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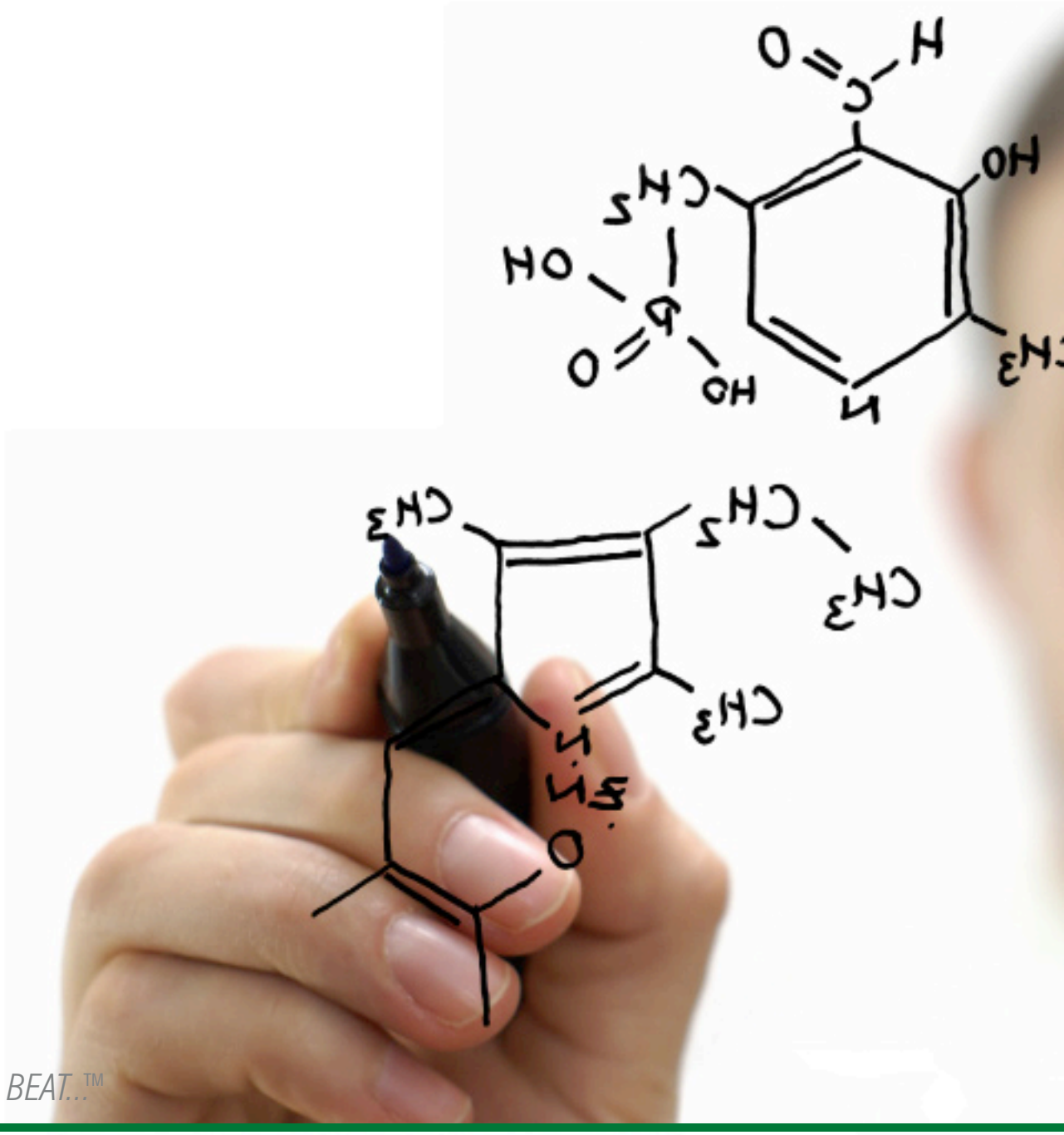
A COMPLETE RANGE OF AIR DIAPHRAGM PUMPS

AODDP
CHEMICAL FIELD GUIDE



A JDA Global Company

NEVER MISS A BEAT...™

OVERVIEW

This information is compiled from numerous sources and believed to be reliable to this date. It is intended as a guideline to be used with all available information to determine suitability of elastomers and wetted portions of Tabla pumps for various applications.

Diaphragm life not only depends on a diaphragm's chemical compatibility with the process fluid but also on the process conditions. These conditions will vary depending on the abrasiveness of your process fluid, temperature, size of diaphragm, pumping media, and lift conditions.

These guides for best diaphragm selection do not hold for the valve ball material. Because the diaphragms are securely gripped by their inner and outer beads, they can stand up to 20% swell without affecting pump performance. If the valve balls swell even a very small amount they will not function properly.

CAUTION

Temperature limits are based upon mechanical stress only. Certain chemicals will significantly reduce maximum safe operating temperatures.

SELECTION OF PLASTIC MATERIALS

Many factors can affect the chemical resistance of plastics.These include, but are not limited to, exposure time, extremes of temperature and pressure, frequency of temperature and/or pressure cycling, attrition due to abrasive particles, and the type of mechanical stress imposed.The fact that certain combinations of chemicals and mechanical load can induce stress cracking in many otherwise chemically resistant materials, both metallic and non-metallic, is of particular significance.
The chemical/temperature ratings presented are based on well-processed or well fabricated test specimens being essentially resistant to either chemical attack and/ or severe swelling which would normally impair their performance under moderate mechanical stresses.

The ratings given on the following pages are a guide and do not constitute a warranty of any kind, expressed or implied, with respect to the performance of the materials Nomad offers in any specific application.

Viton® is a registered trademark of Dupont Dow Elastomers

Santoprene® is a registered trademark of Monsanto

CHEMICALS	ELASTOMERS						METALS			PLASTICS	
	Santoprene®	Neoprene	Buna-N	Nordel	Viton®	PTFE	Aluminum	Cast Iron	Stainless Steel (316)	Polypropylene	PVDF
Acetaldehyde	B	D	D	A	D	A	B	A	A	C	D
Acetamide	A	A	A	A	A	A	A	A	A	A/70	A/140
Acetate Solv	B	D	D	C	-	A	B	D	A	B/72	A
Acetic Acid, Glacial	B	D	D	B	D	A	B	D	A	A/100	A/120
Acetic Acid	B	C	C	A	C	A	B	D	A	B/70	A
Acetic Anhydride	A	B	D	B	D	A	B	D	A	C	B/70
Acetone	B	D	D	A	D	A	A	A	A	D	D
Acetophenone	B	D	D	A	D	A	B	A	B	A/70	A/70
Acetyl Chloride	B	D	D	C	B	A	D	A	B	-	A/120
Acetylene	C	B	A	A	A	A	A	A	A	B/72	A
Alcohols											
Benzyl	A	B	D	C	A	A	B	B	A	A/70	A
Butyl	A	A	A	A	A	A	B	B	A	B	A
Ethyl	B	A	A	A	A	A	B	A	A	A	A
Hexyl	B	B	A	B	A	A	A	A	A	A/70	A
Isobutyl	A	A	C	A	A	A	B	C	A	-	A
Isopropyl	B	B	C	B	A	A	B	C	A	A	A/150
Methyl	A	A	A	B	D	A	B	A	A	A/120	A
Octyl	B	B	B	A	A	A	A	A	A	-	-
Propyl	A	A	A	B	A	A	A	A	A	A	A/120
Aluminum Acetate	A	B	C	A	D	A	A	A	B	-	-
Aluminum Chloride 100%	-	-	-	-	-	-	-	D	-	-	-
Aluminum Chloride 20%	A	A	A	A	A	A	B	-	C	A	A
Aluminum Fluoride	A	A	A	B	-	A	B	D	C	A	A
Aluminum Hyroxide	A	A	A	A	A	A	A	D	A	A	A
Aluminum Nitrate	A	A	A	A	A	A	B	D	A	A	A
Aluminum Phosphate	A	A	A	A	A	A	-	D	A	-	-
Aluminum Potassium Sulfate (Alum)	A	A	A	A	A	A	B	-	A	A	A
Aluminum Sulfate	B	A	A	A	A	A	C	D	A	A	A
Amines	A	B	D	-	D	-	A	D	A	-	-
Ammonia, Anhydrous	A	A	B	A	D	A	B	D	A	A/70	D
Ammonia, Gas (Cold)	A	A	A	D	A	A	-	-	-	B	D
Ammonia, Gas (Hot)	A	B	C	C	C	A	-	-	-	-	-
Ammonia, Liquids	A	A	B	A	D	A	D	A	A	A/70	A
Ammonia, Water	-	-	-	-	-	-	-	-	-	-	-
Ammonia, Nitrate	A	C	A	-	-	-	C	A	A	A	A
Ammonium, Bifluoride	A	A	A	-	A	A	D	D	A	A/70	A
Ammonium, Carbonate	A	A	D	A	B	A	C	C	A	A	A
Ammonium, Casenite	A	A	-	-	-	-	-	-	A	-	-
Ammonium, Chloride	A	A	A	A	A	A	C	D	C	A	A
Ammonium, Fluoride	-	-	-	-	-	-	-	-	-	-	-
Ammonium, Hydroxide	A	A	B	A	B	A	C	A	A	A	A
Ammonium, Nitrate	A	A	A	A	B	A	B	A	A	A	A

Ratings: **(A)** Minor effect **(B)** Minor to moderate effect **(C)** Moderate to severe effect **(D)** Not Recommended **(-)** Insufficient Information

The accuracy of these ratings cannot be guaranteed.

CHEMICALS	ELASTOMERS						METALS			PLASTICS	
	Santoprene®	Neoprene	Buna-N	Nordel	Viton®	PTFE	Aluminum	Cast Iron	Stainless Steel (316)	Polypropylene	PVDF
Ammonium Nitrite	A	A	A	A	-	A	-	-	-	A/70	A
Ammonium Oxalate	A	A	A	-	-	-	-	D	A	-	-
Ammonium Persulfate	A	A	D	B	A	A	C	D	A	-	A
Ammonium Phosphate, Dibasic	A	A	A	A	A	A	B	D	A	A	A
Ammonium Phosphate, Monobasic	A	A	A	A	A	A	B	D	A	A	A
Ammonium Sulfate	A	A	A	A	D	A	B	C	A	A	A
Ammonium Thio-Sulfate	A	A	A	A	-	A	-	D	A	-	-
Amyl-Acetate	B	B	D	B	D	A	B	C	A	C/70	A/120
Amyl-Alcohol	B	B	B	A	B	A	B	B	A	B	A
Amyl-Chloride	C	C	D	D	A	A	D	A	A	D	A
Amyl-Chloronapthalene	C	C	B	D	A	A	-	-	-	-	-
Amyl-Napthalene	C	C	D	D	A	A	-	-	-	-	-
Aniline Dyes	B	B	C	A	A	A	B	A	B	-	-
Aniline Hydrochloride	A	A	C	B	B	A	D	D	D	-	A
Animal Fats	B	B	A	A	A	A	A	A	A	-	-
Antimony Trichloride	-	-	-	-	-	-	-	-	-	-	-
Anti-Freeze	A	C	A	-	A	-	A	A	A	A	-
Aqua Regia (80%, HCl, 20% HNO3)	D	D	D	C	C	A	D	D	D	B	A/70
Arochlor(s)1248	D	D	D	C	A	A	A	B	A	-	-
Aromatic Hydrocarbons	C	C	D	D	A	A	A	A	A	D	-
Arsenic Acid	A	A	A	A	A	A	D	D	A	A	A
Arsenic Trichloride	B	B	C	D	D	A	D	D	D	-	-
Asphalt	B	B	B	D	A	A	C	A	A	A	A
Barium Carbonate	A	A	A	A	A	A	B	A	A	A	A
Barium Chloride	A	A	A	A	A	A	D	C	C	A	A
Barium Cyanide	A	A	C	-	A	-	C	C	A	-	-
Barium Hydroxide	A	A	A	A	A	A	D	D	A	A	A
Barium Nitrate	A	A	A	-	A	-	B	A	A	-	-
Beer	A	A	A	A	A	A	A	D	A	B/70	A/175
Beet Sugar Liquids	A	A	A	A	A	A	A	A	A	A	A
Beet Sugar Liquors	A	A	A	A	A	A	A	B	A	-	-
Benzaldehyde	B	D	D	B	D	A	B	A	A	D	A/70
Benzene	C	D	D	D	A	A	B	A	A	C/72	A/70
Benzyl Benzoate	C	D	D	B	A	A	A	B	B	-	-
Benzyl Chloride	C	D	D	D	C	A	D	D	B	D	C
Benzoic Acid	A	D	D	B	A	A	B	D	A	B	A
Benzol	C	D	D	D	D	A	B	B	A	D	A/70
Benzol Alcohol	-	-	-	-	-	-	-	-	-	-	-
Blast Furnace Gas	A	A	C	B	A	A	-	-	-	-	-
Bleach Solutions	B	D	D	A	A	A	D	-	-	B	-
Borax (Sodium Borate)	A	D	B	A	A	A	C	A	A	A	A
Boric Acid	A	A	A	A	A	A	B	D	-	A	A
Brine	A	A	A	A	A	A	C	C	-	A	A

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CHEMICALS	ELASTOMERS						METALS			PLASTICS	
	Santoprene®	Neoprene	Buna-N	Nordel	Viton®	PTFE	Aluminum	Cast Iron	Stainless Steel (316)	Polypropylene	PVDF
Brewery Slop	A	A	A	-	A	-	-	A	A	-	
Bromine	C	D	D	C	A	A	D	-	D	B/72	A/150
Bromine-Anhydrous	C	D	-	C	A	A	D	D	D	D	A/150
Bromine-Trifluoride	C	D	D	D	D	A	D	D	B	D	-
Bromine-Vapor	-	-	-	-	-	-	-	-	-	-	-
Bromine-Water	B	B	-	-	A	A	D	D	B	D	A
Bromobenzene	D	D	D	D	B	A	D	B	B	D	-
Bunker Oil	B	B	A	D	A	A	A	A	A	-	-
Butadiene	C	B	A	C	A	A	A	-	A	-	A
Butane	C	B	A	C	A	A	A	-	A	B/72	A/200
Butter	B	B	A	A	A	A	A	D	A	-	-
Buttermilk	A	A	A	-	A	-	A	D	A	-	-
Butyl Acetyl Ricinoleate	B	B	A	D	A	A	A	A	A	-	-
Butyl Acetate	B	D	D	B	D	A	A	A	C	D	A/70
Butyl Acrylate	C	D	D	D	D	A	-	-	-	D	A/70
Butyl Alcohol	-	-	-	-	-	-	-	-	-	-	-
Butyl Amine	A	D	B	D	D	A	A	-	-	-	B/70
Butyl Benzoate	C	D	-	B	A	A	B	B	B	-	-
Butyl Carbitol	B	B	A	A	A	A	-	-	-	-	-
Buytl Chloride	-	-	-	-	-	-	-	-	-	-	-
Buytl Ether	-	-	-	-	-	-	-	-	-	-	-
Butyl Oleate	C	D	-	B	A	A	-	-	-	-	-
Butyl Phthalate	-	-	-	-	-	-	-	-	-	-	-
Butyl Stearate	C	D	A	B	A	A	B	B	B	-	-
Butylene	D	-	B	D	A	A	A	-	A	D	A
Butraldehyde	C	C	D	B	D	A	-	-	-	D	B
Butryric Acid, Aqeous	A	D	D	C	D	A	B	-	A	A	A
Caffiene Citrate	-	-	-	-	-	-	-	-	-	-	-
Calcium Bisulfate	-	-	-	-	-	-	-	-	-	-	-
Calcium Bisulfide	D	A	A	-	A	-	C	-	B	A	A
Calcium Carbonate	A	A	A	A	A	A	C	-	A	A	A
Calcium Chloride	A	A	A	A	A	A	C	C	C	A	A
Calcium Hyroxide	A	A	A	A	A	A	C	A	A	A	A
Calicium Hypochlorite	A	B	B	B	A	A	C	D	A	A	A
Calcium Nitrate	A	A	A	A	A	A	B	C	B	A	A
Calcium Sulfate	A	D	A	A	A	A	B	A	A	A	A
Calcium Sulfide	A	B	A	A	A	A	A	B	B	A/120	A
Cane Juice	A	A	A	-	-	-	B	A	A	B/72	A
Cane Sugar Liquors	A	A	A	A	A	A	A	B	A	A	-
Carbitol	B	B	B	B	A	A	B	B	B	C	A
Carbolic Acid (See Phenol)	A	C	D	C	A	A	B	D	A	C	A/70
Carbon Bisulfide	D	D	D	D	A	A	A	-	A	B/72	A
Carbon Dioxide	A	B	A	A	B	A	A	D	A	A	A

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CHEMICALS	ELASTOMERS						METALS			PLASTICS	
	Santoprene®	Neoprene	Buna-N	Nordel	Viton®	PTFE	Aluminum	Cast Iron	Stainless Steel (316)	Polypropylene	PVDF
Carbon Disulfide	D	D	D	D	A	A	C	A	A	B/72	A/70
Carbon Monoxide	A	B	A	C	A	A	A	A	A	A	B
Carbon Tetrachloride	D	D	C	D	A	A	D	C	A	B/72	A
Carbonate Water	A	A	A	-	A	-	A	D	A	A	A
Carbonic Acid	A	A	B	A	A	A	A	D	B	A	A
Catsup	A	C	A	-	A	-	D	D	A	A	-
Cellosolve	C	C	C	A	B	A	B	B	B	A	A
Cellosolve Acetate	C	D	C	A	A	A	-	-	-	-	A/120
Cloracetic Acid	D	D	D	B	D	A	D	D	C	B/72	A
Chlorinate Glue	C	D	C	-	A	-	D	D	A	-	-
Chlorine (Dry)	C	D	D	C	A	A	D	D	-	D	A
Chlorine (Wet)	C	D	D	D	A	A	D	B	D	D	A
Chlorine, Anhydrous Liquid	D	D	D	-	A	A	D	D	D	D	A
Chlorine Dioxide	D	D	D	C	A	A	D	D	D	-	A
Chlorine Gas (Dry)	-	-	-	-	-	-	-	-	-	-	-
Chlorine Gas (Wet)	-	-	-	-	-	-	-	-	-	-	-
Chlorine Trifluoride	D	D	D	D	C	A	D	B	A	-	-
Chloroacetic Acid	-	-	-	-	-	-	-	-	-	-	-
Chloroacetone	C	C	D	D	B	A	D	D	B	D	-
Chlorobenzene (Mono)	C	D	D	D	A	A	D	B	A	D	A/150
Chlorobromomethane	D	D	D	B	A	A	D	B	B	D	-
Chlorobutadiene	C	D	D	D	A	A	D	B	A	D	-
Chloroform	D	D	D	D	A	A	D	D	A	D	A
1-Chloronapthalene	D	D	D	D	A	A	D	B	B	D	-
Chlorosulfonic Acid	A	D	D	D	D	A	D	D	D	D	D
Chlorotoluene	C	D	D	D	A	A	D	B	B	D	-
Clorox (Bleach)	B	B	C	-	A	A	D	D	A	B	-
Chocolate Syrup	A	-	A	-	A	-	A	D	A	A	-
Chromic Acid 5%	A	D	D	A	A	A	C	D	A	A/70	A/120
Chromic Acid 50%	A	D	D	C	A	A	C	D	B	A/70	A/120
Chromium Alum	-	-	-	-	-	-	-	-	-	-	-
Chrome Plating Sloutions	B	D	D	D	A	A	D	D	D	B	A
Cider	A	A	A	-	A	-	B	D	A	-	-
Citric Acid	A	A	A	A	A	A	-	D	A	A	A
Citric Oils	C	D	A	B	A	A	C	D	A	A	-
Coffee	A	A	A	-	A	-	C	-	A	A	-
Coke Oven Gas	B	C	C	D	A	A	A	-	-	-	-
Copper Acetate	A	B	B	A	-	A	-	D	C	-	-
Copper Chloride	A	B	A	A	A	A	D	D	D	A	A
Copper Cyanide	A	A	A	A	A	A	D	D	A	A	A
Copper Fluoborate	A	A	B	-	A	-	D	D	D	-	-
Copper Fluoride	-	-	-	-	-	-	-	-	-	-	-
Copper Nitrate	A	A	A	A	A	A	D	D	A	A	A

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CHEMICALS	ELASTOMERS						METALS			PLASTICS	
	Santoprene®	Neoprene	Buna-N	Nordel	Viton®	PTFE	Aluminum	Cast Iron	Stainless Steel (316)	Polypropylene	PVDF
Copper Sulfate (5% Solution)	A	A	A	A	A	A	A	D	A	A	A
Cream	A	C	A	-	A	-	-	D	A	A	-
Cresols	C	D	D	D	A	A	A	C	A	D	A/150
Cresylic Acid	B	D	D	D	A	A	A	A	A	C	A/150
Crude Oi	-	-	-	-	-	-	-	-	-	-	-
Cyclohexane	C	D	A	D	A	A	A	B	A	D	A
Cyclohexanol	B	A	B	C	A	A	A	B	B	B	A/150
Cyanic Acid	B	D	C	D	-	-	-	D	A	-	-
Denatured Alcohol	B	B	A	B	B	A	A	A	A	A	A
Detergents	B	B	A	A	A	A	A	-	A	A	-
Developing Fluids	A	A	A	A	A	A	-	-	-	-	-
Diacetone	B	-	D	D	D	A	A	A	D	D	A/70
Dibutyl Amine	B	D	C	B	B	A	-	-	D	D	-
Dibutyl Ether	B	C	B	C	C	A	B	B	D	D	A/20
Dibutyl Phthalate	B	D	D	B	B	A	A	A	C	C	D
Dibutyl Sebecate	B	D	D	B	B	A	-	A	B/72	B/72	D
Dichlorobenzyene	-	-	-	-	-	-	-	-	-	-	-
Dichloroethylene	-	-	-	-	-	-	-	-	-	-	-
Diesel Fuel	C	D	A	A	A	A	A	A	B/70	B/70	A
Diethyl Benzene	C	D	D	A	A	A	-	-	-	-	-
Diethyl Ether	B	C	B	D	D	A	B	B	-	-	A/70
Diethyl Sebecate	B	D	D	A	A	A	A	A	A/120	A/120	A/120
Diethylamine	B	B	B	D	D	-	A	B	C	C	A/70
Diethylene Glycol	A	A	A	A	A	A	B	A	-	-	A
Diisobutylene	C	C	B	A	A	A	B	B	-	-	A
Diisopropyl Benzene	C	D	D	A	A	A	-	-	-	-	-
Diisopropyl Ketone	C	D	D	D	D	A	-	-	-	-	-
Dimethyl Aniline	B	D	D	C	C	A	A	-	A	A	A/70
Dimethyl Formamide	A	D	C	A	A	A	A	A	A/120	A/120	D
Dimethyl Phthalate	B	D	D	C	C	A	-	-	A/70	A/70	A/70
Dioxane	C	D	D	D	D	A	A	A	C/120	C/120	C/120
Dioxolane	C	D	D	B	B	A	-	-	-	-	-
Dipentene	C	D	C	A	A	A	A	A	-	-	-
Diphenyl	C	D	D	A	A	A	B	B	-	-	A/120
Dry Cleaning Fluids	D	D	C	A	A	A	A	A	D	D	-
Dyes	B	C	-	A	A	-	A	-	-	-	-
Epsom Salts (Magnesium Sulfate)	A	A	A	A	A	A	A	A	A	A	A
Ethane	C	B	A	A	A	A	A	-	-	-	A
Ethanolamine	A	B	B	D	D	A	A	-	D	D	C
Ether	C	D	D	C	C	A	A	C	C	C	A/70
Ethyl Acetate	C	D	D	D	D	A	A	A	B/72	B/72	D
Ethyl Acetoacetate	C	D	D	D	D	A	-	A	-	-	A/70
Ethyl Acrylate	C	D	D	D	D	A	A	A	D	D	C

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	Santoprene®	Neoprene	Buna-N	Nordel	Viton®	PTFE	Aluminum	Cast Iron	Stainless Steel (316)	Polypropylene	PVDF
Eythl Alcohol (Ethanol)	-	-	-	-	-	-	-	-	-	-	-
Eythl Benzene	C	D	D	D	A	A	B	B	B	D	C
Eythl Benzoate	C	D	D	B	A	A	A	A	A	-	D
Ethyl Chloride	C	A	A	C	A	A	D	C	A	D	A
Ethyl Chlorocarbonate	A	C	-	-	A	A	D	A	-	-	-
Ethyl Chloroformate	C	C	-	-	A	A	D	-	-	D	-
Ethyl Ether	C	D	B	D	D	A	C	B	A	C	A
Ethyl Formate	B	B	D	B	C	A	C	A	B	-	-
Ethyl Silicate	B	A	A	A	A	A	B	A	A	-	-
Ethyl Sulfate	B	-	A	-	A	A	-	-	D	-	-
Ethylene	C	-	B	C	A	A	-	-	B	-	-
Ethylene Bromide	-	-	-	-	-	-	-	-	-	A/250	-
Ethylene Chloride	D	D	D	C	A	A	D	C	A	B/72	A
Ethylene Chlorohydrin	C	B	D	A	B	A	D	B	B	D	A/70
Ethylene Diamine	A	A	B	A	D	A	D	A	A	A	D
Ethylene Dichloride	D	D	D	B	A	A	D	A	A	D	A
Ethylene Glycol	A	A	A	A	A	A	A	B	A	A/120	A
Ethylene Oxide	A	D	D	D	D	A	A	D	-	D	A
Ethylene Tricloroide	D	D	D	D	A	A	D	A	A	D	A
Fatty Acids	B	B	C	D	A	A	B	D	A	B/70	A
Ferric Chloride	A	B	A	A	A	A	D	D	D	A	A
Ferric Nitrate	A	A	A	A	A	A	D	-	A	A	A
Ferric Sulfate	A	A	B	A	A	A	D	D	A	A	A
Ferrous Chloride	A	A	B	A	A	A	D	D	D	A	A
Ferrous Sulfate	A	A	B	A	A	A	D	D	A	A	A
Fish Oil	B	-	A	-	A	A	-	-	-	-	-
Fluoboric Acid	A	A	B	A	A	A	D	D	B	A	A
Fluorine (Liquid)	D	D	D	C	B	A	D	D	A	D	A/70
Fluorobenzene	C	D	D	D	A	A	D	-	-	D	-
Fluorocarbon Oils	D	-	-	A	-	A	D	-	-	D	-
Fluorolube	D	A	C	A	B	A	-	-	-	-	-
Fluorinate Cyclic Ethers	D	-	-	-	-	-	D	-	-	D	-
Fluosilicic Acid	A	A	A	B	-	A	D	D	B	A	-
Formaldehyde	B	D	C	A	A	A	A	D	A	A	A/120
Formic Acid	A	D	D	B	B	A	D	D	A	A	A
Freon 11	D	D	C	D	C	A	D	C	A	D	A
Freon 12 (Wet)	D	B	A	B	A	A	D	A	A	B/72	A
Freon 13	D	A	A	A	A	A	D	-	-	D	A
Fruit Juice	A	-	A	-	A	A	B	D	A	A	A
Fuel Oil	C	B	A	D	A	A	A	A	A	C	A
Fumaric Acid	A	B	C	-	A	A	-	-	-	-	-
Furan, Furfuran	C	D	D	D	C	A	-	-	-	C	-
Furan, Resin	C	D	D	D	A	A	A	-	A	C	D

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The accuracy of these ratings cannot be guaranteed.

CHEMICALS	ELASTOMERS						METALS			PLASTICS	
	Santoprene®	Neoprene	Buna-N	Nordel	Viton®	PTFE	Aluminum	Cast Iron	Stainless Steel (316)	Polypropylene	PVDF
Furfural	C	D	D	A	D	A	A	B	A	D	B/120
Gallic Acid	B	C	D	B	A	A	A	D	B	A	A/70
Gasoline - Leaded	C	D	A	D	A	A	A	A	A	D	A
Gasoline - Unleaded	C	D	D	D	A	A	A	A	A	D	C
Gelatine	A	A	A	A	A	A	A	D	A	A	A
Glucose	A	A	A	A	A	A	A	B	A	A	A
Glue P.V.A.	A	A	D	B	A	A	B	A	A	B	A
Glycerine	A	A	A	A	A	A	A	B	A	A	A
Glycolic Acid	A	A	A	-	A	-	-	-	-	A/70	A/70
Glycolis	A	A	A	A	A	A	B	B	B	A	A
Gold Monocyanide	A	A	A	-	A	-	-	D	A	-	-
Grape Juice	A	A	A	-	A	-	B	D	A	A	A
Grease	B	D	A	D	A	A	A	A	A	-	A
Green Sulfate Liquor	A	A	A	A	A	A	-	-	-	A	-
Halowax Oil	D	D	D	D	A	A	-	-	-	-	-
Heptane	C	B	A	-	A	A	A	A	A	C/170	A
Hexane	C	B	A	D	A	A	A	A	A	C/170	A
Honey	A	A	A	-	A	-	A	A	A	A	A
Hydraulic Oils (Petroleum)	D	B	A	C	A	A	A	A	A	D	-
Hydraulic Oils (Synthetic)	D	-	C	-	A	-	A	A	A	D	-
Hydrazine	A	B	B	A	A	A	-	C	A	A/70	A/120
Hydrobromic Acid	B	D	D	A	A	A	D	D	D	B	A
Hydrochloric Acid (20%)	A	D	C	A	A	A	D	D	D	A	A
Hydrochloric Acid (37%) Hot	C	D	D	C	A	A	D	D	D	-	A
Hydrochloric Acid (37%) Cold	B	D	C	B	A	A	D	D	D	A	A
Hydrocyanic Acid	B	B	C	B	A	A	A	D	A	A	A
Hydrofluoric Acid (20%)	C	C	D	-	A	A	D	D	D	A	A
Hydrofluoric Acid (50%)	D	C	D	A	A	A	D	D	D	B/72	A
Hydrofluoric Acid (75%)	D	D	D	C	A	A	D	D	D	B/72	A
Hydrofluoric Acid (Conc-) Hot	D	D	D	-	B	A	D	D	D	D	A
Hydrofluoric Acid (Conc-) Cold	D	B	D	-	A	A	D	D	D	D	A
Hydrofluosilicic Acid (20%)	B	B	B	B	A	A	D	D	D	A	A
Hydrogen Fluoride	-	-	-	-	-	-	-	-	-	-	-
Hydrogen Gas	A	A	A	B	A	A	A	A	A	A	A
Hydrogen Peroxide	A	D	B	C	A	A	A	D	A	A/70	A/70
Hydrogen Peroxide (5%)	-	-	-	-	-	-	-	-	-	-	-
Hydrogen Peroxide (50%)	-	-	-	-	-	-	-	-	-	-	-
Hydrogen Peroxide (90%)	-	-	-	-	-	-	-	-	-	-	-
Hydrogen Sulfide (Wet) (Cold)	A	A	A	B	-	A	D	D	B	A	-
Hydrogen Sulfide (Wet) (Hot)	A	C	D	A	B	A	D	D	A	A	A/120
Hydrogen Sulfide (Aqueous Solution)	A	B	C	A	D	A	D	D	A	A	A
Hydroquinone	A	D	C	-	C	A	A	B	B	A	A
Hydroxyacetic Acid (70%)	A	A	A	-	A	A	D	B	-	-	-

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CHEMICALS	ELASTOMERS						METALS			PLASTICS	
	Santoprene®	Neoprene	Buna-N	Nordel	Viton®	PTFE	Aluminum	Cast Iron	Stainless Steel (316)	Polypropylene	PVDF
Hypocholorous Acid	A	D	D	B	A	A	D	D	D	A	A
Ink	A	-	A	-	A	-	C	D	A	-	A
Iodine (In Alcohol)	A	D	B	D	A	A	D	D	D	A/70	A/120
Iodine Pentafluoride	B	D	D	D	D	A	-	-	-	-	-
Iodoform	B	-	D	A	-	A	B	A	B	-	A
Isobutyl Alcohol	-	-	-	-	-	-	-	-	-	-	-
Isooctane	C	B	A	D	A	A	A	-	-	A	-
Isotane	D	-	A	-	A	-	A	-	-	B/72	A
Isophorone	C	D	D	D	A	A	A	A	A	D	C
Isopropyl Acetate	B	D	D	B	D	A	C	-	B	-	-
Isopropyl Chloride	C	D	D	D	B	A	D	A	A	D	-
Isopropyl Ether	C	D	B	D	D	A	A	-	A	B/72	-
Jet Fuel (JP3, JP4, JP5)	C	D	A	D	A	A	A	A	A	B/72	A
Kerosene	C	B	A	D	A	A	A	A	A	B/72	A
Ketones	C	D	D	B	D	A	B	-	A	D	A/70
Lacquers	C	D	D	D	D	A	A	C	A	C	D
Lacquer Solvents	C	D	D	D	D	A	A	B	A	C	D
Lactic Acid	A	C	B	B	A	A	C	D	A	A	A/70
Lard	B	B	A	C	A	A	A	A	A	A	A
Latex - Water Base	A	B	A	D	A	A	A	-	A	A	-
Lavender Oil	B	C	B	C	B	A	-	-	-	-	-
Lead Acetate	A	B	B	A	D	A	D	A	B	A	A
Lead Nitrate	-	-	-	-	-	-	-	-	-	-	-
Lead Sulfamate	A	A	B	A	A	A	C	-	-	A	A
Ligroin	B	B	A	D	A	A	D	-	A	B/175	A
Lime	A	B	A	A	A	A	C	A	A	-	A
Lime Bleach	A	B	A	A	A	A	D	-	A	B	-
Lime Sulfur	B	A	D	C	A	A	-	-	A	A	-
Lindol	A	C	D	A	B	A	-	-	-	-	-
Linoleic Acid	B	D	B	D	A	A	A	D	A	A/70	A
Liquefied Petroleum Gas	C	B	A	D	A	A	-	-	-	D	-
Lubricants	B	B	A	D	A	A	A	A	A	B	A
Lubricating Oils (Petroleum)	D	B	A	D	A	A	A	A	A	B	A
Lye	A	B	C	B	B	A	-	-	A	A	A/150
Magnesium Carbonate	A	A	A	C	-	A	D	-	A	A	A
Magnesium Chloride	A	A	A	A	A	A	D	D	D	A	A
Magnesium Hyroxide	A	B	B	A	A	A	D	B	A	A	A
Magnesium Nitrate	A	A	A	A	-	A	D	D	A	A	A
Magnesium Oxide	A	A	A	-	A	A	B	A	A	-	-
Magnesium Sulfate	A	A	A	A	A	A	D	C	A	B	A
Maleic Acid	A	D	D	C	A	A	B	A	A	A	A
Maleic Anhydride	A	D	D	C	A	A	A	-	-	-	A
Malic Acid	A	C	B	D	A	A	B	D	A	B	A

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CHEMICALS	ELASTOMERS						METALS			PLASTICS	
	Santoprene®	Neoprene	Buna-N	Nordel	Viton®	PTFE	Aluminum	Cast Iron	Stainless Steel (316)	Polypropylene	PVDF
Mash	A	A	A	-	-	-	A	-	A	-	-
Mayonnaise	A	-	A	-	A	-	D	D	A	A	A
Melamine	B	-	C	-	-	-	-	D	D	-	-
Mercuric Chloride (Dilute Sol.)	A	A	A	A	A	A	D	D	D	A	A
Mercuric Cyanide	A	A	A	A	-	A	D	C	A	A	A
Mercurous Nitrate	-	-	-	-	-	-	-	-	-	-	-
Mercury	A	A	A	A	A	A	C	A	A	A	A
Mesityl Oxide	C	D	D	B	D	A	A	A	A	-	A
Methane	C	B	A	D	A	A	A	-	A	B	A
Methanol (See Alcohol Methyl)	A	B	A	B	C	A	B	A	A	B/120	A
Methyl Acetate	B	A	D	A	D	A	A	A	A	C	B
Methyl Acrylate	B	B	D	B	D	A	-	A	-	-	B
Methyl Acetone	B	B	D	-	-	A	A	A	A	D	D
Methyl Bromide	D	D	B	A	A	A	D	A	-	D	A
Methyl Butyl Ketone	C	D	D	B	D	A	A	C	-	B	A
Methyl Cellosolve	B	D	D	B	D	A	A	C	-	B	A
Methyl Chloride	D	D	D	C	A	A	D	D	A	D	A
Methyl Cyclopentane	C	C	B	D	A	A	-	-	-	-	-
Methyl Dichloride	D	D	D	-	A	-	D	-	-	D	D
Methyl Ethyl Ketone	B	D	D	A	D	A	A	A	A	C	D
Methyl Formate	B	B	D	A	D	A	A	B	B	-	-
Methyl Isobutyl Ketone	C	D	D	B	D	A	B	C	A	B/72	A
Methyl Isopropyl Ketone	C	D	D	C	D	A	A	C	A	C	-
Methyl Methacrylate	B	D	D	C	D	A	-	C	-	A	B
Methyl Oleate	C	D	D	C	B	A	-	-	-	-	-
Methyl Salicylate	B	D	D	C	B	A	A	A	-	B	B
Methylacrylic Acid	A	B	-	B	B	A	-	-	-	-	-
Methylamine	A	-	B	A	-	A	-	A	A	-	C
Methylene Chloride	D	D	D	C	B	A	D	B	A	D	D
Milk	A	A	A	A	A	A	A	D	A	A	A
Molasses	A	A	A	A	A	A	A	A	A	A	A
Monobromorobenzene	-	-	-	-	-	-	-	-	-	-	-
Monochloroacetic Acid	-	-	-	-	-	-	-	-	-	-	-
Monochlorobenzene	C	D	D	D	A	A	D	A	A	D	A/150
Monomethyl Aniline	B	D	D	D	C	A	-	-	-	C	-
Monoethanolamine	A	C	B	B	C	A	B	A	A	D	D
Monomethylether	C	B	A	A	A	A	-	-	-	-	-
Monovinyl Acetylene	C	B	A	A	A	A	-	-	-	-	-
Mustard	A	C	B	-	A	-	B	C	A	A	A
Naptha	C	D	B	D	A	A	A	B	A	C	A
Napthalene	C	D	D	D	A	A	B	B	B	A/70	A
Napthenic Acid	B	-	B	D	A	A	B	B	A	-	-
Natural Gas	C	A	A	C	A	A	A	A	A	A	-

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CHEMICALS	ELASTOMERS						METALS			PLASTICS	
	Santoprene®	Neoprene	Buna-N	Nordel	Viton®	PTFE	Aluminum	Cast Iron	Stainless Steel (316)	Polypropylene	PVDF
Neatsfoot Oil	B	-	A	B	A	A	A	A	A	-	-
Neville Acid	A	C	C	B	A	A	-	-	-	-	-
Nickel Acetate	A	B	B	A	A	A	D	-	-	-	-
Nickel Chloride	A	A	A	A	A	A	D	D	A	A	A
Nickel Nitrate	-	-	-	-	-	-	-	-	-	-	-
Nickel Sulfate	A	A	A	A	A	A	D	D	A	A	A
Niter Cake	A	A	A	A	A	A	-	-	-	-	-
Nitric Acid (5-10% Solution)	A	D	D	B	A	A	D	D	A	A/120	A/120
Nitric Acid (20% Solution)	B	D	D	B	A	A	D	D	A	B/70	A
Nitric Acid (50% Solution)	C	D	D	D	A	A	C	D	A	B/70	A
Nitric Acid (Concentrated Sol.)	C	D	D	D	A	A	A/120	D	A	D	A/125
Nitric Acid - Red Fuming	D	D	D	D	B	A	A/B	D	A	D	D
Nitrobenzene	B	D	D	C	B	A	C	C	B	B/72	A/70
Nitrobenzine	B	D	-	C	A	A	-	-	-	-	A
Nitro Ethane	A	C	D	B	C	A	A	A	A	C	-
Nitromethane	A	C	D	A	C	A	A	A	A	C	A/120
Nitrous Acid	-	-	-	-	-	-	-	-	-	-	-
Nitrous Oxide	-	-	-	-	-	-	-	-	-	-	-
Nitrogen (Gas)	A	A	A	A	A	A	A	A	A	A	A
Octadecane	B	B	A	D	A	A	-	-	-	-	-
Octane	-	-	-	-	-	-	-	-	-	-	-
N-Octane	B	-	A	D	A	A	-	-	-	D	A
Octachlorotoluene	D	D	D	D	A	A	D	-	-	D	-
Oils:											
Anline	B	D	D	B	A	A	C	A	A	A	A/70
Anise	C	D	-	-	-	A	-	A	A	-	-
Bay	C	D	-	-	A	-	-	A	A	-	A
Bone	C	D	A	-	A	A	-	A	A	-	A
Castor	B	A	A	B	A	A	A	A	A	-	A
Cinnamon	C	D	-	-	-	-	-	-	A	-	-
Citric	C	D	A	B	A	A	A	D	A	A	A
Clove	C	-	A	-	-	-	B	-	A	B	-
Conconut	B	A	A	A	A	A	B	A	A	A	A
Cod Liver	C	B	A	A	A	A	B	-	A	A	A
Corn	B	D	A	A	A	A	B	A	A	A	A
Cotton Seed	B	D	A	A	A	A	B	A	A	A	A
Cresote	B	B	A	D	A	A	A	-	A	D	-
Diesel Fuel (20, 30, 40, 50)	C	D	A	-	A	-	A	A	A	B/70	A
Fuel (1, 2, 3, 5A, 5B, 6)	C	D	B	D	A	A	A	A	A	B/70	A
Ginger	C	A	A	-	A	-	-	-	A	-	A
Hydraulic (See Hydraulic)											
Lemon	C	D	-	-	A	-	A	-	A	D	-
Linseed	B	D	A	B	A	A	A	A	A	A	A

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CHEMICALS	ELASTOMERS						METALS			PLASTICS	
	Santoprene®	Neoprene	Buna-N	Nordel	Viton®	PTFE	Aluminum	Cast Iron	Stainless Steel (316)	Polypropylene	PVDF
Mineral	C	B	A	D	A	A	A	A	A	B	A
Olive	B	B	A	A	A	A	A	A	A	A	A
Orange	C	D	A	-	A	A	A	-	A	A	A
Palm	B	D	A	-	A	A	A	A	A	-	A
Peanut	B	D	A	C	A	A	A	A	A	B/175	A
Peppermint	C	D	D	-	A	D	D	-	A	B/175	A
Pine	C	D	A	D	A	A	A	C	A	-	A
Rape Seed	B	D	B	A	A	-	-	A	A	-	A
Rosin	A	-	A	-	A	A	A	-	A	A	A
Sesame Seed	B	D	A	-	A	A	A	A	A	-	A
Silicon	C	A	A	A	A	A	A	A	A	A	A
Soybean	B	D	A	B	A	A	A	A	A	A	A
Sperm	B	D	A	-	A	-	-	A	A	-	A
Tanning	B	D	A	-	A	-	-	-	A	-	A
Turbine	C	D	A	D	A	A	A	A	A	B/70	A
Oleic Acid	B	D	B	B	B	B	B	C	A	B	A
Oleum	D	D	C	D	A	D	D	D	A	D	D
Oleum Spirits	D	D	C	C	A	D	D	D	B	D	D
O-Dichlorobenzene	D	D	D	A	A	A	A	A	-	D	-
Oxalic Acid (Cold)	A	B	B	A	A	C	C	D	A	A/70	A/120
Oxgen - Cold	A	A	C	B	A	A	A	A	A	C	A
Oxygen - 200-400 degrees F	D	D	D	D	B	A	A	A	A	D	A
Ozone	A	B	D	A	A	B	B	-	-	D	A
Paint Thinner, Duco	C	C	A	B	D	A	A	A	A	D	-
Paraffin	A	-	A	D	A	A	A	-	A	A	A
Perchloric Acid	C	A	D	B	A	D	D	D	D	A	A/120
Perchlroic Acid - 10%	-	-	-	-	-	-	-	-	-	-	-
Perchloric Acid - 70%	-	-	-	-	-	-	-	-	-	-	-
Perchloroethylene	A	D	C	D	A	D	D	B	A	A/72	A
Petrolatum	B	B	A	-	A	B	B	-	A	A	A
Petroleum - Below 250	B	B	A	D	A	A	A	A	A	A/70	A/200
Petroleum - Above 250	C	D	C	D	B	A	A	A	A	-	-
Phenol (Carbolic Acid)	A	D	D	C	A	A	C	D	A	C	A/70
Phenylbenzene	C	D	D	D	A	A	-	-	-	-	-
Phenyl Ethyl Ether	C	D	D	D	C	A	-	-	-	-	-
Phenyl Hydrazine	B	D	D	C	A	A	-	-	-	-	D
Phorone	B	D	D	C	A	A	-	-	-	-	-
Phosphoric Acid - 20%	A	B	C	A	A	A	D	D	B	A/120	A
Phosphoric Acid (To 40% Sol.)	A	D	D	B	A	A	D	D	A	A/120	A
Phosphoric Acid - 45%	B	B	D	B	A	A	D	D	B	A/120	A
Phosphoric Acid (40%-100% Sol.)	C	D	D	B	A	A	D	D	B	A/120	A
Phosphoric Acid Crude	C	D	D	C	A	A	D	D	C	A/120	A
Phosphorous Trichloride Acid	B	D	D	A	A	A	D	B	A	D	A

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CHEMICALS	ELASTOMERS						METALS			PLASTICS	
	Santoprene®	Neoprene	Buna-N	Nordel	Viton®	PTFE	Aluminum	Cast Iron	Stainless Steel (316)	Polypropylene	PVDF
Photographic (Developer)	A	A	A	-	A	-	C	D	A	A	-
Phthalic Acid	-	-	-	-	-	-	-	-	-	-	-
Phthalic Anhydride	-	-	-	-	-	-	-	-	-	-	-
Pickling Solution	A	C	-	C	B	A	-	-	-	-	-
Picric Acid	B	B	B	B	A	A	C	D	D	B/70	A/70
Pinene	C	D	B	D	A	A	-	-	-	-	-
Piperidine	D	D	D	D	C	A	-	-	-	-	-
Plating Solutions:											
Antimony	A	A	A	-	A	A	D	A	A	A	A/70
Arsenic	A	A	A	-	A	A	C	A	A	A	A
Brass	A	-	A	-	A	A	C	A	A	A	A
Bronze	A	A	A	-	A	-	C	A	A	A	-
Cadmium	A	A	A	-	A	-	C	-	-	A	A
Chrome	A	D	D	A	A	A	C	-	A	A	A
Copper	A	-	A	-	A	A	C	-	-	A	A
Gold	A	A	A	-	A	A	C	-	A	A	A
Indium	A	-	A	-	A	-	C	-	A	A	-
Iron	A	A	A	-	A	A	C	-	A	A	A
Lead	A	A	A	-	A	A	C	-	-	A	A
Nickel	A	-	A	-	A	A	C	-	-	A	A
Silver	A	A	A	-	A	A	C	-	A	A	A
Tin	A	A	A	-	A	A	C	-	A	A	A
Zine	A	A	A	-	A	A	C	-	A	A	A
Polyvinyl Acetate Emulsion	A	B	-	A	-	A	-	B	-	B/70	A
Potash	A	B	A	B	A	A	C	B	A	A	A
Potassium Acetate	A	B	B	A	B	A	D	A	B	A	A
Potassium Aluminum Sulfate	-	-	-	-	-	-	-	-	-	-	-
Potassium Bicarbonate	A	A	A	-	A	A	C	A	B	A	A
Potassium Bichromate	-	-	-	-	-	-	-	-	-	-	-
Potassium Bromide	A	A	A	A	A	A	C	D	A	A	A
Potassium Carbonate	A	B	A	A	A	A	C	B	A	A	A
Potassium Chlorate	A	A	A	A	A	A	B	C	A	A	A
Potassium Chloride	A	A	A	A	A	A	B	B	C	A	A
Potassium Chromate	A	A	A	-	A	A	A	A	B	A	A
Potassium Cupro Cyanide	A	A	A	A	A	A	-	-	-	-	-
Potassium Cyanide Sol.	A	A	A	A	A	A	D	B	A	A	A
Potassium Dichromate	A	A	A	A	A	A	A	B	A	A	A
Potassium Hydroxide	A	B	B	B	D	A	D	C	A	A	A/150
Potassium Hypochlorite	-	-	-	-	-	-	-	-	-	-	-
Potassium Iodide	-	-	-	-	-	-	-	-	-	-	-
Potassium Nitrate	A	A	A	A	A	A	B	A	A	A	A
Potassium Permanganate	A	A	A	A	A	A	B	B	B	B	A
Potassium Sulfate	A	A	A	A	A	A	A	B	B	A	A

Ratings: **(A)** Minor effect **(B)** Minor to moderate effect **(C)** Moderate to severe effect **(D)** Not Recommended **(-)** Insufficient Information

The accuracy of these ratings cannot be guaranteed.

CHEMICALS	ELASTOMERS						METALS			PLASTICS	
	Santoprene®	Neoprene	Buna-N	Nordel	Viton®	PTFE	Aluminum	Cast Iron	Stainless Steel (316)	Polypropylene	PVDF
Potassium Sulfide	-	-	-	-	-	-	-	-	-	-	-
Producer Gas	C	B	A	C	A	A	A	A	A	A	A
Propane (Liquified)	C	B	A	D	A	A	A	A	A	B/72	B/200
Propyl Acetate	B	D	D	C	D	A	-	-	-	C	A/70
Propyl Alcohol	-	-	-	-	-	-	-	-	-	-	-
Propyl Nitrate	B	-	-	B	C	A	A	D	-	-	-
Propylene	B	D	D	D	A	A	A	A	A	-	-
Propylene Glycol	A	C	A	A	A	A	A	B	A	A	A
Propylene Oxide	A	D	-	B	-	A	B	B	A	C	D
Radiation	A	B	B	C	B	A	-	-	-	-	-
Red Oil	B	C	A	B	A	A	-	-	-	-	-
Rosins	A	-	A	-	-	A	A	D	A	A	-
Rum	A	-	A	A	A	A	-	-	A	-	A
Rust Inhibitors	B	C	A	-	A	-	-	C	A	A	-
Salad Dressing	A	-	A	-	A	-	B	D	A	A	-
Salicylaldehyde	-	-	-	-	-	-	-	-	-	-	-
Salicylic Acid	-	-	-	-	-	-	-	-	-	-	-
Sal Ammoniac	A	A	A	A	A	A	D	D	A	-	-
Sea Water	A	B	A	A	A	A	D	D	C	A	A
Sewage	A	A	A	B	A	A	B	B	A	A	A
Shellac (Bleached)	B	-	A	-	-	-	A	A	A	A	-
Shellac (Orange)	B	-	A	-	-	-	A	A	A	A	-
Silicate Esters	B	B	A	D	A	A	-	-	-	-	-
Silicone	B	A	A	-	A	-	B	A	A	A	A
Silicone Greases	B	A	A	A	A	A	-	-	-	-	-
Silver Bromide	A	-	-	-	-	-	D	D	B	-	-
Silver Chloride	-	-	-	-	-	-	-	-	-	-	-
Silver Nitrate	A	A	C	A	A	A	D	D	A	A	A
Skydrol 500	B	D	D	A	C	A	-	-	-	-	-
Skydrol 7000	B	D	D	C	B	A	-	-	-	-	-
Soap Solutions	A	B	A	A	A	A	C	B	A	A	A
Soda Ash (see Sodium Carbonate)											
Sodium Acetate	A	B	B	A	D	A	B	B	A	A	A
Sodium Aluminate	A	A	A	-	A	A	C	A	A	A	A
Sodium Benzoate	-	-	-	-	-	-	-	-	-	-	-
Sodium Bicarbonate	A	A	A	A	A	A	A	C	A	A	A
Sodium Bichromate	-	-	-	-	-	-	-	-	-	-	-
Sodium Bisulfate	A	A	A	A	A	A	D	D	A	A	A
Sodium Bisulfite	A	A	A	A	A	A	A	D	A	A	A
Sodium Borate	A	A	A	A	A	A	C	B	B	A/140	A
Sodium Bromide	-	-	-	-	-	-	-	-	-	-	-
Sodium Carbonate	A	A	A	A	A	A	C	B	A	A	A
Sodium Chlorate	A	A	A	A	A	A	B	-	A	A	A

Ratings: **(A)** Minor effect **(B)** Minor to moderate effect **(C)** Moderate to severe effect **(D)** Not Recommended **(-)** Insufficient Information

The accuracy of these ratings cannot be guaranteed.

CHEMICALS	ELASTOMERS						METALS			PLASTICS	
	Santoprene®	Neoprene	Buna-N	Nordel	Viton®	PTFE	Aluminum	Cast Iron	Stainless Steel (316)	Polypropylene	PVDF
Sodium Chloride	A	A	A	A	A	A	C	B	C	A	A
Sodium Chromate	A	A	A	-	A	A	D	B	-	A	A
Sodium Cyanide	A	A	A	A	A	A	D	B	A	A	A
Sodium Dichromate	-	-	-	-	-	-	-	-	-	-	-
Sodium Fluoride	-	-	-	-	-	-	-	-	-	-	-
Sodium Hydroxide (20%)	A	B	A	A	A	A	D	B	A	A	A
Sodium Hydroxide (50% Sol.)	A	C	D	A	A	A	D	C	B	A	C
Sodium Hydroxide (80% Sol.)	A	C	D	A	B	A	D	C	D	A	C
Sodium Hypochlorite (to 20%)	A	D	C	C	A	A	D	D	C	B/72	A
Sodium Metaphosphate	A	B	A	A	A	A	A	C	A	D	-
Sodium Metasilicate	A	A	A	-	A	-	B	A	A	-	-
Sodium Nitrate	A	B	C	A	A	A	A	A	A	A	A
Sodium Nitrite	-	-	-	-	-	-	-	-	-	-	-
Sodium Perborate	A	B	B	A	A	A	B	C	C	A	A
Sodium Peroxide	B	B	C	B	A	A	D	D	A	B/120	A
Sodium Phosphate	A	B	B	A	A	A	D	B	B	A	A
Sodium Polyphosphate	-	-	-	-	-	-	-	-	-	-	-
(Mono, DI, Tribasic)	A	D	A	-	A	-	D	D	A	A	A
Sodium Silicate	A	A	A	A	A	A	C	B	A	A	A
Sodium Sulfate	A	A	A	A	A	A	B	A	A	A	A
Sodium Sulfide	A	A	A	A	A	A	D	A	A	A	A
Sodium Sulfite	-	-	-	-	-	-	-	-	-	-	-
Sodium Tetraborate	A	-	A	A	A	A	C	-	A	-	-
Sodium Thiosulphate (“Hypo”)	A	A	B	A	A	A	B	C	A	A	A
Sorghum	A	A	A	-	A	-	-	A	A	-	-
Soy Sauce	A	A	A	B	A	A	A	D	A	-	-
Starch	A	A	A	A	A	A	A	C	A	-	-
Steam to 200 degrees F	A	C	C	A	D	D	A	A	A	-	-
Steam 220-300 degrees F	B	D	D	A	D	D	A	A	A	-	-
Stearic Acid	B	B	C	B	A	A	B	-	A	B/72	A
Stoddard Solvent	C	B	B	D	A	A	A	A	A	B/120	A
Styrene	C	D	D	D	B	A	A	A	A	D	B
Sugar (Liquids)	A	B	A	-	A	-	A	-	A	A	-
Sulfate Liquors	A	C	-	-	-	-	B	C	C	A	A
Sulfite Liquors	A	A	A	B	A	A	D	D	B	-	-
Sulfur	A	B	B	A	A	A	D	B	A	A	A
Sulfur Chloride	D	D	D	D	A	A	D	D	D	C	A/70
Sulfur Dioxide	A	B	D	A	D	A	D	D	A	A/70	A
Sulfur Hexafluoride	B	B	B	A	A	A	D	D	-	-	-
Sulfur Trioxide	C	C	C	C	A	A	D	D	B	-	-
Sulfur Trioxide (dry)	C	B	B	C	A	A	A	A	C	D	D
Sulfuric Acid (Dilute)	A	C	D	-	A	A	D	D	B	A	A
Sulfufric Acid (to 10%)	A	D	D	A	A	A	D	D	C	A/120	A

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CHEMICALS	ELASTOMERS						METALS			PLASTICS	
	Santoprene®	Neoprene	Buna-N	Nordel	Viton®	PTFE	Aluminum	Cast Iron	Stainless Steel (316)	Polypropylene	PVDF
Sulfuric Acid (10%-75%)	A	D	D	C	A	A	D	D	C	A/72	A/150
Sulfuric Acid (Concentrated to 98%)	B	D	D	C	A	A	D	D	B	A/72	A/120
Sulfuric Acid (20% Oluem)	D	D	D	D	B	A	D	D	-	D	-
Sulfurous Acid	A	B	C	-	A	A	D	D	B	A	A
Syrup	A	B	A	-	A	-	A	-	A	A	-
Tall Oil	-	-	-	-	-	-	-	-	-	-	-
Tallow	B	-	A	A	A	A	A	-	A	B/70	-
Tannic Acid	A	B	A	C	A	A	C	C	A	A	A
Tanning Liquors	A	-	C	-	A	A	C	-	A	A	-
Tar, Bituminous	B	C	B	D	A	A	-	B	B	-	-
Tartaric Acid	A	B	A	B	A	A	C	C	A	A	A
Terpineol	B	D	C	B	A	A	A	A	A	D	B/120
Tetracholoroethylene	D	D	D	D	A	A	D	A	A	D	-
Tetrachloroethane	D	-	D	D	A	A	D	A	A	D	-
Tetraethyl Lead	C	D	B	D	A	A	-	-	-	A/70	A
Tetrahydrofuran	B	D	D	C	B	A	-	-	A	C	B/70
Titanium Tetrachloride	D	D	C	D	A	A	D	A	B	D	A
Toulene	C	D	C	D	A	A	A	A	A	D	A
Toluene Diisocyanate	B	D	-	A	-	A	-	-	-	-	-
Toluene, Toluol	C	D	D	D	A	A	A	A	A	B/175	A
Tomato Juice	A	A	A	-	-	A	A	-	A	A	A
Transformer Oil	D	C	B	D	A	A	A	A	A	B/70	-
Transmisison Fluid Type A	C	C	A	D	A	A	A	A	A	-	-
Triacetin	A	A	A	A	C	A	B	-	-	-	-
Tributoxy Ethyl Phosphate	B	D	D	A	B	A	-	-	-	-	-
Tributyl Phosphate	B	D	D	C	D	A	-	A	-	A/70	A/70
Tributyl Mercaptan	B	D	D	D	A	A	-	-	-	-	-
Trichloroacetic Acid	B	B	C	B	B	A	D	D	D	B/70	A/70
Trichlorethane	D	D	D	D	A	A	D	B	A	D	A/120
Trichlorethylene	D	D	D	D	A	A	D		A	B/72	A
Trichloropropane	D	A	A	-	A	A	D	A	A	-	D
Tricresylphosphate	B	D	D	A	B	A	D	B	A	B/70	-
Triethylamine	B	B	A	-	A	A	-	A	-	C	A/120
Triethanolamine	A	B	B	B	B	A	B	A	A	A/70	A/70
Trisodium Phosphate	-	-	-	-	-	-	-	-	-	-	-
Triaryl Phosphate	B	C	D	A	A	A	-	-	-	-	-
Tung Oil	B	B	A	C	C	A	A	B	B	-	-
Turpentine	C	D	A	D	D	A	A	B	A	B/175	A
Unleaded Gasoline	C	D	D	D	D	A	A	A	A	D	C
Urine	D	D	D	B	B	A	B	A	A	C	C
Varnish	-	-	-	-	-	-	-	-	-	-	-
Vinegar	-	-	-	-	-	-	-	-	-	-	-
Vinyl Acetate	-	-	-	-	-	-	-	-	-	-	-

Ratings: **(A)** Minor effect **(B)** Minor to moderate effect **(C)** Moderate to severe effect **(D)** Not Recommended **(-)** Insufficient Information

The accuracy of these ratings cannot be guaranteed.

	ELASTOMERS						METALS			PLASTICS	
CHEMICALS	Santoprene®	Neoprene	Buna-N	Nordel	Viton®	PTFE	Aluminum	Cast Iron	Stainless Steel (316)	Polypropylene	PVDF
Water, Acid, Mine	-	-	-	-	-	-	-	-	-	-	-
Water, Demineralized	-	-	-	-	-	-	-	-	-	-	-
Water, Distilled, Lab Grade 7	-	-	-	-	-	-	-	-	-	-	-
Water, Fresh	-	-	-	-	-	-	-	-	-	-	-
Water, Salt	A	B	B	A	A	A	D	D	C	A	A
White Liquor (Pulp Mill)	C	C	C	B	A	A	D	D	A	B	B
Wines	-	-	-	-	-	-	-	-	-	-	-
Xylene	D	D	D	B	B	A	A	A	A	D	D
Zinc Chloride	-	-	-	-	-	-	-	-	-	-	-
Zine Nitrate	-	-	-	-	-	-	-	-	-	-	-
Zinc Sulfate	-	-	-	-	-	-	-	-	-	-	-

Ratings: **(A)** Minor effect **(B)** Minor to moderate effect **(C)** Moderate to severe effect **(D)** Not Recommended **(-)** Insufficient Information

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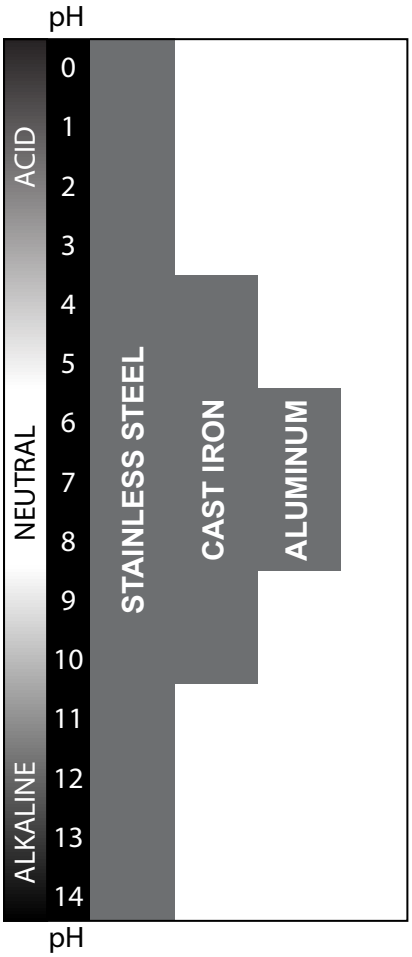
HALOGENTED SOLVENTS WARNING

Halogenated solvents can, under certain circumstances, corrode aluminum or galvanized parts. If the wetted parts or a pressurizable fluid system contain aluminum or galvanized parts, this corrosive action could cause an EXPLOSION. Although manufacturers of these solvents typically add inhibitors, there is no known inhibitor that will prevent the corrosive reaction under ALL circumstances. Special caution should be exercised handling reclaimed or used solvents since the inhibitors are often degraded. ONLY stainless steel or PVDF pumps should be used for these materials.Typical examples of halogenated hydrocarbon solvents (H.H.C.) include, but are not limited to, the following: Trichlorethane, Trichlorethylene, Methylene Chloride, Methyl Chloride, CarbonTetrachloride, Chloroform, Dichlorethylene.

DETERMINE THE pH VALUE

pH is a measure of hydrogen-ion concentration.



ELASTOMER SELECTION GUIDE

The liquids classified and listed below usually cannot be handled with Neoprene or Buna-N and will probably require Santoprene®, Viton®, Nordel and/or PTFE.

A. Ketones and Aldehydes
1. Methylethyl ketone
2. Methylacetone
3. Acetone
4. Formaldehyde

→ Santoprene®, Nordel/PTFE

B. Acetates
1. Ethyl acetate
2. Isopropyl acetate
3. Amyl acetate
4. Butyl acetate

→ Santoprene®, Nordel/PTFE

C. Aromatic Hydrocarbons
1. Benzene
2. Toloul (toluene)
3. Xylene (xylol)
4. Benzol
5. Hexane
6. Cyclohexane
7. Napthalene

→ Viton®/PTFE

D. Chlorinated Hydrocarbons
1. Carbon Tetrachloride
2. Trichlorethylene
3. Ethylene dichloride
4. Methyl chloride
5. Propyl chloride
6. Chloroform
7. Dichlorenthlene

→ Viton®/PTFE

TEMPERATURE LIMITS FOR ELASTOMERS

Santoprene®	– 40.0° to 107.2°C	(–40° to +225° F)
Neoprene	– 17.8° to 93.3°C	(– 0° to +200° F)
Buna-N	– 12.2° to 82.2°C	(+10° to +180° F)
Nordel	– 51.1° to 137.8°C	(–60° to +280° F)
Viton®	– 40.0° to 176.7°C	(–40° to +350° F)
PTFE	4.4° to 104.4°C	(+40° to +220° F)

NOTE:

These are average temperatures. Chemicals and solvents can have an effect on temperature limits.

TEMPERATURE LIMITS FOR PLASTICS

Polypropylene	0° to 79.4° C	(+32° to +175° F)
PVDF	– 12.2° to 107.2° C	(+10° to +225° F)

RUBBER COMPOUNDS

Listed below are the various rubber compounds manufactured for use as elastomers in pumps. These compounds consist of natural rubber and man-made additives to increase the compounds' resistance to specific types of fluids. Diaphragms made of these compounds will utilize a nylon fabric mesh. The mesh is centered within the diaphragm during the molding process. The fabric mesh lends dimensional stability and strength to the compound. The elastomers manufactured of these compounds are fabricated using compression molding process.

Compound	Color Code	Mold Stamp	Temperature Limits	Suitable Applications
Neoprene	Green	NE	–17.8° to 93.3° C 0° to + 200° F	An excellent general purpose diaphragm for use in non-aggressive applications such as water-based slurries, well water or sea water. Exhibits excellent flex life and low cost.
Buna-N	Red	BN	–12.2° to 82.2° C +10° to +180° F	Excellent for applications involving petroleum/oil-based fluids such as leaded gasolines, fuel oils, non-synthetic hydraulic oils, kerosene, turpentines and motor oils.
EPDM	Blue	ND	–51.1° to 137.8° C –60° to + 280° F	Excellent for use in applications requiring extremely cold tempera- tures. May also be used as a low cost alternative when pumping dilute acids or caustics.
Viton®	Silver	VT	–40° to 176.7° C –40° to + 350° F	Excellent for use in applications requiring extremely hot temperatures. May also be used with aggressive fluids such as aromatic or chlorinated hydrocarbons and highly aggressive acids. Teflon® would normally be used with these aggressive fluids as its flex life is better than Viton®. However, in applications involving suction lift outside the range of Teflon®, Viton® will be the preferred choice for highly aggressive fluids.

THERMOPLASTIC COMPOUNDS

Listed below are the various thermoplastic (TPE) compounds manufactured for use as elastomers in pumps. These compounds are comprised entirely of man-made elements. Thermoplastic elastomers manufactured of these compounds are fabricated using an injection molding process. Diaphragms made of these compounds require no fabric reinforcement due to the dimensional stability and tensile strength inherent in TPE compounds.

Compound	Color Code	Temperature Limits	Suitable Applications
Santoprene®	Tan	–40° to 107.2° C -40° to + 225° F	Excellent for applications involving petroleum/oil-based fluids such as leaded Excellent choice as a low cost alternative to Teflon® in many acidic and caustic applications such as sodium hydroxide, sulfuric or hydro- chloric acids. Exhibits excellent abrasion resistance and durability at a cost comparable to neoprene., fuel oils, non-synthetic hydraulic oils, kerosene, turpentines and motor oils.

PTFE COMPOUNDS

PTFE is one of the most chemically inert man-made compounds known. Engineers were the first to discover that by reinforcing a molded PTFE diaphragm with concentric ribs they could control the flex pattern of the diaphragm.The ribbed design extended flex life 5 to 10 times longer than that of any other PTFE diaphragm.This innovation made the use of PTFE elastomers in diaphragm pumps cost effective, greatly expanding the range of applications for diaphragm pumps. Teflon® is not an elastic material; therefore, PTFE diaphragms require a rubber back-up diaphragm to provide flexibility and memory. Also, when using a PTFE diaphragm, flow rates will be reduced by up to 20%. This is due to the inability of PTFE to flex as far as a rubber diaphragm which will decrease displacement per stroke.

Compound	Color Code	Temperature Limits	Suitable Applications
PTFE	White	– 4.4° to 104.4° C + 40° to + 220° F	Excellent choice when pumping highly aggressive fluids such as aro- matic or chlorinated hydrocarbons, acids, caustics, ketones and acetates. Exhibits good flex life compared to a standard rubber diaphragm.

Tabla™

CE

ISO 9001 : 2008
ISO 14001 : 2004

A COMPLETE RANGE OF AIR DIAPHRAGM PUMPS

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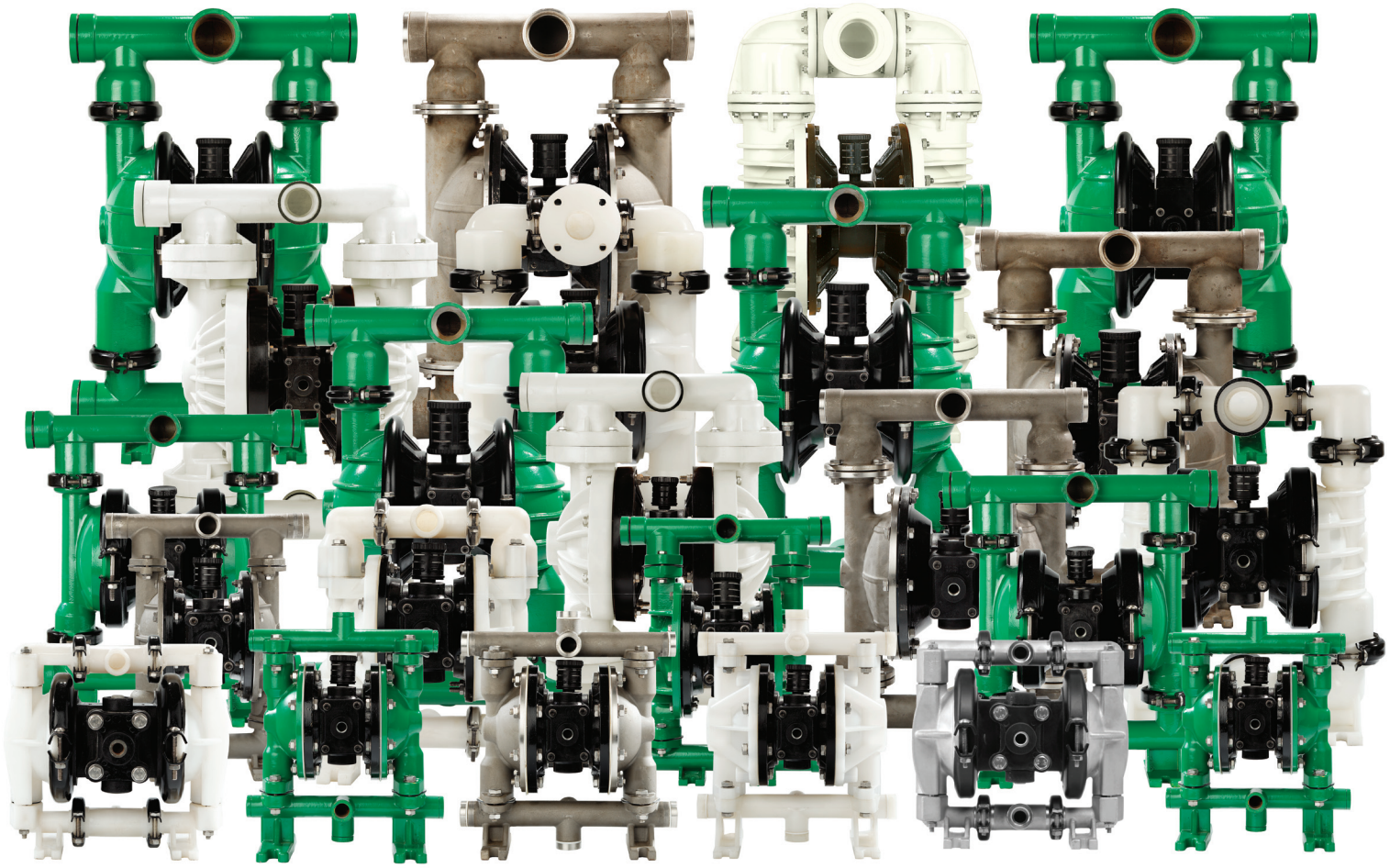

AVAILABLE MATERIALS OF CONSTRUCTION - PUMPS										
Suction/discharge size	1/2" (15mm)		1" (25mm)		1 1/2" (40mm)		2" (50mm)		3" (75mm)	
B = Bolted C = Clamped	B	C	B	C	B	C	B	C	B	C
Polypropylene (PP)	✓	✓	✓		✓	✓	✓	✓	✓	
Polyvinylidene Fluoride (PVDF)	✓	✓	✓		✓	✓	✓	✓	✓	
Stainless Steel (SS)	✓		✓		✓		✓			✓
Aluminium (AL)	✓		✓			✓		✓		✓
Cast Iron (CI)	✓		✓			✓		✓		✓
Please consult us for your requirements for Hastelloy C, Alloy 20 etc.										

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