WILDEN®

Part of Pump Solutions Group

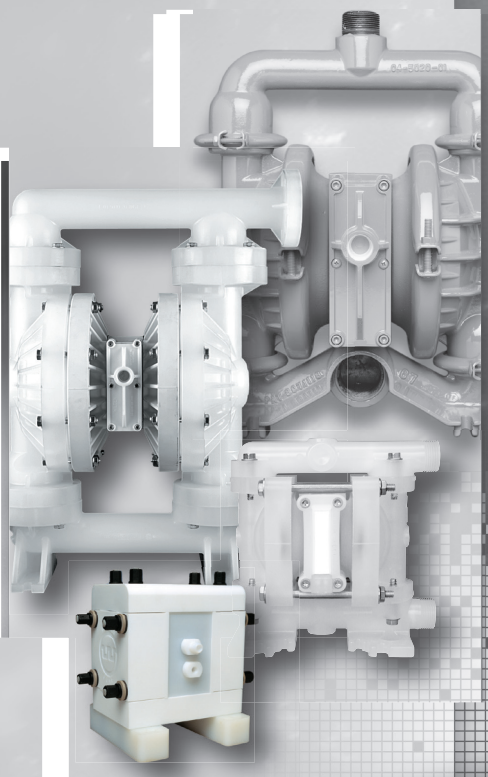
A DOVER™ COMPANY

AODDP

Chemical Resistance Guide

Compatibility
Listings





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WILDEN
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CHEMICAL RESISTANCE GUIDE

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 Wilden pumps for various applications.** We suggest thorough research which should include known applications when determining pump construction. This chart is to be used at your discretion and risk. The accuracy of these ratings cannot be guaranteed.

SELECTING THE BEST DIAPHRAGM FOR A WILDEN AIR-OPERATED DOUBLE-DIAPHRAGM PUMP

In the absence of previous experience (which is always the best guide) diaphragm material may be selected from available resistance charts. The Wilden Chemical Resistance Guide is compiled from numerous reliable sources and cross-checked; however, it is only intended as an additional source of information.

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. Consult your authorized Wilden distributor regarding which diaphragm material will work best for your application requirements.

AS A GENERAL RULE:

1. Neoprene or Wil-Flex™ diaphragms should generally be used unless the chart shows them to be unsatisfactory. Even though Buna-N, EPDM and Viton® may show "A" ratings, if neoprene or Wil-Flex™ have at least a "B" rating, it will probably be the most economical choice on a "cost of diaphragms per gallon pumped" basis.
2. This is especially true when considering the use of Viton® diaphragms due to their replacement cost being over six times that of neoprene. Viton® should only be considered for aggressive media at extreme temperatures if it shows an "A" rating and neoprene, Buna-N and EPDM show an unsatisfactory rating.

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 cannot function properly. Therefore, there will be cases where Neoprene diaphragms will be the best selection but PTFE, Buna-N, EPDM or polyurethane balls will be required.

CAUTION: Temperature limits are based upon mechanical stress only. Certain chemicals will significantly reduce maximum safe operating temperatures. Consult engineering guides for chemical compatibility and temperature limits.

It must be emphasized that none of these figures are absolute and are only general guidelines.

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.

Operating parameters are dependent upon the particular application of polypropylene or PVDF and may differ from those experienced in either laboratory testing or apparently similar field service. Because corrosive fluids or vapors are often mixtures of various individual chemicals, it is strongly recommended that trial installations be evaluated under actual service conditions.

For example, immersion testing in individual chemicals at a specific operating temperature doesn't predict the performance of polypropylene or PVDF should an exothermic reaction take place when mixtures of chemicals are involved.

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 Wilden offers in any specific application.

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Saniflex and Wil-Flex are trademarks of Wilden Pump & Engineering, LLC.

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	BUNA-N	GEOLAST®	NEOPRENE	EPDM	POLYURETHANE	SANIFLEX™ TPE	PTFE	VITON®	WIL-FLEX™	ALLOY C	ALUMINUM	CAST IRON	HALAR® ECTFE-COATED	STAINLESS STEEL (316)	ACETAL	NYLON	POLYETHYLENE	POLYPROPYLENE	PVC	PVDF
ACETALDEHYDE	D	D	D	A	D	B	A	D	B	A	B	A	–	A	A	A	C	C	D	D
ACETAMIDE	A	A	B	A	D	D	A	A	A	A	A	A	A/200	A	A	A	A/70	A/70	D	A/75
ACETATE SOLV	D	D	D	A	D	D	A	D	B	A	A	D	A/100	A	A/70	A	B/72	B	D	A/70
ACETIC ACID, GLACIAL	C	D	C	A	D	D	A	C	B	A	B	D	A	A	D	B	–	B	D	A
ACETIC ACID	C	C	C	A	D	D	A	B	B	A	B	D	A	B	D	D	A/120	B	D	C
ACETIC ANHYDRIDE	D	D	B	B	D	C	A	D	A	A	B	D	A	A	D	A/72	D	C	D	D
ACETONE	D	D	D	A	D	C	A	D	B	A	A	A	A	A	B	A	A	D	D	D
ACETONITRILE	D	–	D	A	-	–	A	D	A/70	A	A	A	A	A	-	-	-	B	-	B
ACETOPHENONE	D	D	D	B	–	-	A	D	B	B	B	A	A/200	A	-	–	-	B/70	–	A/70
ACETYL CHLORIDE	D	D	D	D	D	D	A	B	B/70	A	D	A	A/100	B	-	B	D	D	C	A/120
ACETYLENE	A	B	B	A	B	A	A	A	–	A	A	A	A	A	A	A	D	D	A/72	A
ACRYLONITRILE	D	D	D	D	D	D	A	C	D	A	A	A	-	A	-	A/72	A	B	B/72	A/70
ADIPIC ACID	A	C	A/140	A	A	D	A	A	B	A	B	B	-	B	A/70	-	A	A	A/120	A
ALCOHOLS																				
ALLYL	A	-	A	A	-	D	A	B	A	A	B	A	-	A	-	-	-	A	-	A
AMYL	B	B	A	A	D	A	A	A	A	B	B	C	A/200	A	A	A/120	B/120	B	A/120	A
BENZYL	D	D	C	C	D	C	A	A	D	B	A	A	A/200	A	A	B/72	D	A	D	A
BUTYL	A	C	A	B	D	B	A	A	A	A	A	B	-	A	A	D	A	A/70	A/120	A
DIACETONE	D	D	D	A	D	C	A	D	B	A	A	A	-	A	A	A	B/72	B	B/72	A/70
ETHYL	A	C	A	A	D	A	A	A	A	A	B	A	-	A	A	A/72	B	A	C	A
HEXYL	B	B	B	A	D	D	A	B	B	A	A	A	-	A	A	A	A	A/70	A/120	A
ISOBUTYL	B/80	C	A/80	A/160	D	B	A	A/75	A	A	B	C	-	A	A	A/72	A/120	A/70	A/72	A
ISOPROPYL	A	C	B	A	D	A	A	A	B	A	A	A	A	A	A	D	A	A	A/72	A
METHYL	A	A	C	A	D	A	A	C	A	A	B	A	A/70	B	A	B/72	A/70	A	A/72	A
OCTYL	B	-	B	B	D	D	A	B	B	C	A	A	-	A	A	A	A	-	-	-
PROPYL	A	A	A	A	D	D	A	A	A	A	A	A	A/70	A	A	D	A/120	A	A/72	A
ALLYL CHLORIDE	B	-	D	D	-	D	A	B	–	-	D	C	-	B	-	-	-	A	-	A
ALKAZENE	D	D	D	–	B	D	A	A	D	-	-	-	-	-	-	–	-	-	–	–
ALUM-NH3-CR-K	A	A	A	A	-	-	A	D	A	-	-	-	-	-	-	-	-	-	-	A
ALUMINUM ACETATE	B	-	B	A	–	-	A	D	A	B	A	D	-	B	A	–	-	A	–	-
ALUMINUM CHLORIDE 100%	A	-	A	A	B	B	A	A	A	A	B	D	-	C	B	B/72	B	A	A/120	A
ALUMINUM CHLORIDE 20%	A	-	A	A	A	B	A	A	A	A	D	D	-	C/72	C	D	B	A	A/72	A
ALUMINUM FLUORIDE	A	B	A	B	C	-	A	A	A	B	B	D	A	A	D	A/72	A/70	A	A/120	A
ALUMINUM HYDROXIDE	A	A	A	A	B	D	A	A	A	B	A	D	A	A	A	A/72	A/120	A	A/120	A
ALUMINUM NITRATE	A	A	A/70	A	C	-	A	A	A	B	B	D	A	A	B	A/72	A/120	A	B/120	A
ALUMINUM PHOSPHATE	A	A	A	A	–	-	A	A	A	-	-	-	-	A	A	–	-	A	–	A
ALUMINUM POTASSIUM SULFATE (ALUM)	A	A	A	A	-	D	A	A	A	B	C	D	A	B	A	D	A/120	A	A/120	A
ALUMINUM SULFATE	A	A	A	A	B	B	A	A	A	A	A	D	A	A	B/70	A/120	A	A	A/120	A
AMINES	D	D	D	C	–	D	A	D	A	B	A	D	D	A	C/70	D	C/70	B/120	D	-
AMMONIA, ANHYDROUS	B	B	A	A	D	D	A	D	A	A	A/70	A	A	A	D	A/72	B/120	A/70	A/120	D
AMMONIA, GAS (COLD)	A	B	A	A	–	D	A	D	A	-	-	-	A	-	A	–	A	B	–	D
AMMONIA, GAS (HOT)	C	-	B	C	-	-	A	D	A	-	-	-	-	-	A	-	-	-	-	-
AMMONIA, LIQUIDS	B	C	A	A	D	-	A	D	A	B	D	A	A	A	D	B/72	C/70	A/70	A/72	A
AMMONIA NITRATE	A	C	C	A	–	B/72	A	D	A	B	C	A	-	A	B/70	D	A	A	B	A
AMMONIUM BIFLUORIDE	A	-	A	A	-	-	A	A	A	B	B	D	A	B/72	–	-	A/120	A	A/120	A
AMMONIUM CARBONATE	B	D	A	A	A	-	A	A	A	B	B	B	A	B	D	A/72	A	A	A/120	A
AMMONIUM CASENITE	-	-	A	-	-	-	A	-	A	-	-	-	-	A	A	-	-	-	-	-
AMMONIUM CHLORIDE	B	B	A	A	B	A/70	A	A	A	A	C	D	A	C	A	B	A	A	A/120	A
AMMONIUM FLUORIDE	B	-	B	A	–	-	A	A	B	A	D	D	-	D	-	–	-	A	–	A
AMMONIUM HYDROXIDE	B	D	A	A	D	B	A	B	A	A	B	B	A/200	B	B	A	A/70	A	A	A
AMMONIUM NITRATE	A	A	A	A	D	B/72	A	A	A	A	B	A	A	A	B	A/72	A/70	A	A/120	A

Ratings: A: Minor effect; B: Minor to moderate effect; C: Moderate to severe effect; D: Not recommended; —: Insufficient information.

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AMMONIUM NITRITE	A	A	A	A	–	-	A	A	A	-	-	-	-	A	-	–	-	A/70	–	A
AMMONIUM OXALATE	A	D	A	A	-	-	A	-	A	A	-	D	-	A	B	-	-	A	A	-
AMMONIUM PERSULFATE	D	D	A	B	D	-	A	A	A	A	C	D	A/150	A	–	D	A/120	A	A/120	A
AMMONIUM PHOSPHATE, DIBASIC	A	A	A	A	-	B	A	A	A	A	B	D	A/70	A	B	C/72	A/120	A	A/120	A
AMMONIUM PHOSPHATE, MONOBASIC	A	A	A	A	B	B/72	A	A	A	B	B	D	-	C	B	B	A	A	A	–
AMMONIUM PHOSPHATE, TRIBASIC	A	A	A	A	-	-	A	A	A	B	B	D	-	B	B	B	C	A	A	–
AMMONIUM SULFATE	A	A	A	A	A	B	A	A	A	B	B	C	A	A	A	A/72	A/70	A	A/120	A
AMMONIUM THIO-SULFATE	A	A	A	A	-	-	A	A	A	-	A	D	-	A	B	-	A	-	-	-
AMYL-ACETATE	D	D	D	A	D	C	A	D	D	B	B	C	A	A	D	B/120	D	B	D	A/120
AMYL-ALCOHOL	B	B	A	A	D	A	A	A	A	B	B	C	–	A	A	A/72	B/120	B	A/72	A
AMYL-BORATE	B	-	A	D	–	–	A	A	B	-	-	-	-	-	-	–	-	-	–	-
AMYL-CHLORIDE	D	D	D	D	-	D	A	A	C	B	D	A	–	A	A	C	D	D	D	A
AMYL-CHLORONAPTHALENE	B	C	D	D	–	-	A	A	C	-	-	-	-	-	-	–	-	-	–	-
AMYL-NAPTHALENE	D	D	D	D	–	D	A	A	C	-	-	-	-	-	-	–	-	-	–	-
ANILINE	D	D	D	B	D	C	A	A	A	B	C	C	A	B	A/70	A/120	A	A/72	C/72	A/72
ANILINE DYES	C	D	B	A	–	D	A	A	B	-	B	A	-	B	D	–	-	-	–	-
ANILINE HYDROCHLORIDE	C	D	D	B	D	-	A	B	A	D	D	D	-	D	-	D	D	D	B/120	A/100
ANIMAL FATS	A	B	A	A	–	B	A	A	B	A	A	A	-	A	A	–	-	A	–	A
ANTIMONY TRICHLORIDE	B	-	C	B	B	D	A	A	A	B	B	A	A	A	-	D	A	A	A/120	A
ANSUL ETHER	C	D	–	C	–	D	A	D	D	-	-	-	-	-	-	–	-	-	–	-
ANTI-FREEZE	A	A	A	A	D	A/70	A	A	A	A	B	B	-	A	B	D	-	A	A	A
AQUA REGIA (80%, HCl, 20% HNO3)	D	D	D	B/140	D	D	A	A/70	D	C	D	D	A	D	D	D	B/70	B/72	C/72	A/70
AROCHLOR(S)1248	C/72	D	D	B	B	C/72	A	A	D	A	A	B	-	–	-	A/72	C/70	D	-	-
AROMATIC HYDROCARBONS	D	D	D	D	D	C/70	A	A	C	-	A	A	A	A	A	–	C	D	D	-
ARSENIC ACID	A	A	B	A	C	D	A	A	A	B	D	D	A	A	D	C/72	B/120	A	A/72	A
ARSENIC TRICHLORIDE	A	C	A	D	-	D	A	A	B	B	D	D	-	D	D	-	-	-	-	-
ASKAREL	B	C	D	D	D	D	A	A	D	-	-	-	-	A	-	-	-	-	-	-
ASPHALT	B	B	C	D	B	B	A	A	B	-	A	B	-	A	B	A	A/70	A	A/120	A
BARIUM CARBONATE	A	A	A	A	B	-	A	A	A	A	D	A	A	A	A	A/72	B/120	A	A/120	A
BARIUM CHLORIDE	A	A	A	A	A	B/72	A	A	A	A	D	D	A	B	A	A	A	A	A/72	A
BARIUM CYANIDE	C	D	A	A	-	-	A	A	A	A	C	B	-	A	B	A/72	B	D	D	-
BARIUM HYDROXIDE	A	A	A	A	D	B	A	A	A	B	D	B	A	A	D	A/72	B/120	A	A/120	A
BARIUM NITRATE	A	A	A	A	B	-	A	A	A	A	B	A	A/73	A	B	A/72	B/120	A	A	A
BARIUM SULFATE	A	A	A	A	A	D	A	A	A	A	D	B	A	A	B	A/72	A	A	B/72	A
BARIUM SULFIDE	A	A	A	A	A	-	A	A	A	A	D	D	A	B	A	A/72	B/120	A	A/120	A
BEER	A	-	A	A	D	A/72	A	A	A	A/72	A	D	A	A	A/72	A/72	A/120	A/72	A/120	A
BEET SUGAR LIQUIDS	A	-	A	A	–	-	A/72	A	–	-	A	A	-	A	B	A	A/70	A/72	A/120	A
BEET SUGAR LIQUORS	A	-	A	A	D	-	A	A	A	-	A	B	A/150	A	A	-	-	-	-	-
BENZALDEHYDE	D	D	D	A	D	B	A	D	D	A	A	A	A	A	A	A/72	A/70	D	D	A/70
BENZENE	D	D	D	D	D	B	A	B	C	A	B	B	A	B	A	A/72	D	B	C/72	A
BENZENESULFONIC ACID	D	D	B	D	D	B	A	B	A	B	D	D	A	B	C	D	A	B/70	A	A
BENZYL BENZOATE	D	-	D	B	-	D	A	A	C	B	A	B	-	B	-	-	-	-	-	–
BENZYL CHLORIDE	D	D	D	D	D	D	A	A	C	A	D	D	A/100	B	A	A/120	-	D	-	A
BENZOIC ACID	D	D	D	B	D	D	A	A	A	B	B	D	A/250	B	B	D	A/70	A	A	A
BENZOL	D	D	D	D	D	B	A	B	C	A	B	B	-	A	A	D	C/70	D	-	A/70
BLAST FURNACE GAS	D	-	D	D	D	B	A	A	A	-	-	-	-	-	D	-	-	-	-	-
BLEACH SOLUTIONS	D	D	D	A	D	C	A	A	B	B	D	D	A	B	D	-	B	B	-	A
BORAX (SODIUM BORATE)	B	B	A	A	B	A	A	A	A	A	C	A	A	A	A	A	A/120	B	A/72	A
BORDEAUX MIXTURE	A	B	A	A	D	B	A	A	A	A	D	C	-	A	-	-	-	-	-	-
BORIC ACID	A	A	A	A	A	A/70	A	A	A	A	B	D	A	A	C	B	A	A	A/120	A
BRINE	A	A	B	A	A	B	A	A	A	A	C	D	A	A	A	-	-	A/70	-	A
BREWERY SLOP	A	-	A	A	-	D	A	A	A	-	-	A	-	A	-	-	-	-	-	-

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BROMINE	D	D	D	C	D	D	A	A	C	A	D	D	A/150	D	D	D	D	B/72	C/72	A/150
BROMINE-ANHYDROUS	D	-	D	D	D	D	A	A	C	A	D	D	A	D	D	D	-	D	-	A/150
BROMINE-TRIFLUORIDE	D	D	D	D	D	D	A	D	C	-	D	D	-	B	D	-	A	D	-	-
BROMINE-WATER	D	-	D	D	D	D	A	B	B	-	D	D	A/250	B	D	-	-	D	-	A
BROMOBENZENE	D	D	D	D	D	D	A	B	D	B	D	B	A/73	B	D	-	-	D	-	A
BUNKER OIL	A/70	B	D	D	B	D	A	A	B	A	A	A	-	A	-	-	-	-	-	-
BUTADIENE	D	D	D	D	D	D	A	B	D	C	A	A	A/200	A/72	A	C/72	D	D	C/72	A
BUTANE	A	A	B	D	D	A	A	A	D	A	A	A	A/200	A	A	A/120	C/70	B	C/72	A
BUTTER	A	A	B	A	D	B	A	A	B	-	A	D	-	A	A	-	-	A	-	A
BUTTERMILK	A	A	A	A	A	-	A	A	A	A	A	D	-	A	A	B/72	A/70	A	A/72	A
BUTYL ACETYL RICINOLEATE	C	D	B/70	A/70	D	-	A	A/70	B	A	A	A	-	A	–	-	-	-	-	-
BUTYL ACETATE	D	D	D	D	D	C	A	D	B	A	A	A	A/150	A	B	A	C/70	B/70	D	A
BUTYL ACRYLATE	D	D	D	D	-	D	A	D	C	-	-	-	-	-	A	-	-	D	-	A/70
BUTYL ALCOHOL	A	-	A	B	D	B	A	A	A	A	A	B	-	A	-	B/72	-	A/70	C/72	A
BUTYL AMINE	B	B	D	D	D	D	A	D	A	B	A	A	-	A	C	A/120	-	B	D	B/70
BUTYL BENZOATE	D	-	D	A	-	-	A	A	C	B	B	B	-	B	A	-	-	-	-	-
BUTYL CARBITOL	D	D	C	A	-	-	A	C	B	-	-	-	-	-	A	-	-	-	-	-
BUTYL CELLOSOLVE	C	D	D	A	D	-	A	D	A	-	-	-	A/73	-	A	-	-	-	-	B
BUTYL CHLORIDE	D	-	C	-	-	-	A	A	D	A	A/70	A	-	A	-	-	-	D	-	A
BUTYL ETHER	A	-	B	D	-	-	A	C	C	-	A	A	-	A	-	A/120	-	D	A/120	A/100
BUTYL OLEATE	D	-	D	B	-	-	A	A	C	-	-	-	-	-	A	-	-	-	-	-
BUTYL PHTHALATE	D	-	D	B/120	D	-	A/120	C/72	-	B/120	B/120	-	-	B/120	-	A/120	-	B/120	-	B/72
BUTYL STEARATE	B	B	D	D	-	-	A/70	A	C	B	B	B	A/73	B	A	-	-	-	-	A/100
BUTYLENE	A	C	C	C	C	B	A	A	C	-	A	-	A	A	A	B/72	B/70	B	A/72	A
BUTRALDEHYDE	D	D	D	C	C	D	A	D	C	A	A	A	-	A	A	-	-	D	-	B
BUTYRIC ACID, AQEOUS	D	D	D	B	D	B	A	B	A	A	A	D	A	B	D	C/72	D	A	B/72	A
CALCIUM BISULFATE	A	-	C	A	A	-	A	A	–	–	-	–	-	–	-	-	-	-	-	-
CALCIUM BISULFIDE	A	A	A	D	C	B	A	A	D	A	C	D	A	B	A	A	B/70	A	A/120	A
CALCIUM CARBONATE	A	A	A	A	D	-	A	A	A	A	C	B	A	A	A	A	B/70	A	A/120	A
CALCIUM CHLORIDE	A	A	A	A	A	A	A	A	A	A	C	C	A	C	D	A/72	B/70	A	C	A
CALCIUM HYDROXIDE	A	A	A	A	D	B	A	A	A	A	C	A	A	A	A/150	A/120	A/120	A	B	A
CALCIUM HYPOCHLORITE	C	C	D	A	D	B	A	A	A	A	C	D	A	A	A	D	A	A	B/72	A
CALCIUM NITRATE	B	A	B	B	D	-	A	A	A	B	B	C	A	B	D	A/72	A/70	A	A/120	A
CALCIUM SULFATE	A	A	D	A	B	-	A	A	A	B	B	A	A	A	D	D	B/70	A	B/120	A
CALCIUM SULFIDE	A	A	B	A	A	-	A	A	A	A	A	B	-	B	-	-	-	A/120	-	A
CALGON	A	A	A	A	D	D	A	A	A	-	-	D	-	A	A	A	-	A	-	-
CANE JUICE	A	B	A	A	A	-	A	A	A	-	B	A	-	A	A	A	-	B/72	A/72	B
CANE SUGAR LIQUORS	A	A	A	A	D	B	A	A	A	-	A	B	A/150	A	-	-	-	A	-	A
CARBAMATE	C	D	B	B	D	-	A	A	A	-	-	-	-	-	-	-	-	-	-	-
CARBITOL	B	C	B	B	D	-	A	A	B	-	B	B	-	B	-	-	-	C	-	A
CARBOLIC ACID (SEE PHENOL)	D	D	C	C	D	D	A	A	A	A	B	D	A/150	A	D	D	D	B	D	A/70
CARBON BISULFIDE	D	D	D	D	D	B	A	A	D	B	A	B	-	B	B	A	-	D	D	A
CARBON DIOXIDE	A	B	A	A	D	C	A	B	A	A	A	D	A	A	A	A/72	A/70	A	A/72	A
CARBON DISULFIDE	D	D	D	D	D	C	A	A	D	B	A	B	A/200	B	B	B/72	C/70	D	D	A/70
CARBON MONOXIDE	A	A	B	C	A	A	A	A	A	A	A	A	A/150	A	B	A/72	A/120	A	A/120	A
CARBON TETRACHLORIDE	C	D	D	D	D	D	A	A	D	A	D	C	A/200	A	A	D	D	B/70	D	A
CARBONATED WATER	A	A	A	A	B	-	A	A	A	A	C	D	-	A	A	A	A	A	A	A
CARBONIC ACID	A	B	A	A	A	C	A	A	A	A/120	D	B	A	A	A	A/72	B/120	A	A/120	A
CATSUP (KETCHUP)	A	A	D	A	D	–	A	A	A	A	D	D	-	A	B	A	-	A	A	-
CELLOSOLVE	D	D	D	B	D	D	A	D	C	A	B	B	A/200	B	A	A	-	A	-	A
CELLOSOLVE ACETATE	D	D	D	B	D	D	A	D	A	A	B	B	A/73	A	A	-	-	A	-	A/120
CELLULUBE	D	-	D	A	D	-	A	A	D	-	-	-	-	-	A	-	-	-	-	-

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CHLORACETIC ACID	D	D	D	B	D	D	A	D	D	A/72	D	D	A	A/72	D	D	-	C/72	B/72	A/72
CHLORINATE GLUE	B	-	D	B	-	-	-	A	C	-	–	D	-	A	D	-	-	-	-	-
CHLORINE (DRY)	D	D	D	D	D	D	A	A/70	C	A	D	D	A/150	D	D	D	D	B	D	A
CHLORINE (WET)	D	D	D	A	–	D	A	A	C	A	D	B	A/200	B	D	C/72	B/70	D	A/120	A
CHLORINE, ANHYDROUS LIQUID	D	D	D	D	-	D	A	A	D	D	D	D	-	D	D	D	D	D	D	A
CHLORINE DIOXIDE	D	D	D	C	-	D	A	B	D	A	D	D	A/200	D	-	-	-	D	-	A
CHLORINE TRIFLUORIDE	D	D	D	D	D	–	A	D	D	-	D	D	-	A	-	-	-	D	-	-
CHLOROACETIC ACID	D	-	D	B	D	D	A	D	D	A/72	D	D	-	A/72	-	D	-	C/72	B/72	A/72
CHLOROACETONE	D	D	C	D	D	D	A	B	C	B	D	B	-	B	B	-	D	D	-	-
CHLOROBENZENE (MONO)	D	D	D	D	D	D	A	A	C	A	D	B/70	A/100	B	A	D	D	B	D	A/70
CHLOROBROMOMETHANE	D	D	D	B	D	D	A	A	D	-	D	B	-	B	B	C	A	D	D	-
CHLOROBUTADIENE	D	D	D	D	D	D	A	A	C	B	D	B	-	A	-	-	-	D	-	-
CHLORODODECANE	D	D	D	D	D	D	A	A	D	-	D	D	-	-	-	-	-	D	-	-
CHLOROFORM	D	D	D	D	D	C	A	A	C	B	D	D	A/200	A	A	A	C	D	D	A
1-CHLORONAPTHALENE	D	D	D	D	-	D	A	A	D	B	D	B	-	B	-	-	-	D	-	A
1-CHLORO 1-NITRO ETHANE	D	D	D	D	D	D	A	D	C	-	D	-	-	-	-	-	-	D	-	-
CHLOROSULFONIC ACID	D	D	D	D	D	D	A	D	D	A/72	C	D	A	B/120	D	D	D	D	D	D
CHLOROTOLUENE	D	D	D	D	D	D	A	A	C	A	D	B	-	B	A	-	-	D	-	-
CLOROX® (BLEACH)	D	D	B	A	D	–	A	A	B	A	A	D	-	A	D	A	-	D	A	A
CHOCOLATE SYRUP	A	-	A	A	-	–	A	A	A	-	A	D	-	A	A	A	-	A/120	-	-
CHROMIC ACID 5%	D	D	D	A	D	D	A	A	A	A	C	D	A/200	A	D	D	A	A/70	A/120	A
CHROMIC ACID 50%	D	D	D	C	D	D	A	A	A	A	C	D	A/200	B	D	D	D	B/140	D	A
CHROMIUM ALUM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	A	-	-	A	-
CHROME PLATING SOLUTIONS	D	-	D	A	D	D	A	A	A	B	C	C	-	A	D	-	-	A	-	A
CIDER	A	B	A	A	D	D	A/122	A	A	A	B	D	-	A	A	A	B	A	A	-
CITRIC ACID	A	A	A	A	A	B/70	A	A	A/70	A	C	D	A	A	C	A/72	A	A	B/120	A
CITRIC OILS	A	B	D	B	-	-	A	A	C	-	C	D	-	A	B	-	-	A	-	-
COBALT CHLORIDE (2N)	A	A	A	C	D	-	A	A	A	-	D	D	-	-	-	-	-	A	-	-
COFFEE	A	A	A	A	D	-	A	A	A	A	A	-	-	A	A	A	-	A	-	-
COKE OVEN GAS	C	D	C	D	D	-	A	A	B	-	-	-	A	-	-	-	-	-	-	A
COPPER ACETATE	B	-	B	A	D	D	A	D	A	B	D	D	-	C	A	-	-	-	-	A
COPPER CHLORIDE	A	A	A	A	B	A	A	A	A	B	D	D	A	D	A	D	-	A	A/72	A
COPPER CYANIDE	A	A	A	A	A	A	A	A	A	A	D	D	A	A	A	D	B/120	A	A/120	A
COPPER FLUOBORATE	B	-	A	-	-	A	A	A	A	B	D	D	-	D	B	-	-	-	A	-
COPPER FLUORIDE	B	-	A	-	-	A	A	A	A	B	D	D	-	D	-	-	-	-	-	-
COPPER NITRATE	A/140	B	A/140	A	B	A	A	A	A	A	D	D	A	A	A	D	B/120	A	A/120	A
COPPER SULFATE (5% SOLUTION)	A	A	A	A	–	A	A	A	A	A	D	D	A	A	D	D	A/120	A	A/120	A
CREAM	A	-	D	-	-	–	A	A	A	-	A	D	-	A	A	A	-	A	-	-
CRESOLS	D	D	D	D	D	D	A	A	C	B	B	C	A/150	A	B	D	–	D	D	A/150
CRESYLIC ACID	D	D	D	D	D	D	A	A	B	B	C	A	A	A	D	D	D	C	D	A/150
CRUDE OIL	B	-	B	D	-	B	A	A	C	B	A	A	-	A	D	-	-	B/150	-	A/120
CYCLOHEXANE	A	B	D	D	B	A	A	A	C	B	A	B	A	A	A	A	B/70	C/70	D	A
CYCLOHEXANOL	B	C	A	C	-	-	A	A	D	A	C	B	A	B	A	B	D	B/70	-	A/150
CYCLOHEXANONE	D	D	D	C	D	D	A	D	D	B	B	B	A/73	B	A	A	D	D	D	B/70
CYANIC ACID	C	D	D	A	D	-	A	D	B	-	-	D	-	A	D	-	-	-	-	-
DECALIN (DEKLIN)	D	D	D	D	D	-	A	A	C	-	-	-	-	-	-	-	-	B/120	-	A/175
DECANE	B	B	D	D	B	-	A	A	B	-	-	-	-	-	-	-	-	A/70	-	A
DENATURED ALCOHOL	A	A	A	A	D	–	A	B	B	A	A	A	-	A	A	-	-	A	-	A
DETERGENTS	A	B	B	A	B	B	A	A	B	B	A	A	A/200	A	A	A/72	–	A	A	A
DEVELOPING FLUIDS	A	-	A	B	D	D	A	A	A	A	-	D	-	A	A	-	-	-	-	-
DIACETONE	D	D	D	A	D	C	A	D	B	A	A	A	A/100	A	A	A/72	A	B	D	A/70
DIBENZYL ETHER	D	-	D	C	B	-	A	C	C	B	B	B	-	B	-	-	-	-	-	C

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DIBENZYL SEBECATE	D	D	D	B	D	-	A	B	C	-	-	-	-	-	-	-	-	-	-	-
DIBUTYL AMINE	C	D	D	D	-	-	A	B	C	-	-	-	-	-	-	-	-	D	-	B
DIBUTYL ETHER	D	D	D	C	B	-	A	C	B	-	B	B	-	B	-	-	-	D	-	A/20
DIBUTYL PHTHALATE	D	D	D	A	C	A	A	B	B	A	A	A	-	A	-	A	-	B	-	D
DIBUTYL SEBECATE	D	D	D	B	D	A	A	B	B	-	-	A	A/200	A	-	-	-	B/72	-	D
DICHLOROBENZYENE	D	-	D	D	D	-	A	C	-	A/72	B/72	-	-	B/72	-	D	-	C/72	D	A
O-DICHLOROBENZENE	D	D	D	D	D	D	A	A	D	A	D	B	-	B	B	-	-	B	-	A/150
DICHLORO-ISOPROPYL ETHER	D	D	D	C	B	D	A	C	D	-	D	-	-	-	-	-	-	D	-	-
DICYCLOHEXYLAMINE	D	D	D	D	D	-	A	D	B	-	-	-	-	-	-	-	-	-	-	-
DIESEL FUEL	A	B	D	D	C	B	A	A	D	A	A	A	A/200	A	A	A	–	B/70	A/72	A
DIETHYL BENZENE	D	D	D	D	D	-	A	A	C	-	-	-	-	-	-	-	-	-	-	-
DIETHYL ETHER	D	D	D	D	A	C	A	D	B	B	B	B	A/200	B	A	A/72	-	D	D	A/70
DIETHYL SEBECATE	D	D	D	B	D	A	A	A	B	A	A	A	-	A	-	-	-	A/120	-	A/120
DIETHYLAMINE	C	C	B	B	C	-	A	D	C	A	B	D	A/73	B	–	A	D	A	D	A/70
DIETHYLENE GLYCOL	A	A	A	A	D	A	A	A	A	A	A	A	A/70	A	D	A/72	B/120	A	C/72	A
DIISOBUTYLENE	B	C	C	D	D	D	A	A	C	-	B	B	-	B	A	-	-	A/120	-	A
DIISOPROPYL BENZENE	D	D	D	D	-	D	A	A	C	-	-	-	-	-	A	-	-	-	-	-
DIISOPROPYL KETONE	D	D	D	A	D	-	A	D	C	-	-	-	A/73	A	A	-	-	-	-	A
DIMETHYL ANILINE	D	D	D	B	D	-	A	C	B	B	A	-	A/200	B/120	D	A	-	A	D	A/70
DIMETHYL FORMAMIDE	C	C	D	B	D	B	A	D	A	A	A	A	A/100	A	C	A	A	A	D	D
DIMETHYL PHTHALATE	D	D	D	B	D	A	A	A	A	A	A	A	A/200	A	-	C	-	A	-	A/70
DINITROTOLUENE	D	-	D	D	D	-	A	C	B	-	-	-	-	A	-	-	-	-	-	C
DIISOCTYL PHTHALATE	D	-	–	B	C	–	A	C	C	-	A	A	A/200	A	B	A	-	-	-	-
DIISOCTYL SEBECATE	C	-	D	C	B	-	A	B	D	-	-	-	-	-	B	-	-	-	-	-
DIOXANE	D	-	D	D	D	-	A	D	D	-	A	A	A/150	A	–	A	-	C/120	-	–
DIOXOLANE	D	-	D	B	D	-	A	B	C	-	-	-	-	-	B	-	-	-	-	C
DIPENTENE	A	C	D	D	D	-	A	A	C	A	A	A	-	A	-	-	-	-	-	-
DIPHENYL	D	D	D	D	D	-	A	A	C	A	A	A	-	A	-	-	-	D	-	A/120
DIPHENYL OXIDE	D	D	D	D	D	-	A	A	C	B	B	A	-	A	D	-	-	D	D	A
DOWTHERM OIL	D	-	D	D	B	B	A	A	D	-	C	B	A/200	A	-	A	-	B	-	-
DRY CLEANING FLUIDS	C	D	D	D	C	-	A	A	D	-	A	A	-	A	-	-	-	D	-	A
DYES	-	-	C	-	D	-	-	A	B	-	B	-	-	A	C	A	-	-	B	-
EPICHLOROHYDRINE	D	D	D	C	D	D	A	D	B	A	D	A	A/200	A	A	A	-	A	-	C
EPSOM SALTS (MAGNESIUM SULFATE)	A	A	A	A	D	-	A	A	A	B	A	A	A	A	B	A/72	A/120	A	A/72	A
ETHANE	A	C	B/70	D	C	-	A	A	C	A	A	A	-	A	A	D	-	C	A/72	A
ETHANOLAMINE	B	B	B	B	C	-	A	D	A	B	B	B	-	A	D	A	-	B	D	C
ETHER	D	D	D	C	D	-	A	D	C	B	A	C	A/200	A	A	A	D	C	D	A/70
ETHYL ACETATE	D	D	D	B	D	B	A	D	A	B	B	A	A/150	A	A/120	A/120	C	A	D	A
ETHYL ACETOACETATE	D	D	D	A	C	D	A	D	B	A	A	A	A/73	A	A	-	-	-	-	A/70
ETHYL ACRYLATE	D	D	D	B	D	-	A	D	C	A	A	A	A/150	A	A	-	-	D	-	C
EHTYL ALCOHOL (ETHANOL)	A	–	A	A	D	A	A	A	A	A	B	A	-	A	A	A/72	-	A	C	A
ETHYL BENZENE	D	D	D	D	D	-	A	A	D	A	A	B	-	B	A	-	-	D	-	C
ETHYL BENZOATE	D	D	D	D	D	-	A	A	C	A	A	A	-	A	A	-	C/120	B/70	D	D
ETHYL CELLOSOLVE	D	D	D	B	D	-	A	D	B	-	-	-	-	-	A	-	-	-	-	-
ETHYL CELLULOSE	B	B	B	B	B	B	A	D	A	B	B	A	-	B	A	-	-	-	-	-
ETHYL CHLORIDE	A	C	D	A/140	C	C	A	A	D	B	D	C	A	A	A	A/72	C/70	D	D	A
ETHYL CHLOROCARBONATE	D	-	D	D	D	D	A	A	A	-	D	A	-	-	A	-	-	-	-	-
ETHYL CHLOROFORMATE	D	-	D	D	D	D	A	A	C	-	D	-	-	-	A	-	-	D	-	-
ETHYL ETHER	D	D	D	D	D	-	A	D	D	B	B	B	A/150	A	A/70	A/72	D	C/70	D	B/170
ETHYL FORMATE	D	D	B	B	-	D	A	A	B	B	C	A	A/120	B	A	-	-	-	-	-
ETHYL MERCAPTAN	D	D	D	D	-	-	A	B	C	B	B	A	-	B	-	-	-	-	-	-
ETHYL OXALATE	D	D	D	A	A	D	A	B	B	-	A	-	-	-	-	-	-	-	-	-

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WILDEN
A DOVER COMPANY

CHEMICAL RESISTANCE GUIDE

CHEMICALS	ELASTOMERS									METALS					PLASTICS					
	BUNA-N	GEOLAST®	NEOPRENE	EPDM	POLYURETHANE	SANIFLEX™ TPE	PTFE	VITON®	WIL-FLEX™	ALLOY C	ALUMINUM	CAST IRON	HALAR® ECTFE-COATED	STAINLESS STEEL (316)	ACETAL	NYLON	POLYETHYLENE	POLYPROPYLENE	PVC	PVDF
ETHYL PENTOCHLOROBENZENE	D	D	D	D	C	-	A	A	D	-	D	-	-	-	-	-	-	D	-	-
ETHYL SILICATE	A	B	A	A	-	B	A	A	B	A	B	A	-	A	-	-	-	-	-	-
ETHYL SULFATE	D	D	A	A	D	-	A	D	B	-	-	-	-	D	-	-	-	-	-	-
ETHYLENE	A	B	C	D	-	D	A	A	C	-	A	A	-	A	A	-	-	-	-	-
ETHYLENE BROMIDE	D	-	C	C	D	-	A	A	-	B	B	A	-	A	-	-	-	D	D	A
ETHYLENE CHLORIDE	D	D	D	C	D	C	A	C	D	B	B	C	A	A	A	A	D	C/70	D	A
ETHYLENE CHLOROHYDRIN	D	D	B	B	D	D	A	A	C	B	B	B	A/73	B	C/70	D	D	D	D	A/70
ETHYLENE DIAMINE	B	B	A	A	D	-	A	D	A	C	A	A	A/73	A	A	D	A	A	D	B/70
ETHYLENE DICHLORIDE	D	D	D	C	D	C	A	B	C	A	B	A	A/73	A	A	A/72	D	D	D	A
ETHYLENE GLYCOL	A	A	A	A	B	A/70	A	A	A	A	B	B	A	A	B	A	A	A	A	A
ETHYLENE OXIDE	D	D	D	B	D	A	A	D	A	A	D	C	A	A	A	A/72	A	C/125	D	A/70
ETHYLENE TRICHOLORIDE	D	-	D	D	D	-	A	A	D	-	D	A	-	A	-	-	-	D	-	A
FATTY ACIDS	B	C	B/70	D	B	D	A	A	B	A	B	D	A	A	B	A/72	D	B/140	A	A
FERRIC CHLORIDE	A/150	A	A/140	A/176	A	B/140	A	A/176	A	B	D	D	A	D	D	A	A/70	A	A	A
FERRIC NITRATE	A	A	B	A	A	D	A	A	A	A	D	D	A	A	A	A/72	A/120	A	A	A
FERRIC SULFATE	A	B	A	A	B	A	A	A	A	A/72	D	D	A	A	B	A/72	A/120	A	A	A
FERROUS CHLORIDE	B	B	A	A	B	A	A	A	A	B	D	D	A	D	B	D	A/120	A	A	A
FERROUS SULFATE	B	B	A	A	A	A	A	A	A	B	D	D	A	A	B/70	D	A/120	A	A	A
FISH OIL	A	A	B	D	-	B	A	A	B	-	-	-	-	-	-	-	-	-	-	-
FLUOBORIC ACID	A	B	A	A	D	D	A	A	A	A	D	D	A/73	B	A	D	A/120	A	A	A
FLUORINE (LIQUID)	D	D	D	A/72	D	D	D	C	D	B/72	A	D	A	A	A	D	C	D	D	A/72
FLUOROBENZENE	D	D	D	D	-	-	A	A	C	-	D	-	A	-	A	-	-	D	-	-
FLUOROCARBON OILS	-	-	A	A	-	-	A	-	D	A	D	A	-	A	-	-	D	D	-	-
FLUOROLUBE	A	-	A	A	-	D	A	B	D	A	A	A	-	A	-	-	-	D	-	-
FLUORINATE CYCLIC ETHERS	D	-	D	A	-	-	A	A	D	-	D	-	-	-	-	-	-	D	-	-
FLUOSILICIC ACID	A	A	A	B	D	B	A	A/140	A	B	D	D	A	B	A	D	A	A	D	A/72
FORMALDEHYDE	C	C	B	A	D	B	A	A	A/70	B	A	D	A/200	A	A	D	A	A	A	A/120
FORMIC ACID	D	D	D	B	D	B	A	B	A	A	D	D	A/250	A	D	D	D	A	A/72	A
FREON 11	A	C	B	D	D	A	A	C	B	A	C	A	A/150	A	A	D	C	D	A/120	A
FREON 12 (WET)	A	C	A	B	A	A	A	B	D	A	A	A	A/150	A	A	A/72	A/70	B	A/120	A
FREON 13	A	D	A	A	-	C	A	A	D	A	A	A	-	A	A	-	-	D	-	A
FREON 21	D	D	D	D	-	A	A	D	D	-	D	-	A/150	-	A	-	-	D	-	A
FREON 22	D	D	A	A	D	D	A	D	D	A	D	D	A/150	A	A	B	-	D	A	A
FREON 31	D	D	A	A	-	A	A	D	D	-	D	-	-	-	A	-	-	-	-	-
FREON 32	A	D	A	A	-	A	A	D	D	-	D	-	-	-	A	-	-	-	-	-
FREON 112	B	B	B	D	-	A	A	A	D	-	D	-	-	-	A	-	-	-	-	-
FREON 113	A	D	A	D	B	A	A	B	D	A	D	-	A/150	A	A	-	-	D	B	A
FREON 114	A	B	A	D	A	A	A	A	D	-	C	-	A/150	A	A	-	-	D	-	A
FREON 15	A	-	A	A	-	A	A	B	D	-	D	-	-	-	A	-	-	-	-	-
FREON 142B	A	-	A	A	-	A	A	D	D	-	D	-	-	-	A	-	-	-	-	-
FREON 152A	A	-	A	A	-	A	A	D	D	-	D	-	-	-	A	-	-	-	-	-
FREON 218	A	-	A	A	-	A	A	A	D	-	D	-	-	-	A	-	-	-	-	-
FREON C316	A	-	A	A	-	A	A	A	D	-	D	-	-	-	A	-	-	-	-	-
FREON C318	A	-	A	A	-	A	A	A	D	-	D	-	-	-	A	-	-	-	-	-
FREON 13 B1	A	D	A	A	A	A	A	A	D	-	D	-	-	-	A	-	-	-	-	-
FREON 114B2	A	-	A	D	-	A	A	B	D	-	D	-	-	-	A	-	-	-	-	-
FREON 502	B	-	A	A	-	D	A	B	D	-	D	-	-	-	A	-	-	-	-	-
FREON TF	A	-	A	D	B	A	A	B	D	A	D	A	-	A	A	D	-	D	B	B
FREON T-WD602	B	-	B	B	A	A	A	A	D	-	D	-	-	-	-	-	-	-	-	-
FREON TMC	B	-	B	B	B	A	A	A	D	-	D	-	-	-	-	-	-	-	-	-
FREON T-P35	A	-	A	A	A	A	A	A	D	-	D	-	-	-	-	-	-	-	-	-
FREON TA	A	-	A	A	A	A	A	C	D	-	D	-	-	-	-	-	-	-	-	-

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FREON TC	A	-	A	B	A	A	A	A	D	-	D	-	-	-	-	-	-	-	-	-
FREON MF	A	-	D	D	C	A	A	D	D	-	D	-	-	-	-	-	-	-	-	-
FREON BF	A	-	B	D	-	A	A	A	D	-	D	-	-	-	-	-	-	-	-	-
FRUIT JUICE	A	-	A	-	A	-	A	A	A	A	A	D	A/150	A	D	A	A	B	A	A
FUEL OIL	A	B	A	D	D	B	A	A	C	A	A	A	A	A	B	A/72	B	A	A/120	A
FUMARIC ACID	A	-	B	B	-	B	A	A	A	-	-	-	-	-	-	-	-	-	-	-
FURAN, FURFURAN	D	D	D	D	-	-	A	D	A	-	A	A	-	A	-	-	-	C	-	D
FURAN RESIN	D	-	D	C	D	–	A	D	C	B	A	-	-	A	D	-	D	D	A	D
FURFURAL	D	D	C	A	D	B	A	D	A	B	A	B	A/200	A	B	B	D	D	D	B/120
GALLIC ACID	B	D	B	B	D	D	A	A	B	B	A	D	A/150	B	-	A	A	A	B	A/70
GASOLINE - LEADED	A	C	D	D	C	A	A	A	C	A	A	A	A	A	A	A/120	-	D	B	A
GASOLINE - UNLEADED	D	D	D	D	D	-	A	A	C	A	A	A	A	A	A	A/120	-	D	C/120	A
GELATINE	A	A	A	A	D	B	A	A	A	A	A	D	A/250	A	B	A/72	A/120	A	B	A
GLUCOSE	A	A	A	A	D	B	A	A	A	A	A	B	A	A	A	A	A/120	A	A/120	A
GLUE P.V.A.	A	D	A	A	A	A	A	A	A	A	B	A	-	A	B	A/72	A/70	A	C	A
GLYCERINE	A	A	A	A	D	A	A	A	A	A	A	B	A	A	A	A/72	A	A	A	A
GLYCOLIC ACID	A	A	A	A	D	-	A	A	–	A	-	-	A/150	–	A	-	A/120	A	B	A/70
GLYCOLS	A	-	A	A	B	-	A	A	A	-	B	B	A	B	A	B/70	-	A	-	A
GOLD MONOCYANIDE	A	-	A	-	-	-	D	A	A	-	-	D	-	A	A	-	-	-	-	A
GRAPE JUICE	A	A	A	A	D	-	A	A	A	-	B	D	-	A	B	A	B	A	A	A
GREASE	A	A	D	D	A	A	A	A	D	A	A	A	-	A	A	-	-	A	A	A
GREEN SULFATE LIQUOR	B	B	B	A	D	D	A	A	A	B	B	C	-	A	-	B/72	-	A	B	–
HALOWAX OIL	D	D	D	D	-	-	A	A	D	-	D	-	-	-	-	-	-	-	-	-
HEPTANE	A	B	A	D	–	B	A	A	C	A	A	A	A	A	A	A	–	B/70	C/72	A
HEXANE	A	B	D	D	B	A	A	A	C	A	A	A	A	A	A	B	D	B/70	B/72	A
N-HEXALDEHYDE	D	D	A	A	B	D	A	D	C	-	A	A	-	A	-	-	-	-	-	-
N-HEXENE-1	A	-	B	D	A	-	A	A	C	-	-	-	-	-	-	-	-	-	-	-
HONEY	A	-	–	A	-	-	A	A	A	A	A	A	-	A	A	A	B	A	A	A
HYDRAULIC OILS (PETROLEUM)	A	A	B	D	–	A	A	A	D	A	A	A	A/100	A	B	A/72	C	D	A	A
HYDRAULIC OILS (SYNTHETIC)	D	D	D	D	-	A	A	A	D	A	A	A	A/100	A	B	A/72	A	D	A	A
HYDRAZINE	B	D	B	A	D	D	A	D	A	A	A	D	-	A	B	-	-	C	-	A/120
HYDROBROMIC ACID	D	D	D	A	D	-	A	A	B	A	D	D	A	D	D	D	–	B	A/72	A
HYDROCHLORIC ACID (20%)	D	D	D	A	B	D	A	A	A	A	D	D	A/200	D	D	D	A	A	A/120	A
HYDROCHLORIC ACID (37%) (HOT)	D	D	D	C	C	D	A	A	C	D	D	D	-	D	D	D	B/120	-	-	A
HYDROCHLORIC ACID (37%) (COLD)	B	C	D	B	C	D	A	A	B	A	D	D	-	D	D	D	B/120	A	-	A
HYDROCYANIC ACID	B	D	B	A	D	D	A	A	A	A	A	D	A	A	D	B	A/120	A	B	A
HYDROFLUORIC ACID (20%)	D	D	D	B	D	D	A	A	D	D	D	D	A/250	D	D	C/72	B	A	B	A
HYDROFLUORIC ACID (50%)	D	D	D	B	D	D	A	A	D	D	D	D	A/250	D	D	D	A/70	B/70	B/72	A
HYDROFLUORIC ACID (75%)	D	D	D	D	D	D	A	D	D	D	D	D	A	D	D	D	C/70	B/70	C	A
HYDROFLUORIC ACID (CONC-) (HOT)	D	D	D	-	D	D	A	B	D	D	D	D	-	D	D	D	D	D	-	A
HYDROFLUORIC ACID (CONC-) (COLD)	D	D	D	D	D	D	A	D	D	D	D	D	-	D	D	D	D	D	-	A
HYDROFLUOSILICIC ACID (20%)	B	D	B	A	D	B	A	A	B	B	D	D	-	D	-	D	B/120	A	A/120	A
HYDROGEN FLUORIDE	D	-	-	B/70	-	D	B/70	A	-	A	D	-	-	D	-	-	-	A/70	-	-
HYDROGEN GAS	A	A	A	B	A	A	A	A	A	–	–	–	A	–	-	A/120	A/120	A	A/120	A
HYDROGEN PEROXIDE	B	D	D	C	D	D	A	A	A	A	A	D	A/150	A	D	D	–	A/70	A	A/70
HYDROGEN PEROXIDE (10%)	D	-	D	A	B	-	A	A	-	A	A	C	A	B	D	C/72	A	A	A/72	A
HYDROGEN PEROXIDE (50%)	D	–	D	B	D	-	A	A	-	A	A	-	A	A/120	D	D	-	B/72	A/72	A/72
HYDROGEN SULFIDE (WET)	D	D	A	A	B	A	A	D	A	A	D	D	-	A	C	C	A	A	-	A
HYDROGEN SULFIDE (DRY)	A	–	A	A	-	A	A	D	A	A	B	D	-	B	A	D	A	A	-	A
HYDROGEN SULFIDE AQUEOUS SOLUTION	D	D	A	B	D	-	A	D	A	A	B	D	A/150	A	C	C/72	A	A/72	B/72	A
HYDROQUINONE	D	D	D	D	-	-	A	C	A	B	A	B	A/250	B	A	D	A	A	B	A
HYDROXYACETIC ACID (70%)	A	A	A	A	D	-	A	A	A	-	D	B	-	B	C	-	-	-	D	A

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HYPOCHLOROUS ACID	D	D	D	B	-	-	A	A	A	A	D	D	A	D	D	-	-	A	-	A
INK	A	A	A	A	A	A	A	A	A	A	C	D	-	A	A	C	-	-	C	A
IODINE (IN ALCOHOL)	B	B	D	B	–	B	A	A	A	B	D	D	A/150	D	A	C	D	A	A	A/150
IODINE PENTAFLUORIDE	D	D	D	D	D	-	A	D	B	-	-	-	-	-	-	-	-	-	-	-
IODOFORM	D	-	B	B	-	-	A	A	B	D	B	A	-	B	-	-	-	-	A	A
ISOBUTYL ALCOHOL	B/80	-	A/80	A/160	D	-	A	A/75	A	A	B	C	-	A	A	A/72	-	A/70	A/72	A
ISOOCTANE	A	C	B	A/70	B	A/158	A	A	C	A	A	A/70	A/73	A/70	-	A/72	B	A/120	A/72	A/70
ISOTANE	A	-	D	-	-	-	-	A	D	-	D	-	-	-	-	D	-	D	A	A
ISOPHORONE	D	D	D	A	B	-	A	D	B	A	A	A	-	A	-	-	-	-	-	-
ISOPROPYL ACETATE	D	D	D	B	D	C	A	D	B	B	B	A	-	A	A	B/72	B/70	A	D	D
ISOPROPYL CHLORIDE	D	D	D	D	D	-	A	A	C	-	D	A	-	A	A	-	-	D	-	-
ISOPROPYL ETHER	B	B	D	D	B	-	A	D	C	A	A	-	A/73	A	A	A/72	B	B/70	B	D
JET FUEL (JP3, JP4, JP5)	A	C	D	D	C	–	A	A	C	A	A	A	A	A	A/72	C	D	A/72	C	B
KEROSENE	A	A	A	D	B	A	A	A	C	B	A	A	A	A	A	A	C/70	B/72	A/120	A
KETONES	D	D	D	A	D	D	A	D	C	A	B	-	A/200	A	A	A/120	C/70	D	D	A/70
LACQUERS	D	D	D	D	D	D	A	D	C	A	A	C	A/70	A	A	A/72	A	C	D	D
LACQUER SOLVENTS	D	D	D	D	D	B	A	D	C	A	A	B	A/70	A	A	A/72	A	C	D	D
LACTIC ACID	A	B	A	A	B	D	A	A	A	B	C	D	A/300	A	A	B	A	A	B/72	A/70
LARD	A	-	A	B	C	B	A	A	B	A	A	A	A	A	A	A/72	A	B	A/72	A
LATEX - WATER BASE	A	A	A	A	D	-	A	A	A	-	A	-	-	A	A	A/72	-	A	-	A
LAVENDER OIL	B	B	D	D	D	-	A	A	B	-	-	-	-	-	-	-	-	-	-	-
LEAD ACETATE	B	B	B	A	D	-	A	A	A	B	D	A	A	B	A	A	A	A	B	A
LEAD NITRATE	A	-	A	A	D	-	A	A	-	B	D	B	B	B	-	-	-	A	A/120	A
LEAD SULFAMATE	B	B	A	A	-	-	A	A	A	-	C	-	-	C	A	B/72	A/70	A	B	A
LIGROIN	A	B	B	D	C	-	A	A	B	-	D	A	-	A	B	D	A	B/175	-	A
LIME	A	A	A	A	B	A	A	A	A	-	C	A	-	A	B	A/72	A	B	B	A
LIME BLEACH	A	B	B	A	-	-	A	A	A	-	D	-	-	A	-	-	-	B	-	-
LIME SULFUR	A	-	A	A	-	-	A	A	B	-	D	-	A/150	A	-	B/70	-	A	-	A
LINDOL (TRICRESYLPHOSPHATE)	D	D	D	A	D	-	A	B	A	A	D	B	-	B	-	A/120	-	A/72	D	D
LINOLEIC ACID	B	B	D	D	-	-	A	B	B	A	A	–	-	A	-	-	A	A	A/120	A
LIQUEFIED PETROLEUM GAS	A	D	C	D	A	B	A	A	C	A	-	-	-	-	A	-	-	D	-	-
LUBRICANTS	A	A	D	D	B	A	A	A	B	A	A/120	A	-	A/120		A/72	D	A/72	B/120	A
LUBRICATING OILS (PETROLEUM)	A	B	B/150	D	B	A	A	A	D	A	A	A	–	A	A	A/72	C	C	-	A
LYE	D	D	A	A	C	C	A	B	A	-	-	-	-	A	D	A/70	-	A	B	A/150
MAGNESIUM CARBONATE	A	A	A	B	B	-	A	A	A	B	D	B	A	A	A	-	B	A	B	A
MAGNESIUM CHLORIDE	A	A	A	A	A	B	A	A	A	A	D	D	A	D	B	A/72	A	A	B	A
MAGNESIUM HYDROXIDE	A	B	A	A	D	B	A	A	A	A	D	B	A	A	A	B/72	A/120	A	A/120	A
MAGNESIUM NITRATE	A	A	A	A	B	–	A	A	A	A	D	D	A	A	A	A/72	A/120	A	A/120	A
MAGNESIUM OXIDE	A	A	A	A	-	–	A	A	A	A	B	A	-	A	A	-	-	-	-	-
MAGNESIUM SULFATE	A	B	A	A	D	B	A	A	A	B	D	C	A	A	A	A/72	A/120	B	A/72	A
MALEIC ACID	C	D	D	A	D	-	A	A	A	B	B	A	A/250	A	A	A	A	B	A/120	A
MALEIC ANHYDRIDE	D	D	D	D	-	D	A	A	A	A	A	B	-	A	A	-	D	D	-	A
MALIC ACID	A	B	B	D	-	-	A	A	A	B	B	D	A/250	A	A	A	B/120	B	A/120	A
MASH	A	A	A	A	A	-	-	A	A	-	A	-	-	A	A	A	A	-	-	-
MAYONNAISE	A	C	A	D	D	–	A	A	A	A	D	D	-	A	A	A	D	A	D	A
MELAMINE	C	C	D	A	D	-	A	A	B	A	-	D	-	D	A	A	-	A	D	-
MERCURIC CHLORIDE (DILUTE SOLUTION)	A	A	A	A	A	B	A	A	A	B	D	D	A/250	D	B	D	A	A	A	A
MERCURIC CYANIDE	A	A	B	A	-	D	A	A	A	A	D	C	A/250	A	-	A/120	A	A	A	A
MERCUROUS NITRATE	B	-	B	A	-	-	A	A	-	B	D	B	-	B	-	-	-	A	A	A
MERCURY	A	A	A	A	A	A	A	A	A	A	C	A	A	A	A	A/120	A	A	A	A
MESITYL OXIDE	D	D	D	B	D	–	A	D	C	A	A	A	-	A	-	B/120	-	A	D	–
METHANE	A	B	B	D	C	B	A	A	C	A	A	-	A/250	A	A	A	-	B	B	A

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METHANOL (METHYL ALCOHOL)	A	A	A	A	D	A	A	D	A	A	B	A	A/70	A	A	B/72	A/70	A/120	A/72	A
METHYL ACETATE	D	D	D	B	D	C	A	D	B	A	A	A	-	A	A	A/120	–	C	D	B
METHYL ACRYLATE	D	D	D	B	D	-	A	D	D	-	-	A	-	A	A	-	-	D	-	B
METHYL ACETONE	C	D	D	A	-	-	A	D	B	A	A	A	-	A	A	A	-	D	D	D
METHYL BROMIDE	B	B	A	D	D	-	A	A	D	B	D	A	A	A	A	B/72	C/70	D	D	A
METHYL BUTYL KETONE	D	D	D	A	D	-	A	D	C	-	A	-	-	A	A	D	-	D	A	D
METHYL CELLOSOLVE	C	D	B	B	D	-	A	D	B	-	A	C	A	B	A	C	-	B	D	A
METHYL CHLORIDE	D	D	D	D	D	D	A	B	D	B	D	D	A	A	A	B/72	D	D	D	A
METHYL CYCLOPENTANE	D	D	D	–	D	-	A	A	C	-	-	-	-	-	A	-	-	-	-	-
METHYL DICHLORIDE	D	D	D	D	–	-	A	A	D	-	D	-	-	-	A	C	-	D	A	D
METHYL ETHYL KETONE	D	D	D	A	D	B	A	D	B	A	B	A	A/150	A	B	A/72	D	C/125	D	D
METHYL FORMATE	D	D	B	B	D	–	A	D	B	A	A	B	-	B	A	D	-	–	A/72	A
METHYL ISOBUTYL KETONE	D	-	D	B/72	D	B	A	D	C	A	B	C	A/150	B	A	B/120	C	A	D	D
METHYL ISOPROPYL KETONE	D	D	D	C	D	-	A	D	C	-	A	C	-	A	A	A	D	C	D	-
METHYL METHACRYLATE	D	D	D	D	D	-	A	D	B	-	B	C	A/73	A	A	-	-	A	A	B
METHYL OLEATE	D	D	D	B	-	-	A	A	C	-	-	-	-	-	A	-	-	-	-	-
METHYL SALICYLATE	D	D	D	B	-	-	A	B	B	-	A	A	-	-	A	-	-	B	-	B
METHYLACRYLIC ACID	D	-	C	B	-	-	A	C	A	-	-	-	-	-	A	-	-	-	-	-
METHYLAMINE	B	B	C	A	-	-	A	D	A	B	B	A	-	A	A	-	A/70	A/120	D	C
METHYLENE CHLORIDE	D	D	D	C	D	D	A	B	D	A	D	B	A/73	A	A	C/72	D	D	D	B
MILK	A	A	A	A	D	B	A	A	A	A	A	D	A/150	A	A	A	A	A	A/120	A
MOLASSES	A	A	A	A	B	B	A	A	A	A	A	A	A/150	A	B	A/72	A	A	A	A
MONOCHLOROACETIC ACID	D	-	A/72	C	D	D	A/120	C	D	A/120	D	D	-	A/72	B	D	-	A	-	B/72
MONOCHLOROBENZENE	D	D	D	D	D	C	A	A	D	A	D	A	A/100	A	A	D	-	D	D	A/150
MONOMETHYL ANILINE	D	D	D	D	-	D	A	B	B	-	-	-	-	-		-	-	C	-	-
MONOETHANOLAMINE	B	D	B	B	D	D	A	D	A	-	B	A	-	A	D	A	C	D	D	D
MONOMETHYLETHER	A	A	B	A	-	D	A	A	C	-	-	-	-	-	-	-	-	-	-	-
MONOVINYL ACETYLENE	A	-	B	A	-	-	A	A	C	-	-	-	-	-	-	-	-	-	-	-
MUSTARD	B	B	A	A	B	B	A	A	A	A	B	D	-	A	A	A	A	A	B	A
NAPTHA	A	B	D	D	C	A	A	A	C	A	A	B	A	A	A	A	A/70	C	A/72	A
NAPTHALENE	D	D	D	D	B	B	A	A	C	A	B	A	A/150	A	A	A/72	B	B	D	A
NAPTHENIC ACID	B	B	D	D	-	D	A	A	B	B	B	B	-	A	A	-	-	-	-	-
NATURAL GAS	A	A	A	D	C	B	A	A	C	-	A	A	A/150	A	A	-	A	A	A	-
NEATSFOOT OIL	A	A	D	B	-	D	A	A	B	-	A	A	-	A	B	-	-	-	-	-
NEVILLE ACID	D	D	D	B	-	D	A	A	A	-	-	-	-	-	-	-	-	-	-	-
NICKEL ACETATE	B	B	B	A	-	-	A	D	A	-	B	-	A/73	A	-	-	-	A	-	A
NICKEL CHLORIDE	A	A	B	A	D	D	A	A	A	A	D	D	A	B	B	C/72	A	A	A	A
NICKEL NITRATE	A	-	A	A	-	-	A	A	A	B	D	C	-	A	D	A/72	-	A	A	A
NICKEL SULFATE	A	A	A	A	C	D	A	A	A	B	D	D	A	A	A	A/72	A	A	A	A
NITER CAKE	A	B	A	A	A	C	A	A	A	B/120	D	D	-	C	-	A/72	-	A	A/120	A
NITRIC ACID (5-10% SOLUTION)	D	D	D	B	D	B	A	A	A	A	D	D	A	A	C	D	A	A/120	A/72	A/120
NITRIC ACID (20% SOLUTION)	D	D	D	B	D	D	A	A	B	B	D	D	A	A	C	D	C	B/70	A/72	A
NITRIC ACID (50% SOLUTION)	D	D	D	D	D	D	A	A	C	A	D	D	A/150	A	C	D	B/70	B/70	B/72	A/125
NITRIC ACID (CONCENTRATED SOLUTION)	D	D	D	D	D	D	A	A	C	B	D	D	A/150	A	C	D	A	D	B/72	A/125
NITRIC ACID - RED FUMING	D	-	D	D	D	D	A	B	D	B/70	D	D	-	A	C	D	-	D	-	D
NITROBENZENE	D	D	D	C	D	D	A	A	B	B	C	C	A/150	B	B	B/72	C/70	B/70	D	A/70
NITROBENZINE	-	-	D	C	-	-	A	A	B	-	-	-	-	-	B	-	-	-	-	A
NITRO ETHANE	D	D	C	B	-	-	A	D	A	A	A	A	-	A	B	-	-	C	-	-
NITROMETHANE	D	D	C	B	D	D	A	D	A	A	A	A	A/200	A	B	B/72	A	C	B/120	A/120
NITROUS ACID	D	-	D	B	-	-	A	A	-	A	D	D	-	B	-	-	-	D	A	A
NITROUS OXIDE	A	-	B	A	B	-	A	A	-	B	B	B	-	D	-	C	-	A	A	D
NITROGEN (GAS)	A	A	A	A	A	B	A	A	A	A	A	A	A	A	A	-	-	A	-	A

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NITROGEN TETROXIDE	D	D	D	D	-	B	A	D	D	A	D	D	-	A	-	-	-	D	-	C
OCTADECANE	A	-	B	D	A	-	A	A	B	-	-	-	-	-	-	-	-	-	-	-
N-OCTANE	B	B	D	D	-	-	A	A	B	-	-	-	-	-	-	-	-	D	-	A
OCTACHLOROTOLUENE	D	D	D	D	D	-	A	A	–	-	D	-	-	-	-	-	-	D	-	-
OILS																				
ANILINE	D	D	D	B	D	D	A	C	C	B	B	A	-	A	D	A	-	–	D	–
ANISE	-	-	D	-	-	-	A	-	C	-	-	A	-	A	D	-	-	-	-	-
BAY	-	-	D	-	-	-	-	A	C	-	-	A	-	A	D	-	-	-	-	A
BONE	A	-	D	-	-	-	A	A	C	-	-	A	-	A	D	-	-	A	-	A
CASTOR	A	B	A	B	A	C	A	A	B	A	A	B	-	A	A	A	-	A	A	A
CINNAMON	-	-	C	-	-	-	A	A	C	-	-	D	-	A	D	-	D	D	D	-
CITRIC	A	D	D	B	-	B/72	A	A	C	A	C	D	A	A	B	A	A	A	B	A
CLOVE	C	-	C	-	-	-	A	A	C	A	B	D	-	A	–	-	-	–	-	-
COCONUT	A	B	C/140	B	C	-	A	A	B	A	B	A	-	A	A	-	A	A/72	A/72	A
COD LIVER	A/70	-	B/70	A	A	-	A	A	C	A	A	D	-	A	B	-	-	A/72	A/72	A
CORN	A	D	C	D	A	A	A	A	D	A	B	C	A	B	A	A	A	A	B	A
COTTON SEED	A	B	C	A/70	A	A/70	A	A	B	A	A	C	-	A	B	B	A	A	B/120	A
CREOSOTE	D	D	C	D	D	D	A	A	D	B	B	B	-	B	D	D	C	C	C	-
DIESEL FUEL (20, 30, 40, 50)	A	-	D	D	C	B	A	A	D	A	A	A	-	A	A	A	A	B/70	B	A
FUEL (1, 2, 3, 5A, 5B, 6)	A	B	A	D	D	B	A	A	C	A	A	A	-	A	B	A	B	A	A/120	A
GINGER	A	-	A	A	-	-	A	A	C	-	-	-	-	D	A	-	-	-	-	A
HYDRAULIC (SEE HYDRAULIC)																				
LEMON	A	-	C	C	-	-	A	A	C	-	A	-	-	A	D	-	-	–	-	A
LINSEED	A	A	A	C	B	B	A	A	B	A	A	A	A	A	A	A/72	D	A	A/120	A
MINERAL	A	A	A	D	A	A	A	A	D	A	A	A	A	A	A	A	B	B	B	A
OLIVE	A	D	B	B	A	-	A	A	B	A	A	A	-	B	A	A/72	A/70	A	C	B
ORANGE	A	-	C	-	-	-	-	A	C	A	A	-	-	A	D	-	C/70	A	C/72	A
PALM	A	-	D	D	A	-	A	A	B	-	A	A	-	A	A	-	A	-	A	A
PEANUT	A	A	A	C/70	B	-	A	A	B	A	A	A	-	A	A	-	A	A	A/72	A
PEPPERMINT	D	-	D	-	-	-	A	A	C	-	D	-	-	A	D	-	-	–	-	A
PINE	B	D	D	D	A	D	A	A	C	-	A	B	-	A	A	A	D	B	D	A
RAPE SEED	B	-	B	A	B	–	A	A	B	A	-	A	-	A	A	-	D	D	-	A
ROSIN	A	A	A	D	-	-	A	A	A	A	A	D	-	A	B	A/72	B/120	A	C/72	A
SESAME SEED	A	A	C	-	-	-	A	A	B	-	–	A	-	A	D	-	-	A	A	A
SILICONE	A	A	A	A	A	B	A	A	C	A	B	A	-	A	A	A/72	A	A	A	A
SOYBEAN	A	A	A	D	B	B	A	A	C	A	A	A	-	A	B	A	A/70	B	A/72	A
SPERM	A	-	D	D	-	-	A	A	B	A	-	A	-	A	D	-	-	-	-	A
TANNING	A	-	D	-	-	-	A	A	–	A	A	-	-	A	D	-	-	A	-	A
TURBINE	B	-	B	D	D	-	A	A	–	-	A	A	-	A	A	A	C	B/72	A/72	A
OLEIC ACID	A	D	C	C	B	A	A	A	B	A	A	B	A/250	A	A	A	A	A	C/120	A
OLEUM	D	D	D	D	D	D	A	B	D	D	D	D	A/73	A	D	D	D	D	D	D
OLEUM SPIRITS	B	D	D	D	C	B	A	A	D	-	D	D	-	B	-	-	D	D	-	D
O-DICHLOROBENZENE	D	-	D	D	D	D	A	C	D	A/72	B/72	–	-	B/72	–	D	-	C/72	D	A
OXALIC ACID (COLD)	B	D	B	A	D	D	A	A	A	B	B	D	A/150	B	D	B/120	A	A	B	A/120
OXGEN - COLD	C	-	A	B	A	-	A	A	A	-	A	A	A	A	C	B/70	-	C	-	A
OXYGEN - 200°-400°F	D	-	D	D	D	-	A	B	D	-	A	A	-	A	D	D	-	D	-	A
OZONE	D	-	C	A	A	C	A	A	A	-	B	-	A	A	D	D	D	D	B	A
PAINT THINNER, DUCO	D	D	D	D	B	-	A	B	C	B	A	A	-	A	A	A	-	D	A	-
PALMITIC ACID	A	A	B	B	A	A	A	A	B	B	C	C	A/250	A	A	A	-	A	B/72	A
PARAFFIN	A	B	B	D	A	-	A	A	A	B	A	-	A/150	A	A	A/72	–	A	B	A
PENTANE	A	-	B	D	D	-	A	A	A	B	A	B	-	B	A	A/72	D	D	A	A
PERCHLORIC ACID	D	D	B	B	D	D	A	A	D	B	D	D	A/200	B	C	D	B	C	C	A/120

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PERCHLOROETHYLENE	D	D	D	D	D	D	A	B	D	B	D	B	A/200	A	A	C/72	D	D	C/72	A
PETROLATUM	A	A	B	D	D	-	A	A	–	A	B	-	A	A	A	D	A	A	B	A
PETROLEUM - BELOW 250	A	-	B	D	B	-	A	A	B	-	A	A	A	A	A	A	C/70	A/70	-	A/200
PETROLEUM - ABOVE 250	C	-	D	D	D	-	A	B	C	-	A	A	-	A	A	D	C/70	-	-	-
PHENOL (CARBOLIC ACID)	D	D	D	B	D	D	A	A	A	A	B	D	A/150	A	A	D	–	C	D	A/70
PHENYLBENZENE	D	-	D	D	D	-	A	A	C	-	-	-	-	-	-	-	-	-	-	-
PHENYL ETHYL ETHER	D	-	D	D	D	-	A	C	C	-	-	-	-	-	-	-	-	-	-	C
PHENYL HYDRAZINE	D	-	D	D	D	-	A	A	B	-	A	D	A/73	-	-	-	-	-	-	D
PHORONE	D	-	D	B	D	-	A	D	B	-	-	-	-	-	-	-	-	-	-	-
PHOSPHORIC ACID - 20%	B	-	A	A	B	-	A	A	A	A	D	D	A	A	D	D	A	A	-	A
PHOSPHORIC ACID (TO 40% SOLUTION)	D	-	B	B	D	D	A	A	C	A/120	C	D	A	D	D	B/72	B/70	A/120	B	B
PHOSPHORIC ACID - 50%	D	-	B	A	B	-	A	A	A	C	D	D	A	A	D	D	-	A/120	-	A
PHOSPHORIC ACID (40%-100% SOLUTION)	D	-	A/140	A/130	C	D	A	A	C	A	D	D	A/250	B	D	C	-	A	B	A
PHOSPHORIC ACID CRUDE	D	-	D	B	–	-	A	A	C	A/120	C	D	A	B	D	B/72	B/70	B/120	B/120	A
PHOSPHOROUS TRICHLORIDE ACID	D	D	D	A	-	-	A	A	B	A/120	D	B	A/250	A	D	-	B	D	D	A
PHOTOGRAPHIC (DEVELOPER)	A	B	A	B	D	D	A	A	A	A	C	D	A/150	A	A	-	A	A	A	A
PHTHALIC ACID	C	–	C	A	-	-	A	A	-	B	B	A	-	B	-	B/72	-	A	-	A
PHTHALIC ANHYDRIDE	C	-	A	A	A	-	A	A	-	A	A	-	-	A	-	-	-	D	D	A
PICKLING SOLUTION	D	–	D	C/70	C	D	A	B/70	A	A	-	-	-	-	D	-	-	-	-	-
PICRIC ACID	D	D	C	C	B	D	A	A	B	D	C	D	A/73	D	D	C/72	A	B/70	D	A/70
PINENE	B	B	D	D	B	D	A	A	C	-	-	-	-	-	-	-	-	-	-	-
PIPERIDINE	D	-	D	D	D	D	A	D	B	-	-	-	-	-	-	-	-	-	-	-
PLATING SOLUTIONS:																				
ANTIMONY	A	B	A	-	-	-	A	A	A	A	D	A	-	A	A	D	-	A	A	A
ARSENIC	A	B	A	-	-	-	A	A	A	A	C	A	-	A	A	A	-	A	A	–
BRASS	A	B	A	A	-	-	A	A	A	A	C	A	A/150	A	A	A	B	A	A	A
BRONZE	A	B	A	A	-	-	A	A	A	A	C	A	-	A	B	A	-	A	A	–
CADNIUM	A	B	A	A	-	-	A	A	A	A/90	C	A/70	A/150	A/140	C	D	-	A	A	A
CHROME	D	D	D	A	-	-	A	A	A	B	C	C	A/150	A	D	D	-	A	A	A
COPPER	A	B	A	A	D	-	A	–	A	A/120	C	A/70	A/150	A/150	-	D	-	A	A	A
GOLD	A	B	A	A	-	-	A	A	A	A/70	C	-	A/150	A/150	-	A	-	A	A	A
INDIUM	A	B	A	-	-	-	A	A	A	A	C	-	-	A	-	D	-	A	A	-
IRON	A	B	A	-	-	-	A	A	A	A	C	–	-	A	-	D	-	A	D	A
LEAD	B	B	A	A	-	-	A	A	A	–	C	-	A/150	C	A	D	-	A	A	A
NICKEL	A	B	A	A	-	-	A	A	A	A/140	C	-	A/150	A/70	-	D	-	A	A	A
SILVER	A	B	A	A	-	-	A	A	A	A	C	-	A/150	A	-	A	-	A	A	A
TIN	B	B	A	A	-	-	A	A	A	A	C	-	A/150	A	-	D	-	A	A	A
ZINC	A	B	A	A	-	-	A	A	A	A	C	-	A/150	A	-	D	-	A	A	A
POLYVINYL ACETATE EMULSION	A	-	B	A	-	-	A	D	A	-	-	B	-	-	A	-	-	B/70	-	A
POTASH	A	A	A	A	D	D	A	A	A	B	C	B	A	A	A	A	A/70	A	A	A
POTASSIUM ACETATE	B	B	B	A	D	-	A	D	A	B	D	A	A/70	B	A	-	-	A	-	A
POTASSIUM BICARBONATE	A	A	A	A	D	-	A	A	A	B	C	A	-	B	A	A/72	D	A	A	B
POTASSIUM BROMIDE	A	A	A	A	D	-	A	A	A	A	C	D	A	A	A	A/72	A	A	A	A
POTASSIUM CARBONATE	A	A	A	A	-	D	A	A	A	B	C	B	A	A	A	A/70	-	A	-	A
POTASSIUM CHLORATE	A	A	A	A	A	-	A	A	A	B	B	C	-	A	A	C/72	A/70	A	A	A
POTASSIUM CHLORIDE	A	A	A	A	A	D	A	A	A	B	B	B	A	C	A	A/72	A	A	A	A
POTASSIUM CHROMATE	A	A	A	A	B	-	A	A	A	A	A	A	A	B	D	B	A	A	A	B
POTASSIUM CUPRO CYANIDE	A	-	A	B	A	-	A	A	A	-	-	-	-	-	C	-	-	A	-	A
POTASSIUM CYANIDE SOLUTIONS	A	A	A	A	A	B	A	A	A	B	D	B	A	A	C	A/72	-	A	A	A
POTASSIUM DICHROMATE	A	A	A	A	B	B	A	A	A	B	A	B	A	A	D	B/72	A	A	A	A
POTASSIUM HYDROXIDE	B	B	B	A	D	A	A	B	A	B	D	C	A/150	A	A	C/72	A	A	A/72	A/150
POTASSIUM HYPOCHLORITE	B/70	-	B/120	A	B	-	B	D	-	B	D	D	-	D	D	B/72	-	D	B/72	A

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	BUNA-N	GEOLAST®	NEOPRENE	EPDM	POLYURETHANE	SANIFLEX™ TPE	PTFE	VITON®	WIL-FLEX™	ALLOY C	ALUMINUM	CAST IRON	HALAR® ECTFE-COATED	STAINLESS STEEL (316)	ACETAL	NYLON	POLYETHYLENE	POLYPROPYLENE	PVC	PVDF
POTASSIUM IODIDE	A	-	A	A	-	-	A	A	-	B	B	A	-	B	-	A/72	-	A	A/120	A
POTASSIUM NITRATE	A	A	A	A	A	B	A	A	A	B	A	B	A	B	B	B/72	A	A	A	A
POTASSIUM PERMANGANATE	B	C	A	A	B	D	A	A	A	A	B	B	-	B	C	D	A	B	A/72	A
POTASSIUM SULFATE	A	A	A	A/72	A	B	A	A	A	A	B	B	A	A	B	A/72	A/120	A	A/120	A
POTASSIUM SULFIDE	A	-	A	A	A	B	A	A	-	B	D	B	-	B	-	A	-	A	A/120	A
PRODUCER GAS	A	-	B	D	A	-	A	A	–	-	-	-	-	-	A	-	-	-	-	-
PROPANE (LIQUIFIED)	A	B	B	D	C	B	A	A	–	A	A	A	A	A	A	A/72	–	B/70	A/72	B/20
PROPYL ACETATE	D	D	D	B	D	-	A	D	B	A	A	-	A/120	A	A	-	-	C	-	A/70
PROPYL ALCOHOL	A	-	A	A	D	-	A	A	A	A	A	A	-	A	A	D	-	A	A/72	A
PROPYL NITRATE	D	-	D	B	-	-	A	D	B	-	B	B	-	A	A	-	-	C	-	D
PROPYLENE	D	-	D	D	D	-	A	A	B	A	A	A	-	A	A	-	-	A	B/72	A
PROPYLENE GLYCOL	A	A	C	A	B	-	A	A	A	B	A	B	-	A	D	A	B/70	A	C/72	A
PROPYLENE OXIDE	D	-	D	B	D	-	A	D	A	-	B	B	D	A	A	-	-	A/70	-	D
PYRANOL	A	-	D	D	B	-	A	A	–	-	-	-	-	-	-	-	-	-	-	-
PYDRAULS	–	-	–	–	–	–	–	–	–	A	-	A	A/70	A	-	A/70	-	-	-	-
PYRIDINE	D	-	D	B	D	C	A	D	A	A	B	A	D	B	B	C/72	B/70	C	D	D
PYROGALLIC ACID	D	-	A	B	D	-	A	A	–	B	–	D	A/150	A	D	-	-	A	A	A
PYROLIGNEOUS ACID	D	D	D	B	-	-	A	D	–	-	B	D	A/100	A	D	-	-	A	-	A
PYRROLE	D	-	D	D	B	-	A	D	C	-	-	-	-	-	-	-	-	-	-	-
RADIATION	B	-	C	C/70	A	-	A	D	A	-	-	-	-	-	D	-	-	-	-	-
RED OIL	A	-	B	D	B	-	A	A	B	-	-	-	-	-	-	-	-	-	-	-
ROSINS	A	A	A	D	D	-	A	A	A	A	A	D	-	A	B	A/72	B/70	A	C/72	-
RUM	A	A	A	A	D	-	A	A	A	A	-	-	-	A	A	A	-	A	A	-
RUST INHIBITORS	A	A	C	-	A	-	-	A	B	-	-	C	-	A	A	-	-	A	-	-
SALAD DRESSING	D	D	D	D	-	D	-	D	A	-	B	D	-	A	A	A	-	A	-	-
SALICYLIC ACID	A	-	D	A	A/72	-	A	A	A	A	A	D	A	B	-	A/72	D	A	B/72	A
SAL AMMONIAC	A	-	A	A	A	A	A	A	A	A	D	D	-	B	D	-	-	A	-	A
SEA WATER	A	A	A	A	D	A	A	A	A	A	D	D	A/250	C	A	A/120	A/120	A	A/120	A
SEWAGE	A	A	A	A	D	A	A	A	A	A	B	B	-	A	A	-	-	A	-	A
SHELLAC (BLEACHED)	A	A	D	A	D	D	A	A	B	A	A	A	-	A	A	A/72	A/70	A	-	-
SHELLAC (ORANGE)	A	A	D	A	D	D	A	A	B	A	A	A	-	A	A	A/72	A/70	A	-	-
SILICATE ESTERS	A	A	A	D	A	C	A	A	B	-	-	-	-	-	-	-	-	-	-	-
SILICONE	A	A	A	A	A	A	A	A	B	A	A	A	A	A	A	A/72	-	A	A	A
SILICONE GREASES	A	A	A	A	A	A	A	A	B	-	-	-	-	-	A	-	-	-	-	-
SILVER BROMIDE	-	-	-	-	-	-	A/70	-	A	A	D	D	-	B	A	-	A	-	-	-
SILVER CHLORIDE	-	-	-	-	-	-	A/70	-	-	-	-	-	-	-	-	-	-	A	-	-
SILVER CYANIDE	A	-	A	A	-	-	A	A	-	A	D	A	-	A	-	-	-	A	-	A
SILVER NITRATE	B	C	A	A	A	D	A	A	A	A	D	D	A	A	A	A/72	A	A	A/72	A
SKYDROL 500	D	D	D	A	D	A	A	D	B	A	-	-	A/70	A	A	C	-	-	-	-
SKYDROL 7000	D	-	D	A	D	D	A	B/70	B	A	-	-	A/70	A	A	C	-	-	-	-
SOAP SOLUTIONS	A	A	A	A	A	A	A	A	A	A	C	D	A/150	A	A	A/72	A	A	A	A
SODA ASH (SEE SODIUM CARBONATE)																			-	
SODIUM ACETATE	B	-	B	A	D	-	A	D	A	A	B	B	A	B/72	B	B/72	A	A	B/72	A
SODIUM ALUMINATE	A	A	A	A	-	-	A	A	A	A	C	A	A	A	A	A/72	-	A	-	A
SODIUM BENZOATE	B	-	A/72	A	-	-	A/120	A/72	-	A/72	A/72	-	-	-	-	B/72	-	A/120	B/72	A/120
SODIUM BICARBONATE	A	A	A	A	A	B	A	A	A	B	A	C	A	A	A	A	A	A	A/120	A
SODIUM BICHROMATE	A	-	A	A	-	-	A	A	A	C	C	C	-	B	D	-	-	A	-	A
SODIUM BISULFATE	A	B	A	A	A	A	A	A	A	B	D	D	A	A	A	A/72	A/120	A	A/120	A
SODIUM BISULFITE	A	A	A	A	A	B	A	A	A	A	A	D	A	A	A	C/72	A/120	A	A/120	A
SODIUM BORATE	A	A	A	A	B	B	A	A	A	A	C	B	A	B	A	A/72	A/120	A/140	A/120	A
SODIUM BROMIDE	-	-	A	A	-	-	A	A	A	B	C	C	-	B	-	B/72	-	A	B/120	A
SODIUM CARBONATE	A	A	A	A	A	B	A	A	A	A	C	B	A	A	A	B/72	B/120	A	A/120	A

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SODIUM CHLORATE	A	B	A	A	B		A	A	A	A	B	B	A	A	A	D	B/120	A	A/72	A
SODIUM CHLORIDE	A	A	A	A	A	A	A	A	A	A	C	B	-	C	A	A/72	A/120	A	A/120	A
SODIUM CHROMATE	A	A	A	-	-	–	A	A	A	A	A	A	A	A	D	C	-	A	-	A
SODIUM CYANIDE	A	A	A	A	B	B	A	A	A	A	D	B	-	A	B	A/72	A/120	A	A/120	A
SODIUM DICHROMATE	A	-	B	A	-	B	A	B	A	-	-	-	-	-	-	-	-	A	-	A
SODIUM FLUORIDE	A	-	A	A	B	-	A	A	A	B	B	C	-	B	-	B	-	A	A/120	A
SODIUM HYDROXIDE (20%)	A	B	B	A	B	A	A	A	A	B	D	B	-	A	A	A	D	A	A	A
SODIUM HYDROXIDE (50% SOLUTION)	D	D	C	A	B	B	A	A	A	A	D	C	A/250	B	A	A	D	A	A	C
SODIUM HYDROXIDE (80% SOLUTION)	D	D	C	A	B	D	A	A	–	B	D	C	-	D	A	C	D	A	A	C
SODIUM HYPOCHLORITE (TO 20%)	B	C	C	B	D	A	A	A/72	B	A	D	D	A	C	D	D	A	A	A	A
SODIUM METAPHOSPHATE	A	-	B	A	B	-	A	A	A	-	C	C	A	A	B	A/72	A/70	A/72	A	A
SODIUM METASILICATE	A	A	A	A	B	-	A	A	A	A	B	A/72	-	A	B	-	-	A	A	A
SODIUM NITRATE	A	C	B	A	B	B	A	A	A	A	A	A	A	A	A	A/72	A	A	A/120	A
SODIUM PERBORATE	B	B	B	A	B	B	A	A	A	B	D	B	-	A	B	B/71	A/70	A	A/120	A
SODIUM PEROXIDE	B	B	B	A	D	B	A	A	B	B	B	A	A	B	D	A/72	A	B	B/120	A
SODIUM PHOSPHATE	A	B	A	A	A	C	A	A	A	A	D	B	A	B	A	A/70	-	A	-	A
SODIUM POLYPHOSPHATE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
(MONO, DI, TRIBASIC)	A	B	B	A	–	B	A	A	A	A	D	D	-	B	A	A/72	A	A	A/72	A
SODIUM SILICATE	A	A	A	A	B	B	A	A	A	B	C	B	A	A	C	A/72	A/120	A	A/120	A
SODIUM SULFATE	A	A	A	A	A	B	A	A	A	B	B	A	A	A	B	A	A/120	A	A/120	A
SODIUM SULFIDE	A	A	A	A	A	B	A	A	A	B	D	A	A	A	B	A/72	A/120	A	A/120	A
SODIUM SULFITE	A	-	A	A	A	B	A	A	A	B	A	D	-	A	A	D	-	A	A/120	A
SODIUM TETRABORATE	A	B	A	A	B	B	A	A	A	B	A	B	A	A	A	A	A/120	A	A/120	A
SODIUM THIOSULPHATE ("HYPO")	B	B	A/120	A/120	–	-	A	A	A	B	A	C	A	A	B	B	A/70	A	A/120	A
SORGHUM	A	A	A	-	-	-	-	A	A	A	-	A	-	A	A	A	-	-	-	-
SOY SAUCE	A	A	A	–	–	-	–	A	A	-	A	D	-	A	A	A	-	-	-	-
STANNIC CHLORIDE	A	A	C	A	B	B	A	A	A	B	D	D	A	D	B	B/72	A	A	A/120	A
STANNIC FLUOBORATE	A	-	A	-	-	-	-	A	A	-	D	D	-	A	C	-	-	-	-	-
STANNOUS CHLORIDE	A	-	A	B	C	B	A	A	B	A	D	B	-	A	-	C/72	-	A	A/72	A
STARCH	A	A	A	A	A	B	A	A	A	A	A	C	A/150	A	B	A/72	B	A	A	-
STEAM TO 200°F	C	-	C	A	C	B	D	D	A	-	A	A	A	A	B	D	-	-	-	-
STEAM 220°F-300°F	D	-	D	A	D	C	D	D	B	-	A	A	A	A	D	D	-	-	-	-
STEARIC ACID	B	C	B	B	A	B	A	A	A	A	B	C	A/150	A	A	A/120	A	B/72	B/120	A
STODDARD SOLVENT	A	B	D	D	B	C	A	A	D	A	A	A	A	A	A	A	C/120	A/70	C/72	A
STYRENE	D	D	D	D	C	D	A	B	C	D	A	B	A	A	A	A	-	D	D	A
SUCROSE SOLUTION	A	A	A	A	D	B	A	A	A	A	A	B	-	A	A	A	-	-	-	-
SUGAR (LIQUIDS)	A	A	A	A	D	B	A	A	A	A	A	A	-	A	A	A/72	-	A	-	A
SULFATE LIQUORS	B	-	A	A	D	B	A	A	A	A	B	C	A/73	A	D	B/72	A/120	A	B	A
SULFITE LIQUORS	B	B	A	B/70	-	-	A	A	A	A	D	D	A/73	B	-	-	-	B	-	-
SULFUR	B	B	B	A	B	–	A	A	A	B	A	A	A/250	A	A	A/70	-	A	-	A
SULFUR CHLORIDE	D	D	A	D	C	C/70	A	A	D	A	B	D	A/73	B	D	A/72	C/70	C	C/72	A/70
SULFUR DIOXIDE	D	D	A	A	D	D	A	A	A	B	D	D	A/150	A	D	C/72	A	A	A/72	A
SULFUR HEXAFLUORIDE	B/70	C	B	A	B	B	A	C	B	D	D	D	-	–	D	B	B	-	B	-
SULFUR TRIOXIDE	D	D	A	C	D	D	A	A	D	B	D	D	-	B	D	D	-	D	A	C
SULFUR TRIOXIDE (DRY)	D	D	A	C	D	D	A	A	D	B	D	D	-	B	D	A/72	C/70	D	A	C
SULFURIC ACID (DILUTE)	D	D	C	A	C	A	A	A	A	A	D	D	-	B	D	C	A	A	-	A
SULFURIC ACID (TO 10%)	D	D	D	A	D	A	A	A	A	A	D	D	A/250	C	D	C/72	A/70	A/120	A/72	A
SULFURIC ACID (10%-75%)	D	D	D	C	D	B	A	A	A	B	D	D	A/150	C	D	D	B/70	A/72	A/72	A/150
SULFURIC ACID (CONCENTRATED TO 98%)	D	D	D	C	D	C	A	A	B	A	D	D	A/150	B	D	D	B/70	C/72	D	A/120
SULFURIC ACID (20% OLEUM)	D	D	D	B	D	B	A	A	A	B	C	D	-	B	D	D	-	D	-	D
SULFUROUS ACID	D	D	D	D	D	D	A	D	–	B	D	D	A/250	B	D	D	A	A	A/120	A
SYRUP	A	A	B	A	-	–	-	A	A	-	A	-	-	A	A	-	-	A	-	-

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TALL OIL	A	-	D	D	-	-	A	A	D	A	D	C	-	B	-	-	-	A	-	A
TALLOW	A	B	D	A	A	A	A	A	B	-	A	-	-	A	A	A/72	A	B/70	-	-
TANNIC ACID	A	A	A	A	A	A	A	A	A	B	D	C	A/250	A	D	C/72	A	A	A/72	A
TANNING LIQUORS	A	-	D	B	D	-	A	A	–	A	A	-	A/250	A	D	A/72	A/70	A	A/72	A
TAR, BITUMINOUS	B/70	B	C	D	-	B	A	A	B	A	A	–	A	A	A	B	-	A	-	-
TARTARIC ACID	A	B	A	C	A	B	A	A	A	A	A	D	A/250	A	D	B/120	A/70	A	A/72	A
TERPINEOL	B/70	D	D	C/70	B	-	A	A	B	A	A	A	-	A	-	-	-	D	-	B/120
TERTIARY BUTYL ALCOHOL	B	D	B	B/70	D	-	A	A	B	-	-	-	-	-	A	-	-	B	-	-
TERTIARY BUTYL CATECHOL	D	-	B	B/70	D	-	A	A	B	-	C	B	-	B	A	-	-	-	-	–
TERTIARY BUTYL MERCAPTAN	D	-	D	D	D	-	A	A	B	-	-	-	-	-	B	-	-	-	-	-
TETRA BROMOMETHANE	D	D	D	D	-	-	A	A	D	-	D	-	-	-	-	-	-	D	-	–
TETRABUTYL TITANATE	B/70	-	B	A	-	-	A	A	B	-	-	-	-	-	-	-	-	-	-	-
TETRACHLOROETHYLENE	D	D	D	D	D	-	A	A	D	-	D	A	A/200	A	A	A/72	B	D	D	A/170
TETRACHLOROETHANE	D	-	D	D	D	-	A	A	D	A	C	A	-	A	A	C/72	-	C	C	A
TETRAETHYL LEAD	B	B	C	D	-	B	A	A	C	-	B	A	-	A	-	-	-	A	-	A
TETRAHYDROFURAN	D	D	D	D	D	B	A	D	B	A	-	-	D	A	A	A	C/70	C	D	B/70
TETRALIN	D	D	D	D	-	-	A	A	C	A	A	A	-	A	-	-	-	D	-	-
THIONYL CHLORIDE	–	-	–	–	–	–	–	–	–	A	C	D	A/150	D	B	C	-	B	-	D
TITANIUM TETRACHLORIDE	B	C	D	D	D	-	A	A	D	B	D	A	-	B	-	A/70	-	D	-	B
TOLUENE	D	D	D	D	C	C	A	B	D	A	A	A	A/200	A	A	A/70	D	D	-	A
TOLUENE DIISOCYANATE	D	-	D	A	-	B	A	C	B	-	-	-	-	-	C	-	-	-	-	-
TOLUENE, TOLUOL	D	D	D	D	D	C	A	B	D	A	A	A	A/150	A	A	A/72	C/70	D	D	A
TOMATO JUICE	A	A	A	A	A	–	A	A	A	A	B	-	A/250	A	A	A/72	A/70	A	A	A
TRANSFORMER OIL	A	B	B	D	A	-	A	A	D	A	A	A	A/250	A	A	A/72	-	B/70	B	A
TRANSMISSION FLUID TYPE A	A	-	B	D	A	B	A	A	C	A	A	A	-	A	A	-	-	-	-	-
TRIACETIN	B	-	B	A	D	-	A	D	A	-	B	-	-	-	-	-	-	-	-	-
TRIBUTOXY ETHYL PHOSPHATE	D	-	D	A	D	-	A	B	B	-	-	-	-	-	-	-	-	-	-	-
TRIBUTYL PHOSPHATE	D	D	D	B	D	C	A	D	B	-	A	A	A/73	A	-	-	-	B	-	A
TRIBUTYL MERCAPTAN	D	-	D	D	-	-	A	A	B	-	-	-	-	-	-	-	-	-	-	-
TRICHLOROACETIC ACID	D	D	D	B/70	D	D	A	D	B	B	D	D	A/150	D	D	C	A	B/140	B	A/70
TRICHLORETHANE	D	D	D	D	D	D	A	A	D	A	D	A	-	A	A	C/72	-	D	C	B/150
TRICHLORETHYLENE	D	D	D	D	D	D	A	C	D	B	B	B	A	B	B	C/72	D	C/70	D	A
TRICHLOROPROPANE	A	D	A	-	A	-	A	A	D	A	D	A	-	A	A	-	-	D	–	-
TRICRESYLPHOSPHATE	D	D	C	A	D	C	A	A	B	A	D	A	-	A	C	A/120	B/70	B	D	D
TRIETHYLAMINE	A	D	B	A	D	-	A	A	D	A	-	A	A/150	A	A	A/72	-	C	B	A/120
TRIETHANOL AMINE	C	C	A	A	D	C	A	D	A	A	B	A	A/73	A	A	A/70	A	A/70	-	A
TRIETHYL ALUMINUM	D	-	D	-	-	D	A	B/70	B	-	-	-	-	-	-	-	-	-	-	-
TRIETHYL BORANE	D	-	D	-	-	-	A	A	B	-	-	-	-	-	-	-	-	-	-	-
TRINITROTOLUENE	D	-	B	D	-	-	A	B/70	A	-	-	-	-	-	-	-	-	-	-	-
TRIOCTYL PHOSPHATE	D	-	D	A	-	-	A	B	B	-	-	-	-	-	-	-	-	-	-	-
TRISODIUM PHOSPHATE	A	-	A	A	B	A	A	A	A	A	D	A	A	B	D	A	-	A	A	A
TRIARYL PHOSPHATE	D	D	D	A	B	-	A	A	–	-	-	-	-	-	-	-	-	B	-	A
TUNG OIL	A	D	A	D	B	B	A	A	B	A	A	B	-	A	-	-	-	A	-	A
TURPENTINE	A	B	D	D	D	B	A	A	D	B	A	B	A/200	A	A	B	D	B/120	D	A
UNLEADED GASOLINE	D	D	D	D	–	-	A	A	C	A	A	A	-	A	A	A/120	-	D	C/120	A
URINE	A	-	D	A	-	-	A	A	A	A	B	B	-	A	C	B	-	A	A	A
VARNISH	B/70	-	D	D	D	-	A	A	D	A	A	–	-	A	-	A	-	A	D	A
VINEGAR	B/70	-	B	A	D	C	A	A	A	A	D	C	A	A	B	A	-	A	B	A
VINYL ACETATE	D	-	D	B	D	-	A	A	B	A	B	A	-	A	-	-	-	B/80	D	A
WATER, ACID, MINE	A	-	C	A	D	-	A	A	A	A	D	D	A	A	A	A	-	A	B	A
WATER, DISTILLED, LAB GRADE 7	A	-	B	A	A	-	A	A	A	A	B	D	A	A	A	A/72	-	A	A/120	A
WATER, FRESH	A	-	A	A	A	A	A	B	A	A	A	B	A	A	A	A/72	-	A	B	A

Ratings: A: Minor effect; B: Minor to moderate effect; C: Moderate to severe effect; D: Not recommended; —: Insufficient information.

Wil-Flex is a trademark of Wilden Pump and Engineering, LLC. Saniflex is a trademark of Wilden Pump and Engineering, LLC.
Viton® is a registered trademark of DuPont Dow Elastomers.
The accuracy of these ratings cannot be guaranteed.

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WILDEN
A DOVER COMPANY

CHEMICAL RESISTANCE GUIDE

CHEMICALS	ELASTOMERS									METALS					PLASTICS					
	BUNA-N	GEOLAST®	NEOPRENE	EPDM	POLYURETHANE	SANIFLEX™ TPE	PTFE	VITON®	WIL-FLEX™	ALLOY C	ALUMINUM	CAST IRON	HALAR® ECTFE-COATED	STAINLESS STEEL (316)	ACETAL	NYLON	POLYETHYLENE	POLYPROPYLENE	PVC	PVDF
WATER, SALT	A	B	A	A	A	A	A	A	A	-	D	D	-	C	A	A/120	A	A	A	A
WHITE LIQUOR (PULP MILL)	A	-	A	A	D	-	A	A	A	A	B	C	A/200	A	-	A/72	-	–	A/120	A/72
WINES	A	-	A	A	D	B	A	A	A	A	D	D	A/200	A	A	A/72	B	A	A	A
XYLENE	D	-	D	D	D	B	A	A	D	A	A	A	A/200	A	A	A/120	-	B	D	A
ZINC CHLORIDE	A	-	A	A	B	A	A	A	A	A	D	D	A	C	D	A	-	A	B	A
ZINC SULFATE	A	-	A	A	B	C	A	A	A	A/120	D	D	-	A	C	A	-	A	A/120	A

Ratings: A: Minor effect; B: Minor to moderate effect; C: Moderate to severe effect; D: Not recommended; —: Insufficient information.

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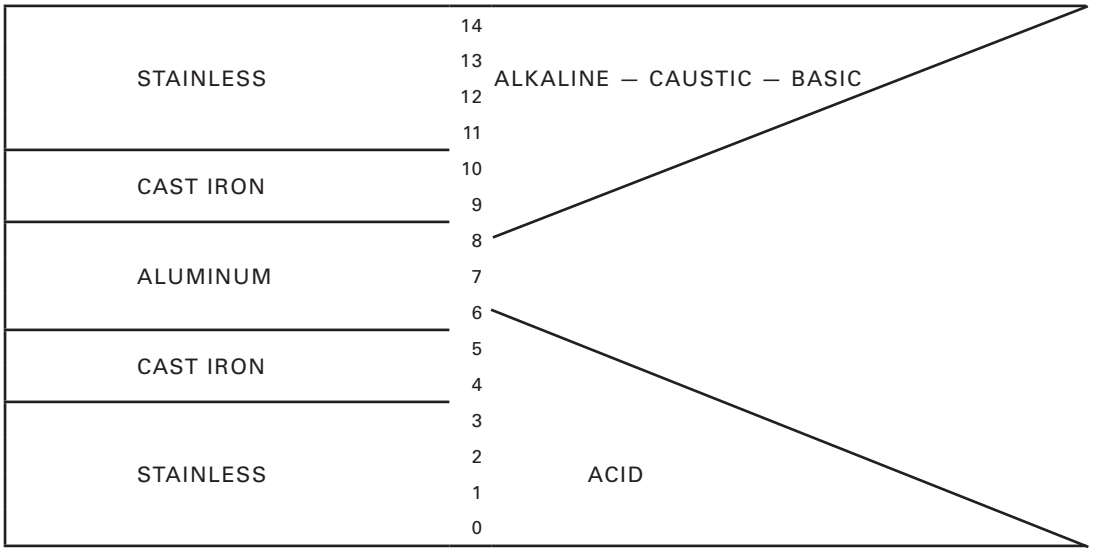
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HALOGENATED SOLVENTS WARNING

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, Carbon Tetrachloride, Chloroform, Dichlorethylene.

- **Determine the pH value:**
- pH is a measure of hydrogen-ion concentration. pH of 7 is neutral — below 7, acid — above 7, alkaline.



ELASTOMER SELECTION GUIDE FOR SOLVENTS

The liquids classified and listed below **cannot** be handled with Neoprene or Buna-N and will require Wil-Flex™, Viton®, EPDM and/or PTFE.

a. **Ketones and Aldehydes**
1. Methyl ethyl ketone
2. Methylacetone
3. Acetone
4. Formaldehyde

→ Wil-Flex™ EPDM/PTFE

b. **Acetates**
1. Ethyl acetate
2. Isopropyl acetate
3. Amyl acetate
4. Butyl acetate

→ Wil-Flex™ EPDM/PTFE

c. **Aromatic Hydrocarbons**
1. Benzene
2. Toluol (toluene)
3. Xylene (xyol)
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. Dichlorethylene

→ Viton®/PTFE

TEMPERATURE LIMITS FOR ELASTOMERS

Wil-Flex™	–40°	to 107° C	(–40° to 225° F)
Neoprene	–18°	to 93° C	(0° to 200° F)
Buna-N	–12°	to 82° C	(10° to 180° F)
EPDM	–51°	to 138° C	(–60° to 280° F)
Viton®	–40°	to 177° C	(–40° to 350° F)
PTFE[1]	4°	to 104° C	(40° to 220° F)
Polyurethane	–12°	to 66° C	(10° to 150° F)
Saniflex™ TPE	–29°	to 104° C	(–20° to 220° F)
Geolast®	–40°	to 82° C	(–40° to 180° F)

TEMPERATURE LIMITS FOR PLASTICS

Polypropylene	0°	to 79° C	(32° to 175° F)
Polyethylene	0°	to 70° C	(32° to 158° F)
PVDF	–12°	to 107° C	(10° to 225° F)
PTFE PFA[2]	–29°	to 107° C	(–20° to 225° F)
Acetal	–29°	to 82° C	(–20° to 180° F)
Nylon	–18°	to 93° C	(0° to 200° F)

[1] 4° to 149° C (40° to 300° F) - 13 mm (1/2") and 25 mm (1") models only.

[2] –29° to 149° C (–20° to 300° F) - Ultrapure II and III models only.

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

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RUBBER COMPOUNDS

Listed below are the various rubber compounds manufactured for use as elastomers in Wilden 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	–18° to 93° 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° to 82° 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° to 138° C –60° to 280° F	Excellent for use in applications requiring extremely cold temperatures. May also be used as a low cost alternative when pumping dilute acids or caustics.
Viton®	Silver	VT	–40° to 177° 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. PTFE 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 PTFE, 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 Wilden 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
Polyurethane	Clear	–12° to 66° C 10° to 150° F	An excellent general purpose diaphragm for use in non-aggressive applications. This material exhibits exceptional flex life and durability. Wilden's least expensive diaphragm.
Wil-Flex™	Orange	–40° to 107° C –40° to 225° F	Excellent choice as a low cost alternative to PTFE in many acidic and caustic applications such as sodium hydroxide, sulfuric or hydrochloric acids. Exhibits excellent abrasion resistance and durability at a cost comparable to neoprene.
Saniflex™	Cream	–29° to 104° C –20° to 220° F	Exhibits excellent abrasion resistance, flex life and durability. This material is FDA approved for food processing applications. An outstanding general purpose diaphragm as well.
Geolast®	Black	–40° to 82° C –40° to 180° F	Excellent choice for applications requiring high oil resistance that meets or exceeds that of nitrile (Buna-N). This material exhibits exceptional performance for a variety of fluids.

PTFE COMPOUNDS

PTFE is one of the most chemically inert compounds available. PTFE diaphragms require an elastomeric back-up diaphragm to provide support and to aid sealing of the PTFE primary diaphragm.

Wilden offers two PTFE diaphragm configurations. The full-stroke PTFE configuration uses the same shafts and hardware as the corresponding rubber and TPE diaphragms in each size. The resulting diaphragms offer flow rates and suction capabilities equivalent to that provided by rubber or TPE diaphragms. These diaphragms are not recommended for fluids containing hard solid particles due to their shape and longer stroke. Particulates can become lodged between the pump housing and the diaphragm, potentially leading to abrasion, perforation and premature failure.

Wilden was the first air-operated double-diaphragm pump manufacturer to offer PTFE diaphragms. Wilden continues to offer this original PTFE diaphragm which features a reduced stroke and reduced displacement to minimize abrasive contact with the pump housing and provide long flex life. This design is ideal for pumping fluids that contain small solids such as those found in waste streams. This diaphragm configuration uses a smaller diameter outer piston and a shorter length shaft than those used for rubber and TPE diaphragms in each size, resulting lower flow rates and suction lift capabilities.

COMPOUND	COLOR CODE	TEMPERATURE LIMITS	SUITABLE APPLICATIONS
PTFE	White	–4° to 104° C 40° to 220° F	Excellent choice when pumping highly aggressive fluids such as aromatic or chlorinated hydrocarbons, acids, caustics, ketones and acetates. Exhibits good flex life compared to a standard rubber diaphragm.

PSG® Brands

ABAQUE®
PERISTALTIC PUMPS
mouvex.com

ALMATEC®
AIR-OPERATED
DOUBLE-DIAPHRAGM PUMPS
almatec.de

AUTOMATIK
PELLETIZING SYSTEMS
maag.com

BLACKMER®
VANE PUMPS & COMPRESSORS
blackmer.com

FLUID DYNAMICS™
POLYMER BLENDING SYSTEMS
fluiddynamics1.com

GRISWOLD™
CENTRIFUGAL PUMPS
griswoldpump.com

MAAG
FILTRATION
PLASTIC MANUFACTURING &
PROCESSING FILTRATION
maag.com

MAAG
INDUSTRIAL PUMPS
GEAR & SCREW PUMPS
maag.com

MAAG
PUMP SYSTEMS
EXTRUSION PUMPS & SYSTEMS
maag.com

MOUVEX®
ECCENTRIC DISC PUMPS,
VANE PUMPS &
COMPRESSORS
mouvex.com

NEPTUNE™
DIAPHRAGM (METERING) PUMPS,
POLYMER SYSTEMS & MIXERS
neptune1.com

QUATTROFLOW™
QUATERNARY DIAPHRAGM
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quattroflow.com

REDSCREW™
SCREW PUMPS
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