4
Glucose solution	1	1	1	1	1
Glucose, aqueous	1	1	1	1	1
Glycerin (Glycerol)	1	1	1	1	1
Glycerol	1	1	1	1	1
Glycerol Chlorohydrin	2	2	4	4	4
Glycerol Triacetate (Triacetin)	1	4	2	2	2
Glycerol Trinitrate (Nitroglycerin)	1	1	2	4	4
Glycine	1	1	1	2	2
Glycolic Acid	1	2	2	1	1
HEF-3	4	1	4	2	2
Helium Gas	1	1	1	1	1
Heptane	4	1	2	1	1
Hexachloro Acetone	1	4	4	4	4
Hexachloro Butadiene	4	1	4	4	4
Hexachloro Butadiene	4	1	4	4	4
Hexachloro Cyclohexane (Lindane)	4	1	4	5	5
Hexafluorosilicic Acid	2	02-gen	2	2	2
Hexafluorosilicic Acid	2	02-gen	2	2	2
Hexaldehyd	1	4	2	4	4
Hexalin (Cyclohexanol)	4	1	2	1	1
Hexamine	1	4	4	4	4
Hexanal	2	4	5	5	5
Hexanal (Capronaldehyde)	2	4	5	5	5
Hexane	4	1	2	1	1
Hexanetriol	1	1	2	1	1
Hexene	4	1	2	2	2
Hexyl Alcohol	2	1	2	1	1
Hydrazine	1	3	2	2	2
Hydrazine Hydrate	1	3	2	2	2
Hydrobromic Acid	1	1	4	4	4
Hydrochloric Acid (Muriatic Acid) 37%	2	1	4	4	4
Hydrocyanic Acid	1	1	2	2	2
Hydrofluoric Acid (cold)	2	2	4	4	4
Hydrofluoric Acid (hot)	4	4	5	4	4
Hydrogen Chloride Gas	1	1	3	4	4
Hydrogen Fluoride	2	5	4	4	4
Hydrogen Peroxide, concentrated	4	1	4	4	4
Hydrogen Sulfide	1	1	2	3	3
Hydrogen, Gas	1	1	1	1	1
Hydrogene Bromide, unhydrous	4	1	4	4	4
Hydrogensulfite Leach	1	1	2	4	4
Hydroquinone	2	4	4	4	4
Hydroxy Acetic Acid	1	4	4	4	4
Hydroxylamine	1	1	5	1	1





## Rating System

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CHEMICAL	EPDM	FKM	CR	NBR	HNBR
Mesityl Oxide	1	4	4	4	4
Methacrylic Acid	2	4	4	4	4
Methanal	1	2	4	2	2
Methane	4	1	2	1	1
Methanol	1	4	2	2	2
Methoxy Benzene	4	4	4	4	4
Methoxy Butanol	2	1	2	1	1
Methyl Acetate	2	4	2	4	4
Methyl Acetate	1	4	3	4	4
Methyl Acetoacetate	2	4	4	4	4
Methyl Acrylate	2	4	4	4	4
Methyl Alcohol	1	4	2	2	2
Methyl Amine	1	4	4	4	4
Methyl Aniline	2	2	4	4	4
Methyl Bromide	4	1	4	4	4
Methyl Butyl Ketone	1	4	4	4	4
Methyl Carbonate	4	4	4	4	4
Methyl Cellosolve	2	4	4	4	4
Methyl Cellulose	2	2	2	2	2
Methyl Chloride	4	2	4	4	4
Methyl Cyclopentane	4	2	4	4	4
Methyl Ethyl Ketone	2	4	4	4	4
Methyl Ethyl Ketone	2	4	4	4	4
Methyl Formate	2	4	4	4	4
Methyl Formate	2	4	4	4	4
Methyl Glycol	2	4	4	4	4
Methyl Glycol Acetate (Ethyleneglycol)	2	4	4	4	4
Methyl Iso-Butyl Ketone	2	4	4	4	4
Methyl Iso-Propyl Ketone	2	4	4	4	4
Methyl Methacrylate	4	4	4	4	4
Methyl Methacrylic Acid Ester	4	4	4	4	4
Methyl Oleate	2	1	5	4	4
Methyl Phenyl Ether (Anisole)	4	4	4	4	4
Methyl Pyrrolidone	1	4	5	4	4
Methyl Salicylate	2	5	4	4	4
Methylene Chloride	4	2	4	4	4
Milk	1	1	1	1	1
Milk of Lime	1	2	2	4	4
Mine Gas (Methane)	2	1	2	1	1
Mineral Oil	4	1	2	02-gen	02-gen
Mineral Spirits	4	1	3	1	1
Molasses	1	1	2	1	1
Monobromobenzene	4	2	4	4	4
Monochloroacetic Acid	1	4	4	4	4
Monochloroacetic Acid Ethyl Ester	2	4	4	4	4
Monochlorobenzene	4	2	4	4	4
Monoethanol Amine	2	4	4	4	4
Mononitrochlorobenzene	4	1	4	4	4
Morpholine	2	5	3	4	4
Morpholine	2	5	3	4	4
Muriatic Acid (HCl) (Hydrochloric Acid)	2	1	5	4	4
Muriatic Acid (HCl), diluted	1	1	2	2	2
Naphtha	4	1	4	4	4
Naphthalene	4	1	4	4	4
Naphthenic Acid	4	1	4	2	2
Naphthen ZD	4	1	4	2	2
Natural Gas	4	1	2	1	1
Neats Foot Oil	2	1	4	1	1
Neon Gas	1	1	1	1	1
Nickel Acetate	1	4	2	2	2
Nickel Chloride	1	1	2	1	1
Nickel Nitrate	1	1	1	1	1
Nickel Sulfate	1	1	1	1	1
Nitrating Acids	1	4	4	4	4
Nitric Acid, concentrated	4	2	4	4	4
Nitric Acid, fuming	4	2	4	4	4
Nitro Benzene	4	4	4	4	4
Nitro Glycerin	1	1	3	4	4
Nitro Glycol	1	1	2	4	4
Nitro Methane	2	4	4	4	4
Nitro Propane	2	4	4	4	4
Nitro Toluene	4	4	4	4	4



## Rating System

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## General Chemical Resistance of Rubber Materials

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## ELASTOMER LEGEND

EPDM	ETHYLENE PROPYLENE DIENE MONOMER
FKM	VITON (FLUOROCARBON RUBBER)
CR	NEOPRENE (CHLOROPRENE)
NBR	NITRILE (BUNA N)
HNBR	HYDROGENATED NBR

CHEMICAL	EPDM	FKM	CR	NBR	HNBR
Nitrogen Gas	1	1	1	1	1
Nitrogen Tetroxide	4	4	4	4	4
Nonanol	1	1	5	4	4
Nut Oil	4	1	2	1	1
Octadecane	4	1	2	1	1
Octal	2	2	4	4	4
Octane	4	1	4	2	2
Octanol ( Octylalcohol)	1	1	2	2	2
Octylalcohol	1	1	2	2	2
Octylcresol	4	2	4	3	3
Oil of Turpentine	4	1	4	2	2
Olefin, crude	4	1	4	1	1
Oleic Acid	4	1	4	1	1
Oleic Alcohol	1	1	1	1	1
Oleum (Sulfuric Acid, 0 to 50%)	1	1	4	4	4
Olive Oil	4	1	2	1	1
Ortho Dichloro Benzene	4	1	4	4	4
Oxalic Acid	1	1	2	2	2
Oxalic Acid	1	1	2	2	2
Ozone	1	1	2	4	03-feb
Palm Kernel Oil	4	1	1	1	1
Palm Oil	4	1	4	1	1
Palmitic Acid	3	1	2	2	2
Para Dichloro Benzene	4	1	5	4	4
Paraffin	4	1	1	1	1
Paraffin	4	1	1	1	1
Paraffin Oil	4	1	1	1	1
Peanut Oil	4	1	4	1	1
Pectin	1	1	1	1	1
Penta Chloro Diphenyl	4	3	4	4	4
Penta Chloro Phenol	2	5	5	4	4
Pentane	4	1	2	1	1
Pentanol	1	2	1	2	2
Perchloric Acid	2	1	2	4	4
Perchloric Acid	2	1	2	4	4
Perchloro Ethylene	4	2	4	4	4
Petroleum	4	1	2	1	1
Petroleum Ether	4	1	2	1	1
Phenol	4	2	4	4	4
Phenyl Benzene	4	2	4	4	4
Phenyl Ether	4	4	4	4	4
Phenyl Hydrazine	4	2	4	4	4
Phosphine	1	2	2	4	4
Phosphine	1	2	2	4	4
Phosphor Trichloride	1	1	4	4	4
Phosphoric Acid	2	1	4	4	4
Phosphoric Acid 45%	1	1	2	2	2
Photographic Developing Bath	2	1	1	1	1
Phthalic Acid	1	2	2	2	2
Phthalic Anhydride	1	5	5	5	5
Picoline, alpha	1	4	5	5	5
Picric Acid, Aqueous Solution	2	1	1	2	2
Pine Oil	4	1	4	2	2
Pineapple Juice	1	1	1	1	1
Pinene	4	1	2	2	2
Piperidine	4	4	4	4	4
Polyvinyl Acetates	1	4	2	5	5
Potassium Acetate	1	2	2	2	2
Potassium Aluminium Sulfat	1	5	5	5	5
Potassium Bicarbonate	1	1	1	1	1
Potassium Bisulfate	1	1	2	1	1
Potassium Borate	1	1	2	1	1
Potassium Bromate	1	1	2	1	1
Potassium Bromide	1	1	2	1	1
Potassium Carbonate	1	1	2	1	1
Potassium Chlorate	1	1	2	4	4
Potassium Chloride	1	1	2	1	1
Potassium Chromate	1	1	2	2	2
Potassium Cyanide	1	1	2	1	1
Potassium Cyanide	1	1	2	1	1
Potassium Dichromate	1	1	2	1	1
Potassium Hydroxide ( Solution 50% )	1	3	2	2	2



## Rating System

<b>1</b>	<ul style="list-style-type: none"> <li>* Very good suitability.</li> <li>* Elastomer shows little or no effect from exposure.</li> <li>* Little effect on performance and physical properties.</li> </ul>
<b>2</b>	<ul style="list-style-type: none"> <li>* Very good resistance</li> <li>* Good suitability</li> <li>* Some effects from exposure with some loss of physical properties.</li> </ul>
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FKM	VITON (FLUOROCARBON RUBBER)
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NBR	NITRILE (BUNA N)
HNBR	HYDROGENATED NBR

CHEMICAL	EPDM	FKM	CR	NBR	HNBR
Potassium Hydroxide, Potassium Lye	1	4	2	2	2
Potassium Hypochlorite (Javelle Water)	2	1	5	2	2
Potassium Hypochlorite (Javelle water)	2	1	5	2	2
Potassium Iodide	1	1	2	1	1
Potassium Nitrate	1	1	2	2	2
Potassium Perchlorate	1	1	2	4	4
Potassium Perfluoroacetate	1	4	2	2	2
Potassium Permanganate	1	1	2	4	4
Potassium Persulfate	1	1	2	4	4
Potassium Phosphate	1	1	5	1	1
Potassium Sulfate	1	1	2	1	1
Potassium Sulfite	1	1	1	1	1
Propane	4	1	2	1	1
Propanol	1	1	1	2	2
Propanol	1	1	1	2	2
Propinyl Alcohol	1	1	1	1	1
Propion Aldehyde	1	4	4	4	4
Propionic Acid	5	1	2	1	1
Propyl Acetate	2	4	4	4	4
Propyl Acetone	1	4	4	4	4
Propyl Amine	4	4	4	4	4
Propyl Nitrate	2	4	4	4	4
Propylene	4	1	4	4	4
Propylene Dichloride	4	5	5	4	4
Propylene Glycol	1	1	1	1	1
Propylene Oxide	2	4	4	4	4
Pyridine	4	4	4	4	4
Pyrrole	4	4	4	4	4
Rapeseed Oil	4	1	2	2	2
Roast Gas (dry)	1	1	2	1	1
Rosin (Colophony)	1	1	1	1	1
Salicylic Acid	1	1	1	2	2
Salicylic Acid	1	1	1	2	2
Sea Water	1	2	2	1	1
Sea Water	1	2	2	1	1
Sea Water	1	2	2	1	1
Sewage	1	1	2	1	1
Silcone grease	1	1	1	1	1
Silicic Acid	1	1	2	1	1
Silicon Dioxide	1	1	5	1	1
Silicone Oil	1	1	1	1	1
Silver Cyanide Solution	4	1	1	4	4
Silver Nitrate	1	1	2	2	2
Silver Salts	1	1	1	1	1
Skydrol 500	1	4	4	4	4
Skydrol 7000	1	2	4	4	4
Soap Solution	1	1	2	1	1
Soda (Natrium Carbonate)	1	1	1	1	1
Sodium Acetate	1	4	2	2	2
Sodium Benzoate	1	1	2	1	1
Sodium Bicarbonate Solution	1	1	1	1	1
Sodium Bisulfate Solution	1	1	1	1	1
Sodium Bisulfite Solution	1	1	1	1	1
Sodium Borate (Borax)	1	1	1	2	2
Sodium Carbonate (Soda Ash)	1	1	1	1	1
Sodium Carbonate Solution	1	1	1	1	1
Sodium Chlorate	1	1	2	2	2
Sodium Chloride (Common Salt)	1	1	1	1	1
Sodium Chloride Solution	1	1	1	1	1
Sodium Chlorite	1	1	4	4	4
Sodium Cyanide Solution	1	5	1	2	2
Sodium Dichromate	1	1	1	2	2
Sodium Fluoride	1	1	5	1	1
Sodium Hydroxide	1	3	2	2	2
Sodium Hydroxide, Caustic Soda	1	2	2	2	2
Sodium Hypochlorite Solution	1	1	2	2	2
Sodium Nitrate	1	1	2	2	2
Sodium Nitrite	1	1	2	4	4
Sodium Peroxide Solution	1	1	2	2	2
Sodium Phosphate	1	1	2	1	1
Sodium Silicate Solution	1	1	1	1	1
Sodium Sulfate (Glauber's Salts) Solution	1	1	2	2	2



## Rating System

<b>1</b>	<ul style="list-style-type: none"> <li>* Very good suitability.</li> <li>* Elastomer shows little or no effect from exposure.</li> <li>* Little effect on performance and physical properties.</li> </ul>
<b>2</b>	<ul style="list-style-type: none"> <li>* Very good resistance</li> <li>* Good suitability</li> <li>* Some effects from exposure with some loss of physical properties.</li> </ul>
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CHEMICAL	EPDM	FKM	CR	NBR	HNBR
Sodium Sulphate Solution	1	1	1	1	1
Sodium Sulfide	1	1	2	2	2
Sodium Sulfite Solution	1	1	1	1	1
Sodium Tetraborate Solution	1	1	2	2	2
Sodium Thiosulfate	1	1	1	2	2
Sodium Thiosulfate (Antichlor)	1	1	1	2	2
Soy Bean Oil	4	1	2	1	1
Sperm Oil	2	1	5	1	1
Spermaceti	4	1	2	1	1
Spirits	1	1	1	1	1
Stannic Chloride Solution	1	1	4	1	1
Starch	1	1	1	1	1
Stearic Acid	2	1	2	2	2
Stoddard Solvent	4	1	2	1	1
Styrene	4	1	4	4	4
Succinic Acid	1	1	2	1	1
Sucrose Sap	1	1	2	1	1
Sugar Solutions	1	1	2	1	1
Sulfur	1	1	1	4	4
Sulfur Hexafluoride (SF6)	1	2	1	2	2
Sulfur Chloride	4	1	4	4	4
Sulfur Dioxide (SO2)	1	2	4	4	4
Sulfur Dioxide Liquid (anhydrous)	1	4	4	4	4
Sulfur Dioxide, gaseous	1	4	4	4	4
Sulfuric Acid (0 to 50%)	1	1	4	4	4
Sulfuric Acid, diluted	1	1	4	2	2
Sulfurous Acid	2	1	5	5	5
Talcum	1	1	5	1	1
Tallow	2	1	2	1	1
Tannins	2	1	2	2	2
Tar	4	2	4	4	4
Tartaric Acid	2	1	2	1	1
Tetrachloroethane	4	2	4	4	4
Tetrachloroethane	4	2	4	4	4
Tetrachloromethane	4	1	4	4	4
Tetrachloromethane	4	1	4	4	4
Tetrachloroethylene	4	1	4	4	4
Tetraethyl Lead	4	1	4	2	2
Tetraethyl Lead	4	1	4	2	2
Tetrahydrofuran	4	4	4	4	4
Thionyl Chloride	2	1	4	4	4
Thiophene	4	4	4	4	4
Titanium Tetrachloride	2	2	2	2	2
Toluene (Toluol)	4	2	4	4	4
Town Gas	4	1	4	2	2
Town Gas	4	1	4	2	2
Transformer Oil	4	1	4	2	2
Triacetin (Glycerine Triacetate)	1	4	2	2	2
Triaryl Phosphate	1	1	4	4	4
Tributoxy Ethyl Phosphate	2	2	2	4	4
Tributyl Mercaptane	4	1	4	4	4
Tributyl Phosphate	2	4	4	4	4
Trichloro Benzene	5	1	4	5	5
Trichloro Ethane	4	1	4	4	4
Trichloro Ethyl Phosphate	5	4	4	4	4
Trichloro Ethylene	4	2	4	4	4
Trichloroacetic Acid	2	4	4	2	2
Tricresyl Phosphate	2	2	4	4	4
Triethanolamine	1	5	5	5	5
Triethyl Borane	5	1	5	5	5
Triethyl Glycol	1	1	5	1	1
Triethylaluminium	4	2	5	5	5
Trifluoro Ethane	4	1	4	4	4
Tri-Iso-Propyl Benzene	4	1	4	1	1
Trinitrotoluene (TNT)	4	2	2	4	4
Trioctyl Phosphate	1	2	4	4	4
Trisodium Phosphate Solution	1	1	2	1	1
Turpentine	4	1	4	1	1
Urea	1	1	2	1	1
Vaseline	4	1	2	1	1
Vaseline Oil	4	1	2	1	1
Vegetable Juices	1	1	2	1	1



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CHEMICAL	EPDM	FKM	CR	NBR	HNBR
Vegetable Oils	4	1	2	1	1
Vinegar	1	2	2	2	2
Vinyl Acetate	5	5	5	5	5
Vinyl Chloride, liquid	5	5	5	5	5
Vinylidene Chloride	4	2	4	4	4
Waste Gas (cont. Carbon Dioxide)	1	1	1	1	1
Waste Gas (cont. Carbon Monoxide)	1	1	1	1	1
Waste Gas (cont. Hydrogen Chloride)	1	1	1	2	2
Waste Gas (cont. Hydrogen Fluoride)	1	1	1	1	1
Waste Gas (cont. Nitrous Fumes)	1	1	1	5	5
Waste Gas (cont. Sulfur Dioxide)	1	1	1	2	2
Waste Gas (cont. Sulfuric Acid)	1	1	2	4	4
Water steam < 150°C	1	4	4	4	4
Water steam > 150°C	2	4	4	4	4
Water to 180°F (80°C)	1	2	2	2	1
Water to 275°F (135°C)	1	3	3	4	3
Water vapour < 140°C	1	4	4	4	3
Water vapour > 140°C	2	4	4	4	4
Wax Alcohols	4	1	2	1	1
Wine + Whiskey	1	1	1	1	1
Wood Spirit	2	4	4	4	4
Xenon	1	1	1	1	1
Xylene (Xylol)	4	2	4	4	4
Xylidines (aromatic Amines)	2	4	4	4	4
Yeast	1	1	1	1	1
Zeolites	1	1	1	1	1
Zinc Acetate	1	4	2	2	2
Zinc Chloride Solutions	1	1	1	1	1
Zinc Sulfate	1	1	1	1	1

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