SECTION 4

PROCESS INFORMATION

Attachment 4-5
Example Chemical Resistance Guide

MIXED WASTE FACILITY
RCRA/TSCA PERMIT APPLICATION

PERMA-FIX NORTHWEST RICHLAND, INC.

RICHLAND, WASHINGTON

CHEMICAL RESISTANCE GUIDE

The chemical resistance data provided here on the following pages has been assembled from a wide variety of sources in our industry. This information is based on practical field experience and actual laboratory testing conducted by the manufacturers of various plastic resins and finished products. Keep in mind that this information should only be used as a guideline for recommendations and not a guarantee of chemical resistance. Some performance variations may be noticed between homopolymers and copolymers as well as emulsion and suspension type resins of the same general type. In addition, actual service conditions including temperature, concentration, and contaminant's will affect variances in chemical resistance.

In assembling the chemical resistance data presented here, several sources were checked. When conflicts were uncovered, we took a conservative approach and used the lower of two or more ratings. In addition, special consideration was given to the material as supplied by a particular vendor; i.e., our polyethylene ratings are based on information provided by tank manufacturers rather than pipe suppliers. This was done primarily because of the volume of tanks supplied as compared to polyethylene pipe.

In an attempt to make the recommendations more meaningful, we have given the maximum recommended use temperature for each plastic and elastomer in the specific chemicals listed. Lacking complete data in many cases we did leave those in question as blanks. Where a material is unsuitable for a specific chemical an "X" is used.

Metals are listed as:

A = Excellent
B = Good, minor effect
C = Fair, needs further tests
X = Unsuitable

To the best of our knowledge, the information contained in this publication is accurate. However, we do not assume any liability whatsoever for the accuracy or completeness of such information. Moreover, there is a need to reduce human exposure to many materials to the lowest physical limits in view of possible long term adverse effects. To the extent that any hazards may have been mentioned in this publication, we neither suggest nor guarantee that such hazards are the only ones which exist. Final determination of the suitability of any information or product for the use contemplated by any user, the manner of that use and whether there is any infringement of patents, is the sole responsibility of the user. We recommend that anyone intending to rely on any recommendation or use any equipment, processing technique, or material mentioned in this publication should satisfy themselves as to such suitability, and that they meet all applicable safety and health standards. We strongly recommend the user seek and adhere to manufacturers' or suppliers' current instructions for handling each material they use.

USE OF THE CHEMICAL RESISTANCE TABLES

The aggressive agents are classified alphabetically according to their most common designation. Further descriptions include trivial or common names as trade names.

If several concentrations are given for a particular material, the physical data, in general, relates to the pure product that is 100% concentration.

In listing the maximum use temperature for each plastic type in a given chemical, it can in general be assumed that the resistance will be no worse at lower temperatures.

HOW TO SELECT THE CORRECT MATERIAL:

1. Locate the specific chemical in the system or found in the surrounding atmosphere using the alphabetical chart of chemicals.

2. Select the material with a maximum use temperature that matches or exceeds the need. The Harrington philosophy has always been to suggest the least costly material that will do the job.

3. Where a material or elastomer appears to be marginal compared to the requirements, we encourage a call to our technical service group.

EXAMPLES:

1. Methylene chloride: in the tables PVDF, Halar, or Teflon are the only materials suitable. Carbon steel works well for chlorinated hydrocarbons of this sort and that would be our choice unless there was another reason to justify the higher cost of the PVDF, Teflon or Halar.

2. Sodium hypochlorite, 15% at 100°F, PVC is good to 140°F and is the least expensive of the materials available.

3. For nitric acid 40% ambient temperature, the tables recommend either CPVC or polypropylene at 73°F. In most cases CPVC will be the economical choice. Note that PVDF is rated for higher temperature use.

NOTE: The ratings shown for carbon and ceramic pump seals are approximate. Please contact your local Harrington service center for a recommendation on your specific application.

CHEMICAL RESISTANCE GUIDE

CHEMICAL	FORMULAS	APPROX. SP.GRAVITY @ 100% CONC.	PLASTIC: PVC	PLASTIC: CPVC	PLASTIC: POLYPROPYLENE (PP)	PLASTIC: POLYVINYLIDENE FLUORIDE (PVDF)	PLASTIC: POLYETHYLENE (PE)	PLASTIC: POLYETHYLENE-CROSS LINKED (XLPE)	PLASTIC: DURAPLUS ABS	PLASTIC: RYTON	PLASTIC: HALAR	PLASTIC: PEEK	PLASTIC: TEFLON	ELASTOMER: EPOXY	ELASTOMER: VINYLESTER	ELASTOMER: POLYSULFONE	SEAL: VITON	SEAL: EPDM	SEAL: NEOPRENE	SEAL: BUNA N (NITRILE)	SEAL: CARBON	METAL: CERAMIC	METAL: 304 STAINLESS STEEL	METAL: 316 STAINLESS STEEL	METAL: TITANIUM	METAL: HASTELLOY C
Acetaldehyde	CH_3CHO	-	-	X	X	100	120	X	X	X	200	-	-	350	150	X	X	100	200	X	X	A	A	A	A	A	A
Acetaldehyde, Aqueous	-	40	-	X	X	100	120	X	X	-	200	-	-	350	150	X	X	100	200	X	X	A	A	A	A	A	A
Acetamide	CH_3CONH_2	-	-	-	-	100	73	150	-	-	-	-	-	-	-	-	-	200	200	X	100	-	A	B	A	-	-
Acetate Solvents, Crude	-	-	-	X	X	-	78	-	-	X	-	-	-	350	-	-	-	X	X	X	X	A	A	B	A	-	B
Acetate Solvents, Pure	-	-	-	X	X	-	X	-	-	X	-	-	-	350	-	-	-	X	X	X	X	-	-	B	A	-	-
Acetic Acid*	CH_3COOH	5	-	140	140	200	140	X	140	68	200	250	-	350	150	200	-	X	200	100	-	-	-	A	A	A	A
Acetic Acid*	CH_3COOH	10	-	140	140	200	140	X	140	68	200	250	-	350	150	200	-	180	200	X	X	-	-	A	A	A	A
Acetic Acid*	CH_3COOH	20	-	140	140	200	140	X	140	X	200	250	-	350	X	200	-	180	200	X	X	-	-	A	A	A	A
Acetic Acid*	CH_3COOH	30	-	140	140	200	140	X	140	X	200	250	-	350	-	100	-	180	200	-	-	-	-	A	A	A	A
Acetic Acid*	CH_3COOH	50	-	100	100	200	100	X	140	X	200	250	-	350	X	100	-	180	200	X	X	-	-	A	A	A	A
Acetic Acid*	CH_3COOH	60	-	73	73	150	100	X	140	X	200	-	-	350	X	X	-	180	100	X	X	-	-	A	A	A	A
Acetic Acid*	CH_3COOH	80	-	X	X	140	73	X	70	X	200	212	-	350	X	X	-	180	100	X	X	-	-	A	A	A	A
Acetic Acid*, Glacial	CH_3COOH	100	1.0	110	110	180	180	X	70	X	200	212	300	350	X	X	-	X	73	X	X	A	A	A	A	A	A
Acetic Anhydride	$(CH_3CO)_2O$	-	5	X	X	73	90	X	X	X	200	73	-	-	X	X	-	X	200	X	X	A	A	-	-	-	-
Acetic Ether (See Ethyl Acetate)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Acetol (Hydroxy 2 Propanone)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	A	A	A	A	A
Acetone	CH_3COCH_3	-	-	X	X	-	-	-	-	-	200	150	-	-	-	-	-	-	-	-	-	-	-	A	A	A	A
Acetonitrile (Methyl Cyanide)	CH_3CN	-	-	X	X	X	150	X	X	X	200	212	-	400	X	X	-	X	-	X	X	-	-	A	A	A	A
Acetophenone	$C_6H_5COCH_3$	-	0.8	X	X	150	200	-	-	X	200	121	-	400	120	X	-	X	-	-	X	-	-	A	A	-	B
Acetyl Acetone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Acetyl Benzene	$C_6H_5COCH_3$	-	-	X	X	73	73	-	-	X	-	-	-	-	X	X	-	X	-	X	X	-	-	-	A	-	-
Acetyl Bromide	-	-	1.0	X	X	-	-	-	-	X	-	-	-	-	X	X	-	X	-	X	X	-	-	-	A	-	-
Acetyl Chloride (dry)	$C_6H_5COCH_3$	-	3	-	-	-	100	X	X	X	200	150	-	-	X	X	-	-	X	-	-	-	-	-	A	-	-
Acetyl Oxide	CH_3COBr	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Acetyl Propane	CH_3COCL	-	-	X	X	130	100	-	-	X	-	-	-	200	-	-	-	X	-	X	X	-	-	A	A	-	-
Acetylene	$(CH_3CO)_2O$	-	-	100	100	-	200	-	-	-	200	150	-	-	-	-	-	-	-	-	-	A	A	-	A	-	B
Acetylene Dichloride	CLHC:CHLC	-	-	X	X	-	X	-	-	X	-	-	-	300	-	-	-	150	-	-		-	-	-		-	-
Acetylene Tetrachloride	$(CHCL_2)_2$	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Acid Mine Water	-	-	-	100	150	150	250	-	-	-	200	-	-	350	-	-	-	-	-	-	-	-	-	-	-	-	-
Acrylic Acid	$CH_2CHCOOH$	-	-	X	X	X	100	X	X	X	-	212	-	170	X	X	-	-	-	-	-	-	-	-	-	-	-
Acrylic Emulsions*	-	-	-	-	-	-	-	X	70	-	-	-	-	-	-	-	-	X	X	X	X	-	-	A	-	-	A
Acrylonitrile	H_2CCHCN	-	-	X	X	73	100	140	140	X	-	73	-	350	100	X	-	250	200	160	180	A	A	B	-	-	B
Adipic Acid Aqueous	-	-	-	140	180	100	250	140	140	-	-	150	-	350	-	-	-	-	-	-	-	-	-	A	A	A	A
Alcohol (See Ethyl Alcohol)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Alcohol, Allyl	-	-	-	80	80	140	200	100	140	X	-	-	-	250	200	100	-	200	70	100	180	-	-	A	-	-	A
Alcohol, Amyl	$C_5H_{11}OH$	-	-	100	100	170	250	140	140	X	200	250	-	400	200	100	-	190	200	140	140	-	-	A	-	-	A
Alcohol, Benzyl	$C_6H_5CH_2OH$	-	-	X	X	140	180	-	-	X	-	250	-	-	-	-	-	140	X	140	X	-	-	A	-	-	A
Alcohol, Butyl	-	-	-	140	180	180	240	140	140	X	200	250	-	250	200	100	-	100	180	140	140	-	-	A	-	-	A
Alcohol, Diacetone	-	-	-	X	-	73	73	-	-	X	-	150	-	350	-	-	-	X	70	X	-	-	-	A	-	-	A
Alcohol, Ether	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Alcohol, Ethyl	C_2H_5OH	-	-	140	*	180	750	140	140	X	-	250	-	300	180	-	-	170	170	170	200	A	A	A	-	-	A
Alcohol, Hexyl	-	-	-	100	70	70	-	-	-	X	-	73	-	-	-	-	-	160	X	70	70	A	A	A	-	-	A
Alcohol, Isobutyl	$(CH_3)_2CHCH_2OH$	-	-	-	-	-	250	-	-	X	-	-	-	300	180	100	-	140	140	70	70	A	A	A	-	-	A
Alcohol, Isopropyl	$(CH_3)_2CHOH$	-	-	140	*	150	230	140	140	X	-	250	-	300	180	100	-	200	140	70	200	A	A	A	-	-	-
Alcohol, Methyl	CH_3OH	-	-	140	150	150	230	140	140	X	-	250	-	300	150	-	-	100	100	140	140	A	A	A	-	-	A
Alcohol, Octyl	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	A	A	-	-	-	-
Alcohol, Polyvinyl	-	-	-	140	180	180	250	-	-	68	-	-	-	280	150	100	-	210	100	-	-	A	A	A	-	-	-
Alcohol, Propargyl	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	A	A	-	-	-	-
Alkanes	-	-	-	140	100	100	250	-	-	-	-	-	-	300	-	-	-	210	X	X	X	-	-	A	-	-	-
Alkazene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Allyl Aldehyde	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Allyl Bromide	C_3H_5Br	-	-	X	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Allyl Chloride	C_3H_5CL	-	-	X	X	100	200	100	-	X	-	250	-	350	-	-	-	100	X	X	X	-	-	A	-	-	-
Alum (See Aluminum Sulfate)	$AL_2(SO_4)_3$		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

CHEMICAL RESISTANCE

CHEMICAL RESISTANCE GUIDE

CHEMICAL	FORMULAS	APPROX. SP.GRAVITY @ 100% CONC.	PLASTIC										ELASTOMER			SEAL			METAL					
			PVC	CPVC	POLYPROPYLENE (PP)	POLYVINYLIDENE FLUORIDE (PVDF)	POLYETHYLENE (PE)	POLYETHYLENE-CROSS LINKED (XLPE)	DURAPLUS ABS	RYTON	HALAR	PEEK	TEFLON	EPOXY	VINYLESTER	POLYSULFONE	VITON	EPDM	NEOPRENE	BUNA N (NITRILE)	CARBON	CERAMIC	304 STAINLESS STEEL	316 STAINLESS STEEL	TITANIUM	HASTELLOY C
Alum, Ammonium	-	-	140	140	200	220	140	140	176	200	250	-	400	270	200	-	180	-	X	180	-	-	-	-	-	-
Alum, Chrome	-	-	120	160	180	250	140	140	176	-	150	-	-	270	200	-	180	140	80	180	-	-	B	-	-	-
Alum, Potassium	$ALK(SO_4)_2$	-	140	140	180	280	140	140	176	200	250	-	400	270	200	-	180	200	80	180	-	-	A	-	-	-
Aluminum, Acetate	-	-	100	100	100	250	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aluminum,	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ammonium Sulfate	-	-	-	-	200	220	-	-	176	-	250	-	-	-	-	-	80	-	140	140	-	-	-	-	-	-
Aluminum, Bromide	$ALBr_3$	-	-	-	-	250	-	-	176	-	-	-	-	-	-	-	180	-	-	140	-	-	-	-	-	-
Aluminum, Chloride	$ALCL_3$	-	140	170	170	140	140	140	176	200	250	-	210	-	200	-	180	210	200	200	A	A	C	-	-	-
Aluminum, Citrate	-	-	-	-	-	-	140	140	-	-	-	-	-	180	180	-	-	-	-	-	-	-	-	-	-	-
Aluminum, Fluoride	ALF_3	-	140	160	200	280	160	-	176	-	250	-	-	-	-	-	180	-	200	200	-	-	-	-	-	-
Aluminum, Formate	$AL(HCOO)_3$	-	140	180	180	250	-	-	-	-	-	-	280	-	-	-	250	210	160	180	-	-	B	-	-	-
Aluminum, Hydroxide	$AL(OH)_3$	-	140	180	180	250	-	-	176	-	250	-	250	-	-	-	180	150	160	180	-	-	-	A	B	-
Aluminum, Nitrate	$AL(NO_3)_3$	-	140	180	180	200	140	140	176	-	250	-	210	250	180	-	200	200	200	200	A	A	-	-	-	-
Aluminum, Phosphate	$ALPO_4$	-	-	-	-	-	140	140	176	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aluminum, Potassium Sulfate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
(Known as Potash Alum)	-	-	140	140	180	280	140	140	176	-	250	-	400	270	200	-	-	200	150	180	-	-	-	-	-	-
Aluminum, Salts	-	-	-	-	-	-	140	140	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aluminum, Sulfate	$AL_2(SO_4)_3$	10	140	180	180	280	-	-	176	-	250	-	250	270	300	-	-	210	160	200	A	A	-	-	A	A
Amines	-	15	-	-	-	-	-	-	176	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ammonia	NH_3	25	140	180	180	210	-	-	176	200	-	-	250	-	-	-	70	-	-	140	-	-	-	-	-	-
Ammonia	NH_3	99	140	180	180	210	-	-	176	200	-	-	250	-	-	-	-	-	-	-	-	-	-	-	-	-
Ammonia, Gas	NH_3	-	X	X	100	180	-	-	-	200	-	-	250	-	-	-	X	120	-	180	-	-	A	A	-	A
Ammonia, Anhydrous	-	-	X	X	180	250	160	-	-	200	-	-	400	X	-	-	-	-	200	180	C	A	-	-	-	-
Ammonium Hydroxide	NH_4OH	-	140	X	180	250	150	-	176	-	300	200	400	150	100	-	X	200	80	X	-	-	-	A	-	A
Ammonium, Nitrate	NH_4NO_3	-	140	190	180	250	140	140	176	200	250	-	350	230	200	-	X	200	160	180	-	-	-	-	-	-
Ammonium Phosphate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Monobasic		-	140	180	180	250	140	140	176	200	250	-	250	200	150	-	180	120	140	100	-	-	A	-	-	A
Tribasic	-	-	140	180	180	250	140	140	-	-	-	-	250	200	150	-	180	200	140	100	-	-	A	-	-	A
Ammonium, Acetate	-	-	140	180	180	-	-	-	-	-	150	-	350	-	-	-	X	140	X	-	-	-	B	-	-	-
Ammonium, Alum (See Aluminum Ammonium Sulfate)		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ammonium, Bichromate	$(NH_4)_2Cr_2O_7$	-	73	-	-	250	-	-	-	-	-	-	-	-	-	-	70	100	100	100	-	-	-	-	-	-
Ammonium, Bifluoride	NH_4HF_2	-	140	180	180	250	-	-	-	-	250	-	300	-	-	-	140	-	X	80	-	-	A	-	-	-
Ammonium, Bisulfide	NH_4HS	-	140	180	-	250	-	-	-	-	250	-	300	-	-	-	-	-	-	180	-	-	-	-	-	-
Ammonium, Carbonate	NH_4HCO_3	-	140	180	200	250	140	140	68	-	250	-	250	180	100	-	200	200	200	200	-	-	A	-	-	-
Ammonium, Casenite	-	-	-	-	-	-	140	140	-	-	-	-	-	180	100	-	-	-	-	-	-	-	-	-	-	-
Ammonium, Chloride	NH_4CL	-	140	180	180	250	140	140	176	-	250	-	250	270	200	-	220	-	200	180	A	A	B	-	-	-
Ammonium, Dichromate	$(NH_4)_2Cr_2O_7$	-	73	-	-	250	-	-	-	-	73	-	-	-	-	-	70	100	100	100	-	-	-	-	-	-
Ammonium, Fluoride	NH_4F	10	100	-	180	250	-	-	176	-	250	-	-	-	-	-	140	-	200	100	-	-	-	-	-	-
Ammonium, Fluoride	NH_4F	20	100	-	180	250	-	-	176	-	-	-	-	-	150	-	140	-	-	100	-	-	-	-	-	-
Ammonium, Fluoride	NH_4F	25	X	-	-	-	-	-	176	-	250	-	-	-	-	-	140	-	200	100	-	-	-	-	-	-
Ammonium, Fluoride	NH_4F	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ammonium, Hydroxide	NH_4OH	-	140	X	180	250	150	-	176	-	300	-	400	150	100	-	X	200	80	X	A	A	A	-	-	A
Ammonium,	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Metaphosphate	-	-	140	180	-	-	140	140	-	-	250	-	-	200	150	-	180	-	200	200	-	-	-	-	-	-
Ammonium, Nitrate	NH_4NO_3	-	140	180	180	160	140	140	176	-	400	-	250	230	200	-	180	-	200	180	A	A	A	-	-	-
Ammonium, Oxalate	$(NH_4)_2C_2O_4$	-	-	-	-	-	140	140	-	-	-	-	-	-	-	-	-	-	-	-	A	-	-	-	-	-
Ammonium, Persulfate	$(NH_4)_2S_2O_8$	-	140	150	180	200	140	140	176	-	150	-	-	-	180	73	76	-	200	200	-	-	X	A	-	-
Ammonium, Phosphate	$NH_4H_2PO_4$	-	140	180	180	250	140	140	176	-	250	-	250	200	150	-	180	-	200	200	A	A	A	-	-	-
Dibasic	$(NH_4)_2HPO_4$	-	140	180	180	250	140	140	-	-	-	-	300	-	200	150	180	210	100	100	A	A	A	-	-	-
Monobasic	$NH_4H_2PO_4$	-	140	180	180	250	140	140	-	-	-	-	-	350	200	150	190	210	100	100	A	A	A	-	-	A
Tribasic	-	-	140	180	180	250	140	140	-	-	-	-	-	200	150	-	190	210	100	100	A	A	A	-	-	A
Ammonium, Salts	-	-	1.8	140	180	180	250	140	140	-	-	-	-	350	200	150	-	180	210	160	180	A	A	B	-	-	-
Ammonium, Sulfate	$(NH_4)_2SO_4$	-	1.8	140	180	180	250	140	140	176	200	250	-	-	350	200	150	180	210	160	140	A	A	B	-	-	A
Ammonium, Sulfide	$(NH_4)_2S$	-	1.3	140	180	180	250	140	140	-	-	250	-	-	350	200	150	-	210	160	140	-	-	B	-	-	-

CHEMICAL RESISTANCE GUIDE

CHEMICAL	FORMULAS	APPROX. SP.GRAVITY @ 100% CONC.	PLASTIC: PVC	CPVC	POLYPROPYLENE (PP)	POLYVINYLIDENE FLUORIDE (PVDF)	POLYETHYLENE (PE)	POLYETHYLENE-CROSS LINKED (XLPE)	DURAPLUS ABS	RYTON	HALAR	PEEK	ELASTOMER: TEFLON	EPOXY	VINYLESTER	POLYSULFONE	VITON	EPDM	NEOPRENE	BUNA N (NITRILE)	SEAL: CARBON	METAL: CERAMIC	304 STAINLESS STEEL	316 STAINLESS STEEL	TITANIUM	HASTELLOY C
Ammonium, Thiocyanate	NH_4SCN	-	1.3	140	180	-	280	140	140	176	-	-	-	-	300	150	100	200	180	140	150	-	-	A	-	-	A
Ammonium, Thiosulfate	$(NH_4)_2S_2O_3$	-	0.86	140	180	-	250	140	140	-	-	-	-	-	300	150	100	200	180	140	150	A	A	A	-	-	-
Amyl, Acetate	$CH_3COOC_5H_{11}$	-	0.86	X	X	X	180	X	X	X	200	150	-	400	140	100	X	X	70	X	X	A	A	A	A	A	A
Amyl, Alcohol (See Alcohol Amyl)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Amyl Bromate	-	-	-	-	-	-	-	-	-	X	-	-	-	-	250	-	-	X	X	-	70	-	-	-	-	-	-
Amyl Bromide	-	-	0.8	-	-	-	250	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Amyl Chloride	-	-	1.02	X	X	X	240	X	X	X	-	250	-	-	100	100	X	68	X	X	X	A	A	B	B	-	-
Aniline	$C_6H_5NH_2$	-	1.02	X	X	100	200	X	70	X	200	121	-	400	250	X	X	140	70	X	X	A	A	A	-	-	-
Aniline Chlorohydrate	-	-	-	X	X	-	140	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aniline Hydrochloride	$C_6H_5NH_2HCL$	20	-	X	X	100	140	-	-	-	-	-	-	400	X	140	-	180	-	-	-	-	-	X	X	A	X
Anisole	$C_2H_5OCH_3$	-	1	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Anthraquinone Sulfonic Acid	-	-	-	100	180	X	240	100	-	X	-	150	-	400	-	-	-	180	-	-	-	-	-	-	-	-	-
Anti-Freeze (See Ethylene Glycol)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Antichlor	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Antimony Chloride (See	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Antimony Trichloride)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Antimony Pentachloride	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	150	-	-	-	-	-	-	-	-	-	-
Antimony Trichloride	$SbCL_3$	-	-	140	180	180	100	140	140	-	-	-	-	-	250	200	-	190	140	140	140	-	-	X	X	-	-
Aqua Ammonia (see Ammonia Hydroxide)		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aqua Regia	80% HCL /20% HNO_3	-	-	X	X	X	200	X	X	X	X	250	-	380	X	X	150	140	X	X	X	-	X	X	-	-	C
Aroclor 1248	-	-	-	-	-	X	-	X	-	-	-	-	-	300	-	-	-	-	-	-	-	A	-	-	-	-	-
Aromatic Hydrocarbons	-	-	-	X	X	68	40	-	-	X	-	-	-	-	250	-	-	180	X	X	X	A	-	-	-	-	-
Arsenic Acid	H_3AsO_4	80	-	100	180	140	210	140	140	-	-	250	-	-	250	180	-	210	150	160	160	A	A	A	A	-	A
Aryl Sufonic Acid	-	-	-	X	X	X	X	-	-	X	-	-	-	-	-	-	180	-	-	-	-	-	-	-	-	-	-
Asphalt	-	-	-	X	X	140	250	-	-	X	200	-	-	-	250	-	-	180	X	X	70	-	A	A	-	-	-
Aviation Fuel	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	250	-	160	X	X	150	-	-	-	-	-	-
Aviation Turbine Fuel	-	-	-	-	-	-	-	-	-	X	-	-	-	250	180	50	180	-	-	-	-	-	-	-	-	-	-
Baking Soda (See	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium Bicarbonate)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Barium Acetate	-	-	-	-	-	-	-	140	140	-	-	-	-	-	-	180	150	-	-	-	-	-	-	-	-	-	-
Barium Carbonate	$BACO_3$	-	4.3	140	180	180	250	140	140	176	-	250	-	400	240	200	200	250	250	160	200	-	-	B	-	-	-
Barium Chloride	$BaCL_2$	-	3.1	140	180	180	250	140	140	176	200	250	-	400	-	200	200	300	250	160	200	-	-	B	-	-	-
Barium Cyanide	$Ba(CN)_2$	-	-	-	-	-	-	140	140	-	200	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Barium Hydrate	$Ba(OH)_2$	-	-	-	-	-	-	140	140	-	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Barium Hydroxide	$Ba(OH)_2$	-	2.2	140	180	180	250	140	140	176	200	250	-	400	-	200	150	200	200	140	200	A	A	A	-	-	-
Barium Nitrate	$Ba(NO_3)_2$	-	-	80	180	140	250	140	140	176	200	73	-	400	250	-	-	300	200	140	200	A	A	A	-	-	-
Barium Salts	-	-	4.4	140	180	180	250	140	140	-	-	-	-	-	250	200	180	250	200	140	200	A	A	A	-	-	-
Barium Sulfate	$BaSO_4$	-	4.3	140	180	180	250	140	140	176	200	-	-	400	-	200	200	200	200	150	200	A	B	A	A	A	A
Barium Sulfide	BaS	-	-	140	180	200	280	150	-	-	-	250	-	400	-	200	180	250	140	150	200	A	A	A	A	-	-
Beer	-	-	-	140	180	180	250	-	-	68	-	250	-	400	-	200	-	200	200	140	200	A	A	A	A	A	A
Beet Sugar Liquid	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	A	A	-	-	-	-
Beet Sugar Liquors	-	-	1.0	100	150	180	230	-	-	-	-	150	-	-	80	180	-	180	-	80	80	-	-	-	-	-	-
Benzaldehyde	C_6H_5CHO	-	5	X	X	73	120	X	X	X	X	122	-	400	X	X	-	-	-	-	-	A	A	A	A	A	A
Benzalkonium Chloride	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzene	C_6H_6	-	0.9	X	X	100	150	X	X	X	200	-	-	350	180	X	-	140	X	X	X	A	A	A	B	A	B
Benzene Sulfonic Acid	$C_6H_5SO_3H$	10	-	100	180	180	100	150	-	X	-	150	-	400	220	200	-	140	-	-	-	-	-	-	-	-	-
Benzene Sulfonic Acid	-	100	-	X	X	X	73	X	-	X	-	-	-	400	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzoic Acid	C_6H_5COOH	-	1.3	180	180	250	250	150	140	-	-	250	-	400	200	200	-	180	-	140	-	-	-	A	B	A	A
Benzol (see Benzene)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzyl Alcohol (see	-	-	1.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Alcohol, Benzyl)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	250	-	-	-	-	-	-	-	-	-
Benzyl Benzoate	-	-	1.1	-	-	-	-	-	-	X	200	-	-	-	-	-	-	100	X	X	X	-	-	B	-	-	B
Benzyl Chloride	$C_6H_5CH_2CL$	-	6.8	-	-	73	250	-	-	X	200	-	-	400	-	73	-	200	X	-	X	-	-	-	-	-	-
Bismuth Carbonate	$(BiO)_2CO_3$	-	-	140	180	180	250	-	-	-	-	73	-	400	-	-	-	180	-	-	-	-	-	-	-	-	-

CHEMICAL RESISTANCE GUIDE

CHEMICAL	FORMULAS	APPROX. SP.GRAVITY @ 100% CONC.	PVC (PLASTIC)	CPVC (PLASTIC)	POLYPROPYLENE (PP) (PLASTIC)	POLYVINYLIDENE FLUORIDE (PVDF) (PLASTIC)	POLYETHYLENE (PE) (PLASTIC)	POLYETHYLENE-CROSS LINKED (XLPE) (PLASTIC)	DURAPLUS ABS (PLASTIC)	RYTON (PLASTIC)	HALAR (PLASTIC)	PEEK (PLASTIC)	TEFLON (PLASTIC)	EPOXY (ELASTOMER)	VINYLESTER (ELASTOMER)	POLYSULFONE (ELASTOMER)	VITON (SEAL)	EPDM (SEAL)	NEOPRENE (SEAL)	BUNA N (NITRILE) (SEAL)	CARBON (METAL)	CERAMIC (METAL)	304 STAINLESS STEEL (METAL)	316 STAINLESS STEEL (METAL)	TITANIUM (METAL)	HASTELLOY C (METAL)
Black Liquor	-	-	-	140	190	140	200	120	-	100	-	250	-	400	200	150	-	180	-	80	180	-	-	-	-	-
Bleach (See Sodium Hypochlorite)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Borax, Sodium Borate	$Na_2B_4O_7$	-	1.4	140	180	180	250	140	140	176	-	250	-	400	250	200	-	180	-	200	180	A	A	A	A	A	-
Boric Acid	H_3BO_3	-	-	140	190	180	250	140	140	176	-	250	-	400	230	200	-	200	210	X	180	A	A	B	-	A	A
Brake Fluid	-	-	-	-	-	-	-	-	-	-	-	-	-	300	-	-	-	X	140	-	X	-	-	-	-	-	A
Brewery Slop	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	150	-	A	A	-	-	-	-
Brine	-	-	-	140	190	180	280	140	140	176	-	-	-	-	270	200	-	300	250	-	180	A	A	A	-	-	-
Bromic Acid	$HBrO_3$	-	-	140	190	140	200	150	-	X	-	250	-	400	150	-	-	70	70	-	-	-	-	-	-	-	A
Bromine Dry	Br_2	-	-	-	-	X	200	X	X	X	-	-	-	-	X	X	-	X	-	-	-	-	-	-	-	-	-
Bromine Gas, Wet	-	-	3.1	-	-	-	-	X	X	X	X	-	-	-	-	-	-	X	-	X	-	X	-	-	-	-	-
Bromine Liquid	-	-	-	X	X	X	140	X	X	X	X	150	-	400	X	-	-	190	X	X	X	-	-	-	-	-	-
Bromine Water	-	-	-	100	X	X	180	X	-	X	X	250	-	X	-	-	-	100	X	X	X	-	-	X	X	A	A
Bromobenzene	C_6H_5Br	-	-	X	X	-	150	-	-	X	-	73	-	-	-	-	-	150	X	-	X	-	-	-	-	-	-
Bromotoluene	$C_6H_5CH_2Br$	-	-	X	X	X	180	-	-	X	-	121	-	-	-	-	-	-	-	140	-	-	-	-	-	-	-
Butadiene Gas	-	-	0.8	140	-	X	250	X	-	-	-	-	-	-	150	-	-	190	X	140	X	-	-	A	-	-	A
Butane	C_4H_{10}	-	-	100	70	70	200	X	-	-	200	250	-	400	100	-	-	180	X	-	140	-	-	A	A	-	B
Butanediol (Butylene glycol)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Butanol (See Alcohol, Butyl)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Butter	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	A	A	-	-
Buttermilk	-	-	-	-	-	-	-	-	-	68	-	-	-	-	-	-	-	-	-	X	-	-	-	A	A	-	-
Butyl Acetate	-	-	0.9	-	-	-	-	X	70	X	-	73	-	-	150	X	-	X	-	-	X	-	-	-	-	-	-
Butyl Acrylate Saturated	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Butylamine	$C_4H_9NH_2$	-	-	X	X	X	X	X	-	X	200	-	-	350	-	-	-	-	-	-	-	-	-	-	-	-	-
Butylbenzene	$C_6H_5C(CH_3)_3$	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Butyl Benzoate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Butyl Bromide	C_4H_9Br	-	-	-	-	-	230	-	-	X	-	-	-	250	-	-	-	100	-	-	-	-	-	-	-	-	-
Butyl Butyrate (Butyl Butanoate)	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	A	-	-	A
Butyl Carbitol	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Butyl Cellosolve (Ethylene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Glycol Monobutyl Ether)	-	-	-	-	-	-	-	-	-	X	-	73	-	-	150	X	-	-	-	-	-	-	-	-	-	-	-
Butyl Chloride (Chlorobutane)	-	-	-	-	-	X	250	-	-	X	-	-	-	350	-	-	100	-	-	-	-	-	-	B	-	-	B
Butyl Ether	$C_4H_9OC_4H_9$	-	-	X	X	X	100	-	-	X	200	-	-	140	-	-	X	X	X	100	-	-	-	-	-	-	-
Butyl Formate	$HCOOC_4H_9$	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Butyl Mercaptan	C_4H_9SH	-	-	-	-	-	230	-	-	X	-	-	-	350	-	-	-	-	-	-	-	-	-	-	A	-	-
Butyl Phenol	-	-	-	X	X	X	210	-	-	X	-	250	-	400	-	-	-	-	-	-	-	-	-	-	-	-	-
Butyl Phthalate	-	-	-	X	X	100	180	-	-	X	200	-	-	200	-	-	X	-	-	X	-	-	-	-	-	-	-
Butyl Stearate	-	-	-	-	-	-	250	-	-	-	-	73	-	250	-	-	190	100	X	100	-	-	-	A	-	-	-
Butylene (Liquified	-	-	-	-	-	X	250	-	-	-	-	-	-	250	-	-	140	X	X	100	-	A	-	A	-	-	-
Petroleum Gas)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Butyraldehyde	-	-	-	-	-	-	-	-	-	X	-	-	-	-	150	-	X	X	X	X	-	-	-	A	-	-	A
Butyric Acid	-	-	-	X	100	180	220	X	-	X	-	250	-	-	200	180	70	X	X	X	-	X	-	B	-	A	A
Cadmium Cyanide	$Cd(CN)_2$	-	-	140	180	-	-	140	140	-	-	150	-	-	-	-	-	-	70	-	-	-	-	-	-	-	-
Cadmium Salts	-	-	-	-	-	-	-	140	140	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caffeine Citrate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Calamine	-	-	3.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Calcium Acetate	-	-	-	140	180	180	250	140	140	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Calcium Bisulfide	$Ca(HS)_2$	-	-	120	160	200	210	140	X	-	-	250	-	400	-	-	180	X	100	140	-	A	A	B	-	A	A
Calcium Bisulfite	$Ca(HSO_3)_2$	-	-	100	140	200	210	-	-	-	-	250	-	210	270	200	180	X	100	100	-	-	A	-	-	-	-
Calcium Carbonate	$CaCO_3$	-	2.7	140	200	200	250	140	-	176	-	250	-	300	-	200	180	140	100	100	-	A	A	A	A	A	A
Calcium Chlorate	$Ca(CLO_3)_2$	-	2.7	140	180	200	250	140	-	176	-	250	-	400	200	200	180	140	73	73	-	A	-	A	A	-	B
Calcium Chloride	$CaCL_2$	-	2.1	140	200	200	250	140	140	176	200	250	-	350	270	200	180	200	150	100	-	A	A	B	B	A	A
Calcium Cyanide	$CaCN_2$	-	-	-	-	-	-	140	140	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Calcium Hydroxide	$Ca(OH)_2$	-	2.3	140	180	210	250	140	-	176	-	250	-	400	100	180	200	180	70	140	-	A	A	A	A	A	A
Calcium Hypochlorite	$Ca(OCL)_2$	-	2.3	140	180	180	200	140	140	100	-	250	-	380	150	200	180	100	X	X	-	A	A	B	-	-	B

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CHEMICAL	FORMULAS	APPROX. SP.GRAVITY @ 100% CONC.	PVC (PLASTIC)	CPVC (PLASTIC)	POLYPROPYLENE (PP) (PLASTIC)	POLYVINYLIDENE FLUORIDE (PVDF) (PLASTIC)	POLYETHYLENE (PE) (PLASTIC)	POLYETHYLENE-CROSS LINKED (XLPE) (PLASTIC)	DURAPLUS ABS (PLASTIC)	RYTON (PLASTIC)	HALAR (PLASTIC)	PEEK (PLASTIC)	TEFLON (ELASTOMER)	EPOXY (ELASTOMER)	VINYLESTER (ELASTOMER)	POLYSULFONE (ELASTOMER)	VITON (SEAL)	EPDM (SEAL)	NEOPRENE (SEAL)	BUNA N (NITRILE) (SEAL)	CARBON (METAL)	CERAMIC (METAL)	304 STAINLESS STEEL (METAL)	316 STAINLESS STEEL (METAL)	TITANIUM (METAL)	HASTELLOY C (METAL)
Calcium Nitrate	$Ca(NO_3)_2$	-	1.82	140	180	180	250	140	140	140	200	250	-	400	250	200	-	210	180	100	180	-	-	A	-	-	-
Calcium Oxide	CaO	-	-	140	180	180	250	140	-	150	-	250	-	400	-	-	-	-	210	160	180	-	-	A	-	-	-
Calcium Phosphate	$CaH_4(PO_4)_2$	-	2.3	-	-	-	-	140	140	-	-	-	-	-	150	-	-	-	-	-	-	-	-	-	-	-	-
Calcium Sulfate	$CaSO_4$	-	2.9	140	180	180	210	140	140	150	200	250	-	400	250	200	-	200	210	150	180	A	A	A	A	A	B
Calcium Sulfide	CaS	-	-	140	140	180	180	140	140	-	-	-	-	400	200	200	-	200	150	100	150	-	-	-	-	-	-
Calcium Thiosulfate	CaS_2O_3	-	1.87	-	-	-	-	140	140	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Calgon (Sodium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hexametaphosphate)	-	-	-	-	-	-	-	140	140	-	-	-	-	-	-	-	-	-	-	-	-	A	A	-	-	-	-
Cane Sugar Liquors	-	-	-	140	180	140	250	140	-	150	-	150	-	350	-	-	-	200	250	150	150	A	A	A	A	-	A
Caprylic Acid (Octanic Acid)	$CH_3(CH_2)_6COOH$	-	-	140	180	150	220	-	-	X	-	150	-	350	X	200	-	-	-	-	-	A	A	-	-	-	-
Carbinol (See Alcohol, Methyl)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Carbolic Acid (see Phenol)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Carbon Bisulfide (see	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Carbon Disulfide)	CS_2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	A
Carbon Dioxide (wet or dry)	CO_2	-	-	140	180	180	250	140	140	90	-	250	-	350	200	200	-	210	170	150	180	-	-	A	A	A	A
Carbon Disulfide	CS_2	-	-	X	X	X	68	X	X	X	200	73	-	400	73	X	-	180	X	X	X	A	B	A	A	-	A
Carbon Monoxide	CO	-	-	140	180	180	250	140	140	140	-	150	-	400	200	200	-	180	-	200	180	A	A	A	A	-	-
Carbon Tetrachloride	CCL_4	-	1.6	X	X	X	140	X	X	X	-	250	-	350	150	-	-	190	X	X	X	A	A	A	C	A	A
Carbonic Acid	H_2CO_3	-	-	140	210	210	250	140	140	-	-	250	-	350	180	140	-	200	210	70	180	A	A	A	A	-	A
Casein	-	-	-	-	-	-	50	-	-	-	-	-	-	250	-	-	-	180	180	-	-	-	-	-	-	-	-
Castor Oil	-	-	0.95	140	*	150	250	140	140	140	-	250	-	350	220	200	-	140	140	100	140	-	-	A	A	-	A
Catsup	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	A	A	-	A
Caustic Lime -Calcium Hydroxide	$Ca(OH)_2$	-	-	140	180	200	250	-	-	176	-	250	-	250	100	180	-	210	210	70	140	A	A	A	-	-	A
Caustic Potash (Potassium	-	-	-	-	-	-	-	-	-	176	-	250	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hydroxide)	KOH	-	2.04	140	180	200	140	-	-	-	-	-	-	200	180	150	-	X	200	150	70	-	-	A	-	-	-
Caustic Soda (Sodium	-	-	-	-	-	-	-	-	-	176	-	250	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hydroxide)	NaOH	-	2.13	140	180	200	100	X	140	-	-	-	-	250	120	100	-	X	200	140	180	-	-	A	-	-	-
Cellosolve (See Butyl Cellosolve)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cetyl Alcohol	$C_{16}H_{33}OH$	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chloral Hydrate (knockout drops)	$CCL_3CH(OH)_2$	-	1.9	140	160	X	200	-	-	-	-	121	-	200	-	-	-	X	-	-	X	-	-	-	C	-	-
Chloroacetic Acid	$CH_2CLCOOH$	X	-	-	X	-	-	X	X	X	-	212	-	300	100	200	-	X	-	X	X	-	-	C	C	-	-
Chloric Acid	$HClO_3$	20	-	140	180	140	-	-	-	-	-	-	-	140	-	-	-	100	-	-	-	-	-	C	X	-	A
Chloric Acid	$HClO_3$	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-
Chlorinated Glue	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chlorine Dioxide	CLO_2	15	-	73	73	X	200	-	-	X	-	150	-	140	X	150	-	140	X	X	X	-	-	-	X	-	-
Chlorine Gas Dry	CL_2	-	-	X	X	X	250	X	X	X	-	212	-	350	X	150	-	140	X	X	X	A	A	-	-	-	-
Chlorine Gas Wet	-	-	-	X	X	X	-	X	X	X	-	212	-	-	X	200	-	140	X	X	X	-	-	A	-	-	A
Chlorine Liquid	-	-	-	X	X	X	200	X	X	X	-	212	-	400	-	-	-	140	-	-	X	-	-	C	-	-	A
Chlorine Water	-	-	-	140	180	-	250	-	-	-	-	212	-	400	-	200	-	180	73	X	X	C	A	-	-	-	-
Chlorosulfonic Acid	$CLSO_2OH$	6	1.77	X	X	X	X	X	X	-	X	73	-	180	-	X	-	X	X	X	X	-	-	X	-	-	-
Chlorox Bleach	$NaOCL:H_2O$	5.5	-	140	140	140	140	140	140	-	-	212	-	350	X	150	-	140	100	73	73	-	-	X	B	X	-
Chocolate Syrup	-	-	-	-	-	100	-	-	-	-	-	-	-	-	-	-	-	100	-	100	-	-	-	-	A	-	B
Chrome Alum (Chr. Potass. Sulf.)	$CrK(SO_4)_2$	-	-	73	73	140	200	140	140	176	-	-	-	210	200	200	-	210	140	160	150	-	-	A	-	-	-
Chromic Acid	H_2CrO_4	5	2.8	140	180	140	250	140	140	X	200	250	-	400	X	200	-	180	73	X	-	X	C	B	A	-	-
Chromic Acid	H_2CrO_4	10	-	140	180	140	250	140	140	X	200	212	-	400	X	100	-	180	73	X	-	X	-	A	-	-	A
Chromic Acid	H_2CrO_4	20	-	140	180	X	250	140	140	X	200	212	-	400	X	100	-	140	73	X	-	X	-	B	B	-	A
Chromic Acid	H_2CrO_4	30	-	100	180	X	200	100	140	X	200	212	-	400	X	X	-	300	-	-	140	X	-	B	-	-	A
Chromic Acid	H_2CrO_4	50	-	X	73	-	180	100	140	X	200	212	-	350	X	X	-	300	-	-	140	X	-	C	B	A	B
Chromium Alum.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Citric Acid	-	-	1.54	140	180	180	240	140	140	176	200	250	-	200	250	200	-	200	200	200	200	-	-	-	-	-	-
Citric Oils	-	-	-	-	-	-	-	-	-	-	200	-	-	-	-	-	-	-	-	-	-	A	A	-	-	-	-
Cobalt Chloride	$CoCL_2$	-	3.35	-	-	100	-	-	-	176	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-
Coconut Oil	-	-	-	-	-	100	250	140	140	-	200	250	-	250	-	-	-	340	-	-	200	-	-	-	-	-	-
Cod Liver Oil	-	-	-	-	-	-	-	-	-	-	200	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

CHEMICAL RESISTANCE GUIDE

CHEMICAL	FORMULAS	APPROX. SP.GRAVITY @ 100% CONC.	PVC (PLASTIC)	CPVC (PLASTIC)	POLYPROPYLENE (PP) (PLASTIC)	POLYVINYLIDENE FLUORIDE (PVDF) (PLASTIC)	POLYETHYLENE (PE) (PLASTIC)	POLYETHYLENE-CROSS LINKED (XLPE) (PLASTIC)	DURAPLUS ABS (PLASTIC)	RYTON (PLASTIC)	HALAR (PLASTIC)	PEEK (PLASTIC)	TEFLON (PLASTIC)	EPOXY (ELASTOMER)	VINYLESTER (ELASTOMER)	POLYSULFONE (ELASTOMER)	VITON (SEAL)	EPDM (SEAL)	NEOPRENE (SEAL)	BUNA N (NITRILE) (SEAL)	CARBON (METAL)	CERAMIC (METAL)	304 STAINLESS STEEL (METAL)	316 STAINLESS STEEL (METAL)	TITANIUM (METAL)	HASTELLOY C (METAL)
Coffee	-	-	-	-	-	-	-	-	-	200	-	-	-	-	-	-	200	140	-	100	A	A	A	A	-	-
Coke Oven Gas	-	-	X	-	-	230	-	-	X	-	250	-	400	-	-	-	180	-	180	X	A	A	A	A	-	-
Cola Concentrates	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	A	A	-	-	-	-
Copper Acetate	$Cu(C_2H_3O_2)_2$	-	73	-	73	250	-	-	-	-	-	-	250	180	180	-	X	150	X	73	-	A	B	A	-	B
Copper Carbonate	$Cu_2(OH)_2CO_3$	-	140	170	180	250	140	-	176	-	150	-	350	-	-	-	190	210	-	-	-	A	A	-	-	-
Copper Chloride	$CuCL_3$	3.4	140	190	180	250	-	-	176	-	300	-	350	250	200	-	200	210	160	180	-	A	C	C	A	A
Copper Cyanide	$Cu(CN)_2$	-	140	190	180	200	140	-	176	-	300	-	300	220	200	-	190	200	160	180	A	A	A	A	B	A
Copper Fluoborate	-	-	100	190	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Copper Fluoride	CuF_2	2.9	140	170	140	250	140	-	176	-	300	-	350	-	-	-	190	210	140	70	-	A	-	-	-	-
Copper Nitrate	$Cu(NO_3)_2$	2.3	140	140	180	210	140	-	176	-	300	-	350	250	200	-	200	210	160	70	-	A	A	-	-	-
Copper Salts	-	-	140	140	180	210	140	140	-	-	-	-	350	220	200	-	210	200	140	140	-	A	-	-	-	-
Copper Sulfate	$CuSO_4$	2.3	140	180	180	210	140	140	176	200	300	-	350	220	200	-	210	200	140	140	-	A	A	-	-	-
Copper Sulfate	$CuSO_4$	5	140	180	180	210	140	140	176	200	300	-	350	220	200	-	210	200	140	140	A	A	A	-	-	-
Corn Oil	-	-	73	180	100	250	-	-	X	-	-	-	400	-	-	-	200	X	200	180	-	A	A	-	-	-
Corn Syrup	-	-	140	73	150	250	-	-	-	-	-	-	400	220	180	-	210	100	100	100	-	A	A	-	-	-
Cottonseed Oil	-	-	140	180	180	250	X	140	X	200	-	-	400	-	-	-	300	X	150	180	-	A	A	-	-	-
Cream	-	-	-	190	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Creosol	$CH_3C_6H_4OH$	1.05	X	-	X	180	X	70	-	200	-	-	400	-	-	-	100	X	X	X	A	A	A	-	-	-
Creosote	-	-	X	X	-	-	-	-	X	-	-	-	400	-	-	-	100	X	X	70	-	-	-	-	-	-
Cresols	-	-	X	X	X	180	-	-	X	200	-	-	400	-	-	-	100	X	X	X	-	-	A	-	-	-
Cresylic Acid	-	-	X	X	X	150	-	-	X	-	150	-	-	X	X	-	200	X	X	X	A	A	A	-	-	-
Croton Aldehyde	$CH_3CHCHCHO$	-	X	X	73	180	-	-	X	-	73	-	210	-	-	-	100	-	-	X	-	-	A	-	-	-
Crude Oil	-	-	140	X	73	250	-	-	-	200	250	-	350	250	200	-	300	X	70	70	-	-	A	-	-	-
Cryolite	Na_3ALF_6	-	140	190	180	250	-	-	-	-	-	-	300	-	-	-	200	100	100	70	-	-	-	-	-	-
Cupric Cyanide (See	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Copper Cyanide)	$Cu(CN)_2$	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cupric Fluoride	CuF_2	-	140	-	180	250	-	-	176	-	-	-	250	250	-	-	200	210	-	-	-	-	-	-	-	-
Cupric Nitrate	$Cu(NO_3)_2$	-	140	170	180	250	140	-	176	-	-	-	-	-	-	-	200	210	160	180	-	A	-	-	-	-
Cupric Salts	-	-	140	170	150	250	-	-	-	-	-	-	-	-	-	-	200	210	-	180	-	A	-	-	-	-
Cupric Sulfate (See	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Copper Sulfate)	$CuSO_4$	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cutting Oil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanic Acid (Isocyanic Acid)	HN=C=O	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	A	A	-	-
Cyclohexane	-	-	X	X	X	210	X	-	X	-	250	-	400	150	120	-	180	X	X	X	A	A	A	A	-	-
Cyclohexanol	C_6H_{12}	0.94	X	X	100	210	140	-	X	-	121	-	400	150	-	-	180	-	-	-	-	-	-	-	-	-
Cyclohexanone	$C_6H_{11}OH$	0.95	X	X	X	100	X	X	X	200	121	-	400	X	100	-	X	X	-	X	-	-	-	-	-	-
Decalin	$C_6H_{10}O$	-	X	X	180	250	-	-	X	-	-	-	-	-	-	-	73	X	X	X	-	-	-	-	-	-
Decanal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Decane	$CH_3(CH_2)_8CH_3$	-	-	-	-	250	-	-	-	-	-	-	250	-	-	-	100	X	X	X	-	-	-	-	-	-
Detergents	-	-	140	180*	180	250	X	140	-	200	250	-	400	180	150	-	210	200	160	180	A	A	-	A	-	-
Detergents, Heavy Duty	-	-	140	180*	150	150	X	140	-	-	250	-	400	180	150	-	180	-	-	180	A	A	-	-	-	-
Developers (Photo)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dextrin, Starch Gum	-	-	140	200	180	250	140	140	176	-	250	-	400	-	-	-	210	200	200	180	-	-	-	A	-	-
Dextrose (Glucose)	-	-	140	200	180	250	140	140	176	-	250	-	400	-	-	-	210	200	70	180	-	-	-	A	-	-
Diacetone Alcohol	-	-	X	X	100	100	-	-	-	-	121	-	350	-	-	-	X	70	X	X	-	-	-	A	-	A
Diallyl Phthalate	-	-	-	-	-	-	-	-	X	-	-	-	-	180	180	-	-	-	-	-	-	-	-	-	-	-
Diazo Salts	-	-	140	190	180	240	140	140	-	-	-	-	350	-	-	-	-	-	-	-	-	-	-	-	-	-
Dibenzyl Ether	-	-	X	X	X	100	-	-	X	-	-	-	-	-	-	-	-	X	X	-	-	-	-	-	-	-
Dibutylamine	$(C_4H_9)_2NH$	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dibutyl Ether	-	-	-	-	-	100	-	-	X	-	73	-	350	-	-	-	X	X	X	68	-	-	-	-	-	-
Dibutyl Phthalate	$C_6H_4(COOC_4H_9)_2$	-	X	X	73	150	-	-	X	-	73	-	350	180	180	-	X	70	X	X	-	-	-	A	-	-
Dibutyl Sebacate	-	-	-	-	-	-	-	-	X	-	212	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-
Dicalcium Phosphate	$CaHPO_4$	-	-	-	-	-	-	-	-	-	-	-	-	150	120	-	-	-	-	-	-	-	-	-	-	-
Dichlorethane (ethylene dichloride)	$ClCH_2CH_2CL$	-	X	X	X	210	X	X	X	-	73	-	400	-	-	-	150	-	X	-	C	A	-	A	-	-

CHEMICAL RESISTANCE GUIDE

CHEMICAL	FORMULAS	APPROX. SP.GRAVITY @ 100% CONC.	PVC	CPVC	POLYPROPYLENE (PP)	POLYVINYLIDENE FLUORIDE (PVDF)	POLYETHYLENE (PE)	POLYETHYLENE-CROSS LINKED (XLPE)	DURAPLUS ABS	RYTON	HALAR	PEEK	TEFLON	EPOXY	VINYLESTER	POLYSULFONE	VITON	EPDM	NEOPRENE	BUNA N (NITRILE)	CARBON	CERAMIC	304 STAINLESS STEEL	316 STAINLESS STEEL	TITANIUM	HASTELLOY C
			PLASTIC											ELASTOMER				SEAL			METAL					
Dichlorobenzene	$C_6H_4CL_2$	-	-	X	X	100	140	-	-	X	-	121	-	350	120	X	-	150	X	X	X	-	-	-	B	-	-
Dichlorethylene	CLHC:CHCL	-	1.25	X	X	X	120	-	-	X	-	73	-	350	-	-	-	190	X	X	X	-	-	-	-	-	-
Dichloroisopropyl (Ether)	-	-	-	X	X	X	100	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dichloromethane	CH_2CL_2	-	-	X	X	X	100	-	-	X	-	-	-	-	-	-	-	-	X	X	X	A	A	-	-	-	-
Diesel Fuel	-	-	-	72	72	100	250	-	70	X	200	250	-	400	250	150	-	190	X	X	100	A	A	-	-	-	-
Diethanolamine	-	-	1.1	X	X	-	-	-	-	104	-	-	-	100	X	X	-	-	-	-	70	-	-	-	-	-	-
Diethyl Cellosolve	-	-	-	-	-	80	280	-	-	X	-	250	-	-	-	-	-	200	X	100	140	-	-	A	-	-	-
Diethylether (Ether)	$(C_2H_5)_2O$	-	-	X	X	100	100	73	-	X	-	73	-	400	100	X	-	X	X	X	X	-	-	-	-	-	-
Diethyl Ketone	$C_2H_5COC_2H_5$	-	-	X	X	-	-	-	-	X	-	-	-	-	-	X	-	X	-	X	200	-	-	-	-	-	-
Diethyl Oxide (Ether)	$(C_2H_5)_2O$	-	-	-	-	-	-	-	-	X	-	73	-	-	-	-	-	X	X	X	X	-	-	-	-	-	-
Diethylamine	$(C_2H_5)_2NH$	-	-	X	X	100	100	-	-	X	-	73	-	400	-	-	-	X	120	X	X	-	-	-	A	-	-
Diethylbenzene	$C_6H_4(C_2H_5)_2$	-	-	X	X	X	-	-	-	X	-	-	-	-	-	-	-	150	X	X	X	-	-	-	A	-	-
Diethylene Glycol	-	-	-	140	200	180	280	-	-	X	-	-	-	350	200	180	-	200	-	150	140	A	A	-	A	A	-
Diethylenetriamine	-	-	-	-	-	80	100	-	-	-	-	-	-	400	X	X	-	-	-	-	-	-	-	-	-	-	-
Diglycolic Acid	$O(CH_2COOH)_2$	-	-	140	190	100	80	-	-	-	-	73	-	400	-	-	-	-	-	-	-	-	-	-	A	-	-
Dimethyl Phthalate	-	-	-	X	X	X	68	-	-	X	-	212	-	-	100	100	-	200	-	-	-	-	-	-	-	-	-
Disobutyl Ketone	-	-	-	X	X	-	140	-	-	X	-	-	-	-	-	-	-	X	X	-	70	-	-	-	-	-	-
Diisobutylene	C_8H_{16}	-	-	-	-	-	180	-	-	-	200	-	-	250	-	-	-	140	X	-	-	-	-	-	A	-	-
Diisooctyl Phthalate	-	-	-	-	-	-	-	-	-	X	200	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Diisopropyl Ketone	-	-	-	-	-	-	68	-	-	-	-	73	-	70	-	-	-	X	70	-	-	-	-	-	-	-	-
Dimethylbenzene	$C_6H_4(CH_3)_2$	-	-	X	X	X	140	-	-	X	-	-	-	250	-	-	-	100	X	X	X	-	-	-	-	-	-
Dimethyl Ether	CH_3OCH_3	-	0.66	X	X	-	-	-	-	X	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-
Dimethylformamide	$HCON(CH_3)_2$	10	0.95	X	X	120	X	100	-	X	-	-	-	140	-	-	-	X	-	-	-	-	-	-	A	-	-
Dimethyl Ketone (see Acetone)	CH_3COCH_3	-	-	X	X	-	-	-	-	X	-	-	-	-	-	-	-	X	-	X	X	-	-	-	-	-	-
Dimethyl Phthalate	$C_6H_4(COOCH_3)_2$	-	-	X	X	100	100	-	-	X	-	73	-	350	100	100	-	200	-	X	X	-	-	-	A	-	-
Dimethylamine	$(CH_3)_2NH$	-	-	X	X	-	-	-	-	X	-	73	-	-	X	X	-	X	X	-	-	-	-	-	-	-	-
Dioctyl Phthalate	-	-	-	X	X	X	73	X	X	X	200	73	-	-	-	-	-	-	-	X	X	-	-	-	A	-	-
Dioxane	-	-	-	X	X	73	X	73	-	X	200	150	-	350	-	-	-	X	-	X	X	-	-	-	A	A	A
Dioxolane	-	-	1.07	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	X	-	-	-	-	-	-	-	-
Diphenyl (Dowtherm)	-	-	1	-	-	-	-	-	-	X	200	-	-	350	120	120	-	300	X	150	X	-	-	-	-	-	-
Diphenyl Ether (See Diphenyl Oxide)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Diphenyl Oxide	$(C_6H_5)_2O$	-	-	-	-	-	-	-	-	X	-	-	-	-	120	-	-	100	X	X	X	A	A	-	A	-	-
Dipropylene Glycol	-	-	1.25	140	180	120	280	-	-	X	-	-	-	-	200	150	-	250	210	160	180	A	A	-	A	-	-
Disodium Methylarsonate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Disodium Phosphate	-	-	-	140	180	180	180	140	140	-	-	300	-	350	-	-	-	80	210	80	100	-	-	A	-	-	-
Distilled Water	HOH	-	-	140	210	180	250	140	140	176	-	300	-	350	250	200	-	-	250	250	180	-	-	A	-	-	-
Divinylbenzene	-	-	-	X	X	X	X	-	-	X	-	73	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dolomite	$CaMg(CO_3)_2$	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dowtherm (See Diphenyl)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dry Cleaning Solvents	-	-	-	X	X	73	250	X	X	-	-	-	-	350	120	X	-	200	X	X	X	-	-	A	-	A	-
Epichlorohydrin	-	-	-	X	X	80	220	-	-	X	200	-	-	350	-	-	-	X	X	-	X	-	-	-	-	A	-
Epsom Salts	$MgSO_4$	-	-	140	200	180	280	140	140	176	-	250	-	300	270	200	-	200	180	160	180	140	-	A	-	-	-
Esters (General)	-	-	-	X	X	X	100	-	-	-	-	-	-	350	100	-	-	-	-	-	-	-	-	-	-	-	-
Ethane	C_2H_6	-	-	73	73	X	280	-	-	-	-	-	-	350	-	-	-	-	X	-	-	-	-	A	-	-	-
Ethanol (see Alcohol, Ethyl)	C_2H_5OH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ethanolamine	-	-	1.02	X	X	X	X	-	-	-	200	-	-	100	-	-	-	-	100	-	68	-	-	A	-	-	-
Ethers	-	-	-	X	X	X	100	-	-	-	200	-	-	350	-	-	-	X	X	X	X	-	-	A	A	-	-
Ethyl Acetate	$CH_3COOL_2H_5$	-	-	X	X	100	100	X	X	X	200	121	-	350	150	X	-	X	70	X	X	A	A	A	A	-	-
Ethyl Acetoacetate	-	-	-	X	X	-	120	-	-	X	-	73	-	350	-	-	-	X	-	-	X	-	-	-	-	-	-
Ethyl Acrylate	-	-	-	X	X	73	120	-	-	X	-	121	-	350	-	-	-	X	-	X	X	-	-	-	C	-	-
Ethyl Alcohol	C_2H_5OH	-	0.8	140	180	180	250	120	140	X	-	250	-	300	180	80	-	180	170	70	180	-	-	A	A	-	-
Ethylbenzene	$C_6H_5C_2H_5$	-	-	X	X	X	140	-	-	X	-	-	-	300	-	-	-	70	X	X	X	-	-	-	-	-	-
Ethyl Bromide	C_2H_5BR	-	-	X	X	X	180	X	X	X	-	-	-	350	-	-	-	-	70	70	-	-	-	A	-	-	-
Ethyl Butyrate	$C_3H_7CO_2C_2H_5$	-	-	X	X	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

CHEMICAL RESISTANCE GUIDE

CHEMICAL	FORMULAS	APPROX. SP.GRAVITY @ 100% CONC.	PVC	CPVC	POLYPROPYLENE (PP)	POLYVINYLIDENE FLUORIDE (PVDF)	POLYETHYLENE (PE)	POLYETHYLENE-CROSS LINKED (XLPE)	DURAPLUS ABS	RYTON	HALAR	PEEK	TEFLON	EPOXY	VINYLESTER	POLYSULFONE	VITON	EPDM	NEOPRENE	BUNA N (NITRILE)	CARBON	CERAMIC	304 STAINLESS STEEL	316 STAINLESS STEEL	TITANIUM	HASTELLOY C
			PLASTIC										ELASTOMER				SEAL				METAL					
Ethyl Cellosolve	-	-	-	-	-	-	-	-	-	X	-	-	-	-	150	X	-	-	-	-	-	-	-	-	-	-
Ethyl Chloride (Chloroethane)	C_2H_5CL	-	0.92	X	X	X	250	X	X	X	200	250	-	350	X	X	-	140	70	70	X	A	A	A	-	-	-
Ethyl Ether	$(C_2H_5)_2O$	-	-	X	X	X	100	X	X	X	200	121	-	200	100	X	-	X	X	X	X	-	-	A	A	-	-
Ethyl Formate	$HCOOC_2H_5$	-	-	X	X	X	X	-	-	X	-	73	-	200	-	-	-	X	70	-	X	-	-	-	-	-	-
Ethyl Hexanol	-	-	-	-	-	-	250	-	-	-	-	-	-	250	-	-	-	-	X	X	-	-	-	-	-	-	-
Ethyl Sulfate	$(C_2H_5)_2SO_4$	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	X	-	-	X	-	-	-
Ethylcellulose	-	-	-	-	-	-	-	-	-	176	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ethylene Bromide	$(CH_2)_2Br_2$	-	-	X	X	X	150	X	X	X	-	250	-	400	-	-	-	73	X	X	X	-	-	A	A	B	A
Ethylene Chlorohydrin	$(CH_2)_2CLOH$	-	-	X	X	140	150	X	X	X	-	73	-	-	150	100	-	150	-	-	X	-	-	-	-	-	-
Ethylene Diamine	$(CH_2)_2(NH_2)_2$	-	-	X	X	190	90	100	-	-	-	73	-	350	X	X	-	150	-	80	150	-	-	-	A	-	-
Ethylene Dichloride	$CLCH_2CH_2CL$	-	1.25	X	X	X	200	X	X	X	-	73	-	-	120	X	-	150	X	X	X	C	A	A	-	-	-
(Dichloroethane)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ethylene Glycol	CH_2OHCH_2OH	-	1.12	140	*	180	200	140	140	176	200	250	-	400	270	200	-	300	180	150	200	-	-	A	-	-	-
Ethylene Oxide	$(CH_2)_2O$	-	0.9	X	X	X	200	70	70	X	-	250	-	400	X	X	-	X	X	X	X	-	-	-	-	-	-
Fatty Acids	-	-	-	140	140	140	250	X	140	-	-	250	-	250	230	200	-	180	X	-	180	-	-	-	-	-	-
Ferric Acetate (Iron	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Acetate, Basic)	$Fe(C_2H_3O_2)_2OH$	-	-	-	-	-	-	140	140	-	-	-	-	-	200	180	-	X	-	-	X	-	-	-	-	-	-
Ferric Chloride	$FeCL_3$	-	2.9	140	190	180	250	140	140	X	200	250	-	400	220	200	-	210	200	160	180	A	A	X	X	A	C
Ferric Hydroxide	$Fe(OH)_3$	-	-	140	180	180	-	140	-	-	-	-	-	250	-	-	-	180	180	100	180	-	-	-	-	-	-
Ferric Nitrate	$FeNO_3$	50	1.7	140	190	180	250	140	140	176	-	250	-	400	220	200	-	180	180	100	100	-	-	B	A	-	-
Ferric Sulfate	$Fe(SO_4)_3$	-	3.1	140	180	180	250	140	140	68	-	250	-	400	220	200	-	190	210	200	180	C	A	B	-	-	-
Ferrous Chloride	$FeCL_2$	-	3.2	140	180	180	250	140	140	-	200	250	-	400	220	200	-	200	200	80	200	A	A	X	X	A	A
Ferrous Nitrate	-	-	-	140	180	180	250	140	-	-	-	250	-	0	220	200	-	200	180	200	200	-	-	-	-	-	-
Ferrous Sulfate	$FeSO_4$	-	1.9	140	190	180	280	140	140	140	-	250	-	400	220	200	-	200	180	200	200	A	A	A	A	B	A
Fish Solubles	-	-	-	140	190	180	250	X	140	140	-	-	-	400	-	-	-	-	-	-	200	-	-	-	-	-	-
Fluoboric Acid	HBF_4	-	1.8	140	190	140	200	140	140	-	-	73	-	400	200	200	-	200	160	100	170	-	-	B	-	-	-
Fluorine Gas, wet	F_2	-	-	X	X	X	80	X	X	X	-	73	-	250	X	X	-	X	-	-	-	X	-	-	-	-	-
Fluorine, Liquid	F_2	-	-	X	X	X	-	X	X	X	-	-	-	X	X	X	-	100	X	X	X	X	-	X	-	-	A
Fluosilicic Acid (Hydro-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fluosilic Acid)	H_2SiF_6	25	1.11	X	170	180	210	140	140	176	200	250	-	250	-	100	-	200	140	140	140	A	X	B	-	-	A
Formaldehyde	HCHO	-	-	140	150	150	140	X	70	-	200	121	-	250	150	150	-	X	140	140	X	-	-	A	-	-	-
Formaldehyde	HCHO	35	0.82	140	150	150	140	X	70	-	200	121	-	250	150	150	-	X	140	-	X	-	-	A	-	-	-
Formaldehyde	HCHO	50	-	140	100	73	140	X	-	-	-	73	-	250	-	-	-	X	140	80	X	A	-	A	-	-	-
Formic Acid	HCOOH	25	-	100	120	100	210	X	140	X	-	212	-	300	X	100	-	100	200	100	X	-	-	A	-	-	-
Freon 11 (MF)	CCL_3F	-	1.22	72	72	73	250	-	-	-	200	121	-	250	-	-	-	180	X	200	180	-	-	A	A	-	-
Freon 113 (TF)	CL_2CCF_3	-	-	-	-	-	250	-	-	-	200	121	-	250	-	-	-	70	X	130	73	-	-	-	A	-	-
Freon 114	$C_2CL_2F_4$	-	-	-	-	-	250	-	-	-	200	121	-	250	-	-	-	100	X	130	100	-	-	-	A	-	-
Freon 12	CL_2CF_2	-	-	-	-	-	250	70	70	-	200	121	-	250	-	-	-	180	73	200	180	-	-	-	-	-	-
Freon 12 (Wet)	CL_2CF_2	-	-	-	-	-	-	-	-	-	X	-	-	250	-	-	-	-	-	-	-	-	-	-	-	-	-
Freon 22	$HCCIF_2$	-	-	X	X	73	150	-	-	-	200	121	-	X	-	-	-	X	X	130	X	-	-	A	A	-	A
Freon TF	-	-	-	-	-	-	-	-	-	68	200	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fructose	-	-	-	140	190	180	250	140	140	176	200	-	-	400	220	200	-	180	75	160	180	-	-	A	-	-	-
Fruit Juice	-	-	-	140	190	180	250	140	140	-	200	121	-	400	-	-	-	210	-	200	180	-	-	A	-	-	-
Fruit Pulp	-	-	-	140	190	180	250	140	140	-	200	-	-	400	-	-	-	210	-	200	180	-	-	-	-	-	-
Fuel Oil	-	-	-	-	-	X	250	X	70	X	200	-	-	400	220	180	-	80	X	140	200	-	-	A	A	B	A
Fumaric Acid (Boletic Acid)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Furan	-	-	-	-	-	-	X	-	-	-	200	-	-	-	-	-	-	X	X	-	X	-	-	-	-	-	-
Furfural (Ant Oil) Bran Oil	-	-	0.94	X	X	X	80	X	X	X	200	121	-	400	X	X	-	X	-	200	X	-	-	A	-	-	-
Furfuryl Alcohol	-	-	1.2	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gallic Acid	-	-	-	140	190	73	100	X	140	-	-	121	-	400	-	-	-	190	70	70	70	-	-	A	-	-	-
Gas, Natural	CH_4	-	-	140	190	73	250	-	-	-	-	250	-	400	-	-	-	180	-	-	200	-	-	-	-	-	-
Gasoline, Leaded	-	-	-	100	-	X	250	X	70	X	200	250	-	400	230	150	-	180	X	80	180	-	-	A	-	-	-
Gasoline, Sour	-	-	-	140	150	X	250	X	70	X	200	250	-	400	230	150	-	180	X	80	200	-	-	A	-	-	-
Gasoline, Unleaded (1. Dry)	-	-	-	70	-	X	280	X	70	X	200	250	-	400	250	150	-	180	X	200	200	-	-	A	-	-	-

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		PLASTIC												ELASTOMER			SEAL				METAL					
Gelatin	-	-	-	140	190	180	250	-	140	176	200	212	-	300	-	-	-	180	200	200	180	-	-	A	A	-	-
Gin	-	-	-	140	190	120	250	X	70	X	200	250	-	300	-	-	-	-	-	-	-	-	-	-	A	-	-
Gluconic Acid	-	50	-	-	-	-	-	-	-	-	-	-	-	-	180	100	-	-	-	-	-	-	-	-	-	-	-
Glucose	$C_6H_{12}O_6$	-	-	140	190	180	280	140	140	176	200	250	-	400	220	200	-	300	250	160	180	-	-	A	A	-	-
Glue	-	-	-	140	190	120	-	-	-	-	-	-	-	250	-	-	-	250	100	160	140	-	-	A	-	-	-
Glycerine (see Glycerol)	$C_3H_5(OH)_3$	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	A	A	-	A
Glycerol (Glycyl Alcohol)	$C_3H_5(OH)_3$	-	1.3	140	190	180	280	X	140	176	200	-	-	400	300	200	-	250	200	160	70	-	-		-	-	A
Glycolic Acid (see	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hydroxyacetic Acid)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	A	A	-	B
Glycols	-	-	-	140	190	120	250	X	140	-	200	250	-	300	250	200	-	250	200	160	140	-	-	A	-	-	-
Glyoxal	OHCCHO	30	1.26	-	-	-	-	-	-	-	-	-	-	120	-	-	-	-	-	70	X	-	-	A	-	-	-
Gold (Auric Cyanide)	$Au(CN)_4$	-	-	-	-	-	-	-	-	-	-	-	-	250	-	-	-	180	-	140	140	-	-	-	-	-	-
Grape Juice	-	-	-	140	140	-	250	-	140	-	-	-	-	250	-	-	-	210	140	160	180	-	-	A	-	-	-
Grape Sugar	-	-	-	140	140	140	250	140	140	-	-	-	-	250	-	-	-	210	140	160	180	-	-	A	-	-	-
Grease	-	-	-	-	-	-	-	70	140	-	-	-	-	-	-	-	-	200	X	100	150	-	-	A	-	-	-
Green Liquor (Alkaline pulp)	-	-	-	100	140	150	-	100	-	120	-	-	-	-	180	X	-	70	-	140	140	-	-	A	-	-	-
Helium	He	-	-	140	190	73	150	-	-	X	-	-	-	-	-	-	-	-	150	70	150	-	-	-	-	-	-
Heptane	$CH_3(CH_2)_5CH_3$	-	-	100	150	73	250	-	-	X	200	250	-	300	200	180	-	340	X	200	180	-	-	-	-	-	-
Hexane	$CH_3(CH_2)_4CH_3$	-	0.66	X	72	73	250	X	70	X	200	250	-	300	150	120	-	340	X	80	180	-	-	A	-	-	-
Hexene	-	-	0.67	X	X	X	-	-	-	-	-	-	-	300	-	-	-	-	X	X	70	-	-	A	-	-	-
Hexyl Alcohol (Hexanol)	$C_6H_{11}OH$	-	-	140	190	73	180	-	-	-	-	73	-	250	-	-	-	250	-	X	140	-	-	-	-	-	-
Honey	-	-	-	140	190	180	300	140	140	-	-	-	-	400	-	-	-	210	150	140	150	-	-	-	-	-	-
Hydraulic Oil	-	-	-	-	-	X	-	-	70	-	-	-	-	300	250	200	-	250	X	70	160	-	-	A	-	-	-
Hydraulic Oil (synthetic)	-	-	-	-	-	X	-	-	-	-	200	-	-	300	250	200	-	250	X	X	X	-	-	-	-	-	-
Hydrazine	H_2NNH_2	-	1	X	X	X	200	-	140	-	-	-	-	250	-	-	-	X	70	X	70	-	-	A	-	-	-
Hydrobromic Acid	HBr	48	1.5	140	180	180	250	140	140	-	-	-	-	250	100	120	-	190	140	X	X	-	-	A	-	-	-
Hydrobromic Acid	HBr	20	-	140	180	180	250	140	140	-	-	-	-	250	100	120	-	190	140	X	X	-	B	C	X	-	-
Hydrobromic Acid	HBr	48	-	140	180	180	250	140	140	-	-	-	-	400	100	120	-	190	140	X	X	-	-	C	-	-	-
Hydrochloric Acid (Dry Gas)	HCL	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hydrochloric Acid	HCL	10	-	140	180	160	250	140	140	176	X	-	-	400	150	200	-	200	150	80	X	-	-	-	X	-	-
Hydrochloric Acid	HCL	20	-	140	180	160	250	140	140	176	X	-	-	400	120	200	-	200	100	80	180	-	-	X	-	-	-
Hydrochloric Acid	HCL	25	-	140	180	160	250	140	140	104	X	-	-	400	X	150	-	200	100	X	X	-	-	-	X	-	-
Hydrochloric Acid	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
(Muriatic Acid)	HCL	37	1.19	140	180	160	210	140	140	68	X	212	-	400	X	150	-	200	100	X	X	A	C	X	X	-	-
Hydrocyanic Acid	-	-	-	-	-	-	-	-	-	-	-	250	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
(Prussic Acid)	HCN	-	-	140	160	140	250	140	140	120	-	-	-	400	-	-	-	190	200	X	200	A	A	A	A	-	-
Hydrocyanic Acid	HCN	10	-	140	140	140	250	140	140	-	-	-	-	400	-	-	-	190	200	X	200	-	-	A	-	-	-
Hydrofluoric Acid	HF	10	-	100	X	150	250	70	140	-	-	-	-	300	X	-	-	150	100	70	-	-	-	-	-	-	-
Hydrofluoric Acid	HF	20	-	100	X	150	250	70	140	-	-	-	-	300	X	X	-	150	100	70	X	B	C	C	-	-	A
Hydrofluoric Acid	HF	30	-	100	X	120	250	70	140	-	-	212	-	300	X	-	-	200	100	X	X	-	-	C	-	-	A
Hydrofluoric Acid	HF	40	-	68	X	120	250	70	140	-	-	212	-	300	X	X	-	200	70	X	X	-	-	C	-	-	A
Hydrofluoric Acid	HF	50	-	68	X	100	250	70	140	-	-	212	-	300	X	X	-	200	X	X	X	-	-	C	-	-	A
Hydrofluoric Acid	HF	65	-	X	X	100	200	-	140	-	-	-	-	250	X	X	-	100	X	X	X	-	-	-	-	-	-
Hydrofluoric Acid	HF	75	0.99	X	X	100	200	-	140	-	-	-	-	250	X	X	-	100	X	X	X	X	X	X	-	-	-
Hydrofluosilicic Acid	H_2SiF_6	-	-	73	73	180	250	140	140	176	-	250	-	300	-	100	-	200	140	X	170	-	-	X	-	-	-
Hydrofluosilicic Acid	H_2SiF_6	20	-	73	73	180	250	140	140	176	-	-	-	300	-	100	-	200	140	X	170	-	-	X	-	-	-
Hydrogen	H	-	-	140	X	180	280	140	140	176	200	250	-	300	-	-	-	200	250	200	180	-	-	A	-	-	-
Hydrogen Chloride Gas Dry	HCL	-	1.27	73	-	140	180	140	-	-	-	-	-	300	150	150	-	70	-	70	-	-	-	-	-	-	-
Hydrogen Cyanide	HCN	-	-	140	190	150	280	-	-	-	-	250	-	300	-	-	-	150	100	200	70	-	-	A	-	-	-
Hydrogen Fluoride	HF	-	-	X	X	73	200	-	-	-	-	-	-	250	-	-	-	180	X	X	X	-	-	X	-	-	-
Hydrogen Peroxide	H_2O_2	5	-	140	160	180	250	140	140	68	X	73	-	250	X	150	-	180	100	-	-	-	-	-	-	-	-
Hydrogen Peroxide	H_2O_2	10	-	140	160	73	250	140	140	68	X	-	-	250	X	150	-	180	100	X	X	A	A	C	-	-	-
Hydrogen Peroxide	H_2O_2	30	-	140	73	X	250	140	140	68	X	-	-	250	X	150	-	200	100	X	X	-	-	-	-	-	-
Hydrogen Peroxide	H_2O_2	50	-	100	X	X	250	-	-	-	X	121	-	250	X	-	-	200	X	X	X	-	-	-	-	-	-

CHEMICAL RESISTANCE GUIDE

CHEMICAL	FORMULAS	APPROX. SP.GRAVITY @ 100% CONC.	PVC	CPVC	POLYPROPYLENE (PP)	POLYVINYLIDENE FLUORIDE (PVDF)	POLYETHYLENE (PE)	POLYETHYLENE-CROSS LINKED (XLPE)	DURAPLUS ABS	RYTON	HALAR	PEEK	TEFLON	EPOXY	VINYLESTER	POLYSULFONE	VITON	EPDM	NEOPRENE	BUNA N (NITRILE)	CARBON	CERAMIC	304 STAINLESS STEEL	316 STAINLESS STEEL	TITANIUM	HASTELLOY C
			PLASTIC										ELASTOMER				SEAL				METAL					
Hydrogen Peroxide	H_2O_2	90	-	X	X	X	68	-	-	-	X	121	-	400	X	-	-	100	X	X	X	-	-	-	-	-	-
Hydrogen Peroxide	H_2O_2	-	-	X	X	X	68	-	-	-	X	-	-	400	-	-	-	100	X	X	X	-	-	-	-	-	-
Hydrogen Phosphide	-	-	-	-	-	-	-	-	-	-	-	121	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
(See Phosphine)	PH_3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hydrogen Sulfide	H_2S	-	-	140	190	150	280	140	140	-	-	-	-	400	250	180	-	180	100	X	100	-	-	-	A	-	B
Hydrogen Sulfide (Aq Sol)	H_2S	-	1.19	140	180	150	200	140	140	-	200	121	-	400	250	180	-	140	100	X	100	A	A	A	A	-	B
Hydrogen Sulfide (dry)	H_2S	-	-	140	180	150	80	140	140	-	-	250	-	400	250	180	-	180	100	X	100	-	A	A	A	-	B
Hydroquinone	$C_6H_4(OH)_2$	-	-	140	190	150	250	140	140	X	-	212	-	400	-	-	-	180	X	X	70	-	-	-	-	-	-
Hydroxyacetic Acid	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
(Glycolic Acid)	$CH_2OHCOOH$	-	1.27	140	190	150	100	-	-	-	-	-	-	400	-	-	-	X	-	X	70	-	-	-	-	-	-
Hydroxyacetic Acid	-	1	-	140	190	150	100	-	-	-	-	-	-	400	-	-	-	X	-	X	70	-	-	-	-	-	-
Hydroxylamine Sulfate	$(NH_2OH)_2H_2SO_4$	-	-	140	190	120	150	-	-	-	-	-	-	-	-	-	-	-	70	70	-	-	-	-	-	-	-
Hypochlorous Acid	HOCL	-	10	140	180	120	250	140	140	-	-	250	-	400	-	-	-	180	70	X	X	-	-	X	X	B	B
Ink	-	-	-	-	-	-	-	X	140	-	-	-	-	-	-	-	-	70	70	70	70	-	-	A	-	-	-
Iodine Solution	I_2	0	-	X	X	X	150	X	X	X	-	212	-	400	120	100	-	180	70	X	70	-	-	C	-	-	-
Isobutyl Alcohol (see	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Alcohol, Isobutyl)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Isoctane	-	-	0.7	72	72	73	250	-	-	X	-	73	-	-	-	-	-	190	X	70	70	-	-	A	-	-	-
Isophorone	-	-	0.92	X	X	-	180	-	-	X	-	-	-	-	-	-	-	X	X	-	-	-	-	-	-	-	-
Isopropanol-see Alcohol,Isopropyl	-	-	-	140	140	140	250	X	140	X	-	250	-	300	180	100	-	140	140	70	70	-	-	A	-	-	-
Isopropyl Acetate	$(CH_3)_2CHOH$	-	0.92	X	-	-	-	-	-	X	-	-	-	200	-	-	-	X	70	X	X	-	-	B	-	-	-
Isopropyl Alcohol (See	$CH_3COOCH(CH_3)_2$	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Alcohol, Isopropyl)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Isopropyl Chloride (See	$(CH_3)_2CHOH$	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chlorpropene)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Isopropyl Ether	$CH_3CHCLCH_3$	-	0.72	X	X	X	130	-	-	X	-	73	-	140	-	-	-	X	X	X	70	-	-	A	-	-	-
Jet Fuel JP-3	-	-	-	-	-	-	-	-	-	X	200	-	-	200	250	180	-	190	X	X	70	-	-	A	-	-	-
Jet Fuel JP-4	-	-	-	140	72	X	250	-	-	X	200	250	-	400	250	180	-	300	X	X	200	-	-	A	-	-	-
Jet Fuel JP-5	-	-	-	140	72	X	250	-	-	X	200	250	-	400	250	180	-	300	X	X	200	-	-	A	-	-	-
Kerosene	-	-	0.81	140	72	X	250	X	70	X	200	250	-	400	250	180	-	300	X	X	200	-	-	A	-	-	-
Ketone	-	-	-	X	X	100	100	X	X	X	200	-	-	350	-	X	-	X	X	X	X	-	-	A	-	-	-
Kraft Liquor	-	-	-	140	190	73	70	140	-	100	-	-	-	400	-	-	-	100	-	70	70	-	-	A	-	-	-
Lacquer	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	X	X	X	-	-	A	-	-	-
Lacquer Thinner	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	X	-	-	A	-	-	-
Lactic Acid (Milk Acid)	-	-	1.2	100	120	180	140	X	140	68	200	-	-	400	230	200	-	210	70	70	X	-	-	A	-	-	-
Lard	-	-	-	140	190	73	250	-	140	-	-	-	-	250	-	-	-	190	X	70	140	-	-	A	-	-	-
Lard Oil	-	-	-	140	190	73	48	-	140	-	-	250	-	250	-	-	-	190	X	70	140	-	-	A	-	-	-
Latex	-	-	-	-	-	-	-	-	-	-	-	-	-	-	220	200	-	70	70	100	70	-	-	-	-	-	-
Lauric Acid	$CH_3(CH_2)_{10}COOH$	-	0.83	140	190	150	230	140	-	140	-	212	-	400	220	200	-	100	-	-	70	-	-	-	-	-	-
Lauryl Chloride	$C_{12}H_{25}CL$	-	-	140	72	X	250	X	-	120	-	212	-	400	-	-	-	200	140	-	70	-	-	-	-	-	-
Lead Acetate (Sugar of Lead)	$Pb(C_2H_3O_2)_2$	-	-	140	190	180	250	140	140	176	-	250	-	400	250	200	-	X	210	160	70	-	-	B	B	A	B
Lead Chloride	$PbCL_2$	-	5.86	140	140	140	250	-	-	176	-	250	-	400	-	-	-	210	140	70	100	-	-	-	-	-	-
Lead Nitrate	$Pb(NO_3)_2$	-	4.53	140	180	180	210	-	-	176	-	250	-	400	220	200	-	210	180	-	-	-	-	-	-	-	-
Lead Sulfate	$PbSO_4$	-	6.39	140	190	150	100	150	-	176	-	250	-	400	-	-	-	80	210	140	200	-	-	-	B	-	B
Lemon Oil	-	-	-	72	72	X	250	-	-	-	-	212	-	400	-	-	-	200	-	100	140	A	-	-	-	-	-
Levulinic Acid	-	-	-	-	-	-	-	-	-	-	-	-	-	-	220	200	-	-	-	-	-	-	-	-	-	-	-
Ligroin (Benzene)	-	-	-	X	X	X	200	-	-	X	-	-	-	250	-	-	-	100	X	70	100	-	-	A	-	-	-
Lime (Calcium Oxide)	CaO	-	-	-	-	-	-	-	-	176	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lime-Sulfur Solution	-	-	-	140	190	10	150	-	-	-	-	121	-	-	-	-	-	190	210	100	X	-	-	-	-	-	-
Linoleic Acid (Linolic Acid)	-	-	0.91	140	190	73	250	X	-	-	-	212	-	400	-	-	-	70	X	X	70	-	-	-	-	-	-
Linseed Oil (Flaxseed Oil)	-	-	-	140	190	150	250	X	70	X	-	212	-	400	250	100	-	250	70	70	180	-	-	-	-	-	-
Lithium Bromide	LiBr	-	3.46	140	190	-	230	-	-	-	-	121	-	400	-	-	-	200	-	200	140	-	-	-	-	-	-
Lithium Chloride	LiCL	-	-	140	190	-	250	-	-	-	-	-	-	400	230	200	-	140	100	-	70	-	-	A	-	-	-
LPG	-	-	-	-	-	-	-	-	-	-	200	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

CHEMICAL RESISTANCE GUIDE

CHEMICAL	FORMULAS	APPROX. SP.GRAVITY @ 100% CONC.	PLASTIC: PVC	CPVC	POLYPROPYLENE (PP)	POLYVINYLIDENE FLUORIDE (PVDF)	POLYETHYLENE (PE)	POLYETHYLENE-CROSS LINKED (XLPE)	DURAPLUS ABS	RYTON	HALAR	PEEK	ELASTOMER: TEFLON	EPOXY	VINYLESTER	POLYSULFONE	SEAL: VITON	EPDM	NEOPRENE	BUNA N (NITRILE)	CARBON	METAL: CERAMIC	304 STAINLESS STEEL	316 STAINLESS STEEL	TITANIUM	HASTELLOY C
Lubricants	-	-	-	-	-	-	-	-	-	-	200	250	-	-	-	-	-	-	-	-	-	A	A	A	-	-	-
Lubricating Oil	-	-	-	140	190	73	250	X	X	-	200	250	-	350	250	200	-	160	X	70	180	A	A	-	-	-	-
Lye Solution (See Sodium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hydroxide & Potassium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hydroxide)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Machine Oil	-	-	-	140	190	120	210	X	-	-	-	-	-	400	-	-	-	140	-	-	140	-	-	A	-	-	-
Magnesium Acetate	$(MgOOCCH_3)_2$	-	1.42	-	-	-	-	140	140	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Magnesium Carbonate	$MgCO_3$	-	3	140	180	180	210	140	140	176	-	250	-	400	220	200	-	210	170	140	180	-	-	A	-	-	-
Magnesium Chloride	$MgCL_2$	-	2.3	140	190	180	280	140	140	176	200	250	-	400	270	200	-	180	180	170	180	-	-	-	-	-	-
Magnesium Citrate	$MgHC_6H_5O_7$	-	-	140	180	180	250	140	140	-	-	-	-	400	-	-	-	210	180	-	180	-	-	-	-	-	-
Magnesium Hydroxide	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	A
(Milk of Magnesia)	$Mg(OH)_2$	-	2.36	140	190	180	250	140	-	176	200	250	-	400	270	150	-	230	170	160	180	A	A	A	A	-	-
Magnesiun Nitrate	$Mg(NO_3)_2$	-	2.03	140	190	180	250	140	140	176	-	250	-	400	250	200	-	230	140	160	70	-	A	A	-	-	-
Magnesium Oxide	MgO	-	3.6	-	-	-	-	-	-	176	-	-	-	-	-	-	-	-	140	160	140	-	A	-	-	-	-
Magnesium Sulfate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	A
(Epsom Salts)	$MgSO_4$	-	2.6	140	190	180	250	140	140	176	-	250	-	400	270	200	-	200	180	160	180	A	A	A	-	-	-
Maleic Acid	-	-	1.59	140	190	180	250	70	70	-	-	212	-	400	220	200	-	200	70	X	X	A	A	-	-	-	-
Maleic Anhydride	-	-	0.93	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	X	X	A	A	-	-	-	-
Malic Acid (Apple Acid)	-	-	1.6	140	190	73	250	-	-	-	-	212	-	400	-	-	-	200	X	70	100	-	A	B	B	-	B
Manganese Sulfate	$MnSO_4$	-	2.11	140	180	180	250	-	-	-	-	-	-	400	-	-	-	230	180	160	140	-	-	-	-	-	-
Mash	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mayonnaise	-	-	-	-	-	-	-	-	-	-	-	-	-	400	-	-	-	-	-	-	180	-	-	A	-	-	-
Melamine (Trizane)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mercuric Chloride	$HgCL_2$	-	5.4	140	190	180	250	140	-	X	-	212	-	400	220	200	-	190	210	140	140	-	-	X	-	-	-
Mercuric Cyanide	$Hg(CN)_2$	-	4	140	180	180	250	140	-	X	-	212	-	400	-	-	-	70	70	70	140	-	-	A	-	-	-
Mercuric Nitrate	$Hg(NO_2)_2$	-	4.3	140	180	180	250	140	-	-	-	-	-	-	-	-	-	70	-	70	-	-	-	-	-	-	-
Mercuric Sulfate	$HgSO_4$	-	6.47	140	180	180	230	-	-	-	-	212	-	300	-	-	-	70	70	-	70	-	-	-	-	-	-
Mercurous Chloride	Hg_2CL_2	-	6.99	-	-	-	-	-	-	-	-	212	-	400	220	200	-	200	100	140	100	-	-	-	-	-	-
Mercurous Nitrate	$HgNO_3$	-	4.79	140	190	120	250	-	-	-	-	212	-	400	-	-	-	200	100	140	100	-	-	-	B	-	C
Mercury (Quicksilver)	Hg	-	13.6	140	190	150	250	140	140	68	-	250	-	400	270	200	-	200	70	100	100	-	-	A	A	A	A
Methacrylic Acid Glacial	-	-	1.02	X	X	-	-	-	-	X	-	-	-	-	X	X	-	-	-	-	-	-	-	-	-	-	-
Methane (Methyl Hydride)	CH_4	-	-	140	72	120	280	-	-	-	-	212	-	400	250	200	-	300	X	200	180	-	-	A	-	-	-
Methanesulfonic Acid	CH_3SO_3H	-	1.48	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Methanol (See Alcohol, Methyl)	-	-	0.8	140	210	180	250	X	140	X	-	250	-	400	150	-	-	X	100	140	140	-	-	A	A	-	-
Methoxyethyl Oleate	-	-	0.9	-	-	-	-	-	-	X	-	73	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Methyl "Cellosolve"	-	-	-	X	X	73	250	-	-	X	-	212	-	400	-	-	-	X	70	70	X	-	-	A	-	-	-
Methyl Acetate	$CH_3CO_2CH_3$	-	0.92	X	X	68	100	-	-	X	-	-	-	-	-	-	-	X	-	X	X	-	-	A	-	-	-
Methyl Acetone	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	X	-	X	X	-	-	A	-	-	-
Methyl Acrylate	-	-	-	-	-	-	100	-	-	X	-	-	-	300	-	-	-	X	70	X	X	-	-	A	-	-	-
Methyl Alcohol	CH_3OH	-	-	140	210	180	250	X	140	X	-	250	-	400	150	-	-	100	100	140	140	A	A	A	-	-	-
Methyl Benzene (See Toluene)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Methyl Bromide	CH_3Br	-	1.73	X	X	X	250	X	X	X	-	250	-	350	-	-	-	180	X	X	X	-	-	-	-	-	-
Methyl Butanol (See	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Alcohol, Amyl)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Methyl Butyl Ketone	$CH_3COC_4H_9$	-	0.83	X	X	X	100	-	-	X	-	-	-	400	-	-	-	X	70	X	X	A	A	A	-	-	-
Methyl Chloride	-	-	-	-	-	-	-	-	-	X	-	250	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
(Chloromethane)	CH_3CL	-	1.3	X	X	X	250	X	X	X	-	-	-	400	X	X	-	150	X	X	X	-	-	A	A	-	C
Methyl Chloroform	-	-	-	-	-	-	-	-	-	X	-	11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
(Trichloroethane)	-	-	-	X	X	X	120	-	-	-	-	-	-	-	X	X	-	80	X	X	X	-	-	A	-	-	-
Methyl Ether (See	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dimethyl Ether)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Methyl Ethyl Ketone (MEK)	$CH_3COC_2H_5$	-	0.82	X	X	73	X	X	X	X	200	121	-	-	100	X	-	X	70	X	X	A	A	-	B	-	-
Methyl Formate	$HCOOCH_3$	-	0.98	-	-	-	-	-	-	X	-	73	-	-	-	-	-	X	100	70	X	-	-	-	-	-	-
Methyl Isobutyl Alcohol	-	-	-	-	-	-	-	-	-	X	-	-	-	-	180	120	-	-	-	-	-	-	-	-	-	-	-

CHEMICAL RESISTANCE GUIDE

CHEMICAL	FORMULAS	APPROX. SP.GRAVITY @ 100% CONC.	PLASTIC: PVC	CPVC	POLYPROPYLENE (PP)	POLYVINYLIDENE FLUORIDE (PVDF)	POLYETHYLENE (PE)	POLYETHYLENE-CROSS LINKED (XLPE)	DURAPLUS ABS	RYTON	HALAR	PEEK	ELASTOMER: TEFLON	EPOXY	VINYLESTER	POLYSULFONE	SEAL: VITON	EPDM	NEOPRENE	BUNA N (NITRILE)	METAL: CARBON	CERAMIC	304 STAINLESS STEEL	316 STAINLESS STEEL	TITANIUM	HASTELLOY C
Methyl Isobutyl Ketone	-	-	0.8	X	X	X	X	-	-	X	200	73	-	400	150	X	-	X	-	X	X	A	A	A	-	-	-
Methyl Isopropyl Ketone	$CH_3COCH(CH_3)_2$	-	0.82	X	X	X	X	-	-	X	-	-	-	400	-	-	-	X	-	X	X	A	A	A	-	-	-
Methyl Methacrylate	-	-	0.94	X	X	X	100	-	-	X	-	121	-	300	100	X	-	X	X	X	X	A	A	-	-	-	-
Methyl Propanol	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Methyl Salicylate	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
(Wintergreen Oil)	-	-	1.18	72	72	73	70	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Methyl Sulfate	-	-	-	72	72	X	-	-	-	-	-	250	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Methylamine	CH_3NH_2	-	-	X	X	X	X	-	-	X	-	73	-	400	-	-	-	100	70	70	X	-	-	A	-	-	-
Methylene Bromide	CH_2Br_2	-	2.47	X	X	X	150	-	-	X	-	73	-	350	-	-	-	70	X	X	X	-	-	-	-	-	-
Methylene Chloride	CH_2CL_2	-	1.34	X	X	X	100	X	X	X	-	73	-	350	X	X	-	X	X	X	X	A	A	A	-	-	-
Methylene Iodine	CH_2I_2	-	3.33	X	X	X	200	-	-	-	-	73	-	350	-	-	-	200	-	-	-	-	-	-	-	-	-
Methylhexane	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Methylisobutyl Carbinol	-	-	-	72	72	120	150	-	-	X	-	-	-	200	120	-	-	70	70	70	70	-	-	-	-	-	-
Methylmethacryate	-	-	-	-	-	-	180	-	-	-	-	-	-	150	100	X	-	X	X	X	X	-	-	-	-	-	-
N-Methyl Pyrrolidone	-	-	-	X	X	X	X	X	X	X	-	-	-	200	X	X	-	X	X	X	X	-	-	-	A	-	-
Methylsulfuric Acid	CH_3HSO_4	-	1.35	140	190	120	70	-	-	-	-	121	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Milk	-	-	-	140	190	180	280	140	140	176	-	212	-	400	-	-	-	190	190	150	140	A	A	A	-	-	-
Mineral Oil	-	-	-	140	190	72	250	X	70	-	200	250	-	400	270	200	-	300	X	70	140	-	-	A	-	-	-
Molasses	-	-	-	140	190	180	250	140	140	176	-	121	-	400	-	-	-	300	100	150	140	A	A	-	-	-	-
Monochloracetic Acid	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
(See Chloracetic Acid)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Monochlorobenzene	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
(Chlorobenzene)	C_6H_5CL	-	-	X	X	X	140	X	X	-	-	-	-	400	-	-	-	70	X	X	X	-	-	A	-	-	-
Monoethanolamine	$HOCH_2CH_2NH_2$	-	-	X	X	150	X	-	-	-	-	-	-	100	-	-	-	190	70	X	150	-	-	-	A	-	-
Morpholine	$C_{17}H_{19}NO_3$	-	1	-	-	-	75	-	-	-	X	-	-	200	-	-	-	X	70	X	X	-	-	B	-	-	-
Motor Oil	-	-	-	140	190	X	250	X	70	-	200	250	-	250	-	-	-	250	X	-	180	-	-	A	-	-	-
Mustard	-	-	-	140	190	150	250	-	-	-	-	-	-	400	-	-	-	150	150	X	100	-	-	A	-	-	-
Naphtha	-	-	-	140	-	100	210	X	X	X	200	-	-	400	230	180	-	150	X	X	140	-	-	A	-	-	-
Naphthalene (Tar Camphor)	$C_{10}H_8$	-	1.15	X	X	X	200	X	X	X	200	-	-	400	200	200	-	170	X	X	X	-	-	A	-	-	-
Natural Gas	-	-	-	140	73	73	250	-	-	-	-	121	-	300	-	-	-	190	X	140	140	-	-	A	-	-	-
Neon	Ne	-	-	190	140	180	250	-	-	176	-	-	-	300	-	-	-	200	190	150	140	-	-	A	-	-	-
Nickel	Ni	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nickel Acetate	-	-	1.74	180	140	180	210	140	140	-	-	73	-	-	-	-	-	X	70	-	70	-	-	-	-	-	-
Nickel Chloride	$NiCL_2$	-	3.5	140	180	180	250	140	140	176	-	250	-	400	270	200	-	210	210	160	180	-	-	A	-	-	-
Nickel Cyanide	$Ni(CN)_2$	-	-	-	-	-	-	140	140	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nickel Nitrate	$Ni(NO_3)_2$	-	2.1	140	180	180	250	140	140	176	-	250	-	400	220	200	-	250	210	200	180	-	-	-	-	-	-
Nickel Sulfate	$NiSO_4$	-	3.7	140	180	180	250	140	140	176	-	250	-	400	-	-	-	180	210	200	200	-	-	-	-	-	A
Nicotine	$C_{10}H_{14}N_2$	-	-	140	180	X	100	X	140	-	-	121	-	400	-	-	-	-	-	X	X	-	-	A	-	-	-
Nicotine Acid (See Niacin)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitric Acid	HNO_3	10	-	140	180	180	250	100	140	68	X	250	-	400	X	100	-	190	X	X	X	C	B	A	-	-	-
Nitric Acid	HNO_3	20	-	140	180	140	210	140	140	X	X	-	-	400	X	100	-	190	X	X	X	X	C	-	-	-	-
Nitric Acid	HNO_3	30	-	X	73	120	150	70	70	X	X	212	-	400	X	-	-	190	X	X	X	X	-	-	-	-	-
Nitric Acid	HNO_3	40	-	X	73	73	150	70	70	X	X	212	-	400	X	-	-	73	X	X	X	X	-	-	-	-	-
Nitric Acid	HNO_3	50	-	X	73	73	120	X	X	X	X	121	-	350	X	-	-	100	X	X	X	X	-	A	-	-	-
Nitric Acid	HNO_3	70	-	X	X	X	100	X	X	X	X	121	-	300	X	-	-	X	X	X	X	X	-	A	-	-	-
Nitric Acid Concentrate	HNO_3	-	1.5	X	X	X	73	X	X	X	X	-	-	300	X	-	-	X	X	X	X	X	-	A	-	-	-
Nitric Acid Fuming (Red)	HNO_3	-	-	X	X	X	X	-	-	X	X	-	-	300	-	-	-	X	-	-	-	-	-	-	-	-	-
Nitrobenzene (Oil of Mirbane)	$C_6H_5NO_2$	-	1.2	X	X	73	140	X	X	X	X	121	-	400	-	-	-	70	X	X	X	A	-	A	-	-	-
Nitroethane	$CH_3CH_2NO_2$	-	1.13	-	-	-	68	-	-	X	-	-	-	200	-	-	-	X	-	X	X	-	-	-	-	-	-
Nitrogen	N	-	-	-	-	-	-	-	-	176	200	-	-	-	-	-	-	190	-	140	140	-	A	A	-	-	-
Nitrogen Dioxide	NO_2	-	-	-	-	-	140	-	-	-	-	-	-	400	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrogen Sulutions	-	-	-	-	-	-	-	-	-	-	-	-	-	-	150	100	-	-	-	-	-	-	-	-	-	-	-
Nitroglycerine	-	-	1.6	X	X	X	120	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitromethane	CH_3NO_2	-	-	-	-	-	100	-	-	-	X	-	-	180	-	-	-	-	70	X	X	-	-	-	-	-	-

CHEMICAL RESISTANCE

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CHEMICAL	FORMULAS	APPROX. SP.GRAVITY @ 100% CONC.		PLASTIC: PVC	CPVC	POLYPROPYLENE (PP)	POLYVINYLIDENE FLUORIDE (PVDF)	POLYETHYLENE (PE)	POLYETHYLENE-CROSS LINKED (XLPE)	DURAPLUS ABS	RYTON	HALAR	PEEK	ELASTOMER: TEFLON	EPOXY	VINYLESTER	POLYSULFONE	SEAL: VITON	EPDM	NEOPRENE	BUNA N (NITRILE)	METAL: CARBON	CERAMIC	304 STAINLESS STEEL	316 STAINLESS STEEL	TITANIUM	HASTELLOY C
Nitrous Oxide	N_2O	-	-	100	140	X	X	X	-	-	-	121	-	400	-	-	-	-	80	-	X	X	-	A	-	-	-	-
Ocenol (Oleyl Alcohol)	-	-	140	100	140	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Octane	C_8H_{18}	-	-	X	X	X	250	73	-	-	-	-	-	400	-	-	-	68	X	-	70	-	A	-	-	-	-
Octanoic (Caprylic Acid)	$CH_3(CH_2)_6COOH$	-	0.91	-	-	-	250	-	-	X	-	-	-	400	-	-	-	-	-	-	X	-	A	-	-	-	-
Octylamine	$CH_3(CH_2)_7NH_2$	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oils	-	-	-	140	190	120	250	140	-	140	-	-	-	400	-	200	-	-	-	-	100	-	-	-	-	-	-
Oils, Aniline	-	-	-	X	X	100	120	-	-	-	-	-	-	250	-	-	-	X	140	X	X	A	A	-	-	-	A
Oils, Anise	-	-	-	-	-	-	-	-	-	-	-	-	-	300		-	-	-	-	-	-	A	A	-	-	-	-
Oils, Bay	-	-	-	-	-	-	-	-	70	-	-	-	-	300	-	-	-	140	-	-	-	A	A	-	-	-	-
Oils, Bone	-	-	-	-	-	-	-	-	70	-	-	-	-	300	-	—	-	140	-	-	-	A	A	-	-	-	-
Oils, Castor	-	-	-	-	*	-	-	-	70	-	-	-	-	300		-	-	140	-	-	-	A	A	-	-	-	-
Oils, Cinnamon	-	-	-	-	-	-	-	-	70	-	-	-	-	300	-	-	-	X	-	-	-	A	A	-	-	-	-
Oils, Citric	-	-	-	-	-	72	-	-	70	-	-	-	-	300	-	-	-	140	-	-	-	A	A	-	-	-	-
Oils, Clove	-	-	-	-	-	72	-	-	70	-	-	-	-	300	-		-	-	-	-	140	A	A	-	-	-	-
Oils, Coconut	-	-	-	140	72	150	250	-	70	-	-	-	-	350	-	—	-	140	X	100	70	A	A	-	-	-	-
Oils, Cod Liver	-	-	-	-	-	72	-	-	70	-	-	-	-	300	-	-	-	140	108	100	140	A	A	-	-	-	-
Oils, Corn	-	-	-	68	68	100	-	250	70	X	-	-	-	250	-	-	-	140	X	X	140	A	A	-	-	-	-
Oils, Cotton Seed	-	-	-	140	-	150	-	250	70	X	-	-	-	300	-	-	-	140	X	X	180	A	A	-	-	-	-
Oils, Creosote	-	-	-	X	X	X	-	-	70	X	-	-	-	300	-	-	-	73	X	X	73	A	A	-	-	-	-
Oils, Crude Sour	-	-	-	140	-	73	-	250	70	-	-	-	-	250	250	200	-	180	X	-	70	A	A	-	-	-	-
Oils, Diesel Fuel	-	-	-	72	72	73	-	250	70	X	-	-	-	300	250	180	-	140	X	X	100	A	A	-	-	-	-
Oils, Fuel	-	-	-	140	-	73	-	250	70	X	-	-	-	300	250	180	-	140	X	X	100	A	A	-	-	-	-
Oils, Linseed	-	-	-	140	*	180	-	250	70	X	-	-	-	300	250	100	-	220	X	70	180	A	A	-	-	-	-
Oils, Mineral	-	-	-	140	*	100	-	250	70	-	-	-	-	300	270	200	-	300	X	70	140	A	A	-	-	-	-
Oils, Olive	-	-	-	140	*	180	-	250	70	X	-	-	-	300	220	200	-	150	-	140	140	A	A	-	-	-	-
Oils, Pine	-	-	-	140	-	-	-	-	70	X	-	-	-	300	150	150	-	70	-	-	70	A	A	-	-	-	-
Oils, Silicone	-	-	-	-	-	150	250	-	70	-	-	-	-	350	-	-	-	190	140	70	140	A	A	A	A	-	-
Oils, Vegetable	-	-	-	-	*	73	250	-	70	-	-	250	-	350	90	200	-	200	X	70	200	A	A	A	A	-	-
Oleic Acid (Red Oil)	-	-	0.9	140	190	73	250	-	-	-	-	212	-	250	200	200	-	190	70	70	100	-	-	A	A	A	-
Oleum (Fuming Sulfuric Acid)	H_2SO_4	100	-	X	X	X	X	X	X	X	-	73	-	200	X	X	-	73	X	X	X	-	-	A	-	A	-
Orange Extract	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oxalic Acid	-	-	1.7	73	73	150	150	140	-	110	-	121	-	400	270	200	-	180	150	100	X	-	-	A	A	A	-
Oxygen Gas	O_2	-	-	73	180	150	-	-	-	150	-	250	-	400	-	-	-	180	200	200	100	-	-	A	A	A	-
Ozonized Water	O_3	-	-	73	73	X	250	X	X	X	-	250	-	400	-	-	-	220	180	80	X	-	-	A	A	A	-
Palmitic Acid	-	-	0.84	140	72	180	240	70	70	-	-	212	-	400	220	200	-	190	70	X	100	-	-	A	-	-	-
Palmitic Acid	-	10	-	X	72	180	240	70	70	-	-	-	-	400	220	200	-	190	70	X	100	-	-	A	-	-	-
Paraffin	-	70	-	120	X	120	-	X	-	-	-	121	-	400	-	-	-	250	X	73	140	-	-	A	A	-	-
Pentane (Amyl Hydride)	$CH_3(CH_2)_3CH_3$	-	-	-	-	-	-	-	-	X	-	-	-	400	-	-	-	100	X	70	100	-	-	A	-	A	-
Peracetic Acid	CH_3COOOH	-	-	X	X	X	-	70	-	-	-	-	-	400	-	-	-	100	-	-	-	-	-	-	-	-	-
Perchloric Acid	$HClO_4$	10	1.8	140	140	100	-	-	-	-	-	121	-	400	-	-	-	70	70	70	X	-	-	A	-	-	-
Perchloric Acid	$HClO_4$	40	-	X	X	X	140	X	X	-	-	121	-	400	X	X	-	180	70	X	X	-	-	B	-	-	-
Perchloroethylene	CL_2CCCL_2	70	1.6	X	X	X	150	-	X	X	200	-	-	-	120	X	-	200	X	X	X	-	-	A	-	-	-
Petrolatum (Petroleum Jelly)	-	-	-	140	190	120	-	-	-	176	-	-	-	300	-	-	-	100	X	140	100	-	-	A	-	-	-
Petroleum (Sour)	-	-	-	100	150	73	250	X	70	-	200	121	-	300	250	200	-	180	X	X	180	-	-	-	-	-	-
Petroleum Oils	-	-	-	140	150	73	-	-	70	-	200	121	-	-	250	200	-	180	X	100	180	-	-	-	-	-	-
Phenols (Carbolic Acid)	C_6H_5OH	-	1.1	X	72	73	200	X	-	X	200	121	-	350	X	X	-	200	70	X	X	A	X	A	-	A	-
Phenyl Acetate	$C_6H_5OOCCH_3$	100	1.07	-	-	-	-	-	-	X	-	-	-	-	-	-	-	X	-	X	X	-	-	-	-	-	-
Phenylhydrazine	$C_6H_5NHNH_2$	-	1.1	X	X	X	100	X	X	X	-	73	-	400	-	-	-	180	X	X	X	-	-	-	-	-	-
Phosgene Gas	$COCL_2$	-	-	X	X	X	X	X	X	-	-	-	-	350	-	-	-	X	-	X	X	-	-	-	-	-	-
Phosgene Liquid	-	-	1.39	X	X	X	-	X	-	-	-	-	-	-	-	-	-	X	-	X	X	-	-	-	-	-	-
Phosphoric Acid	H_3PO_4	-	1.8	140	190	180	140	140	140	68	X	250	-	400	100	200	-	200	100	120	X	-	-	A	-	-	-
Phosphoric Acid	H_3PO_4	10	-	140	190	180	140	140	140	68	X	250	-	400	100	200	-	200	100	70	X	-	-	A	-	-	-
Phosphoric Acid	H_3PO_4	20	-	140	190	180	140	140	140	68	X	250	-	400	100	200	-	200	70	70	X	-	-	A	-	-	-
Phosphoric Acid	H_3PO_4	40	-	140	190	180	250	140	140	-	X	250	68	300	100	200	-	200	70	X	X	-	-	A	-	-	-

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CHEMICAL	FORMULAS	APPROX. SP.GRAVITY @ 100% CONC.	PVC	CPVC	POLYPROPYLENE (PP)	POLYVINYLIDENE FLUORIDE (PVDF)	POLYETHYLENE (PE)	POLYETHYLENE-CROSS LINKED (XLPE)	DURAPLUS ABS	RYTON	HALAR	PEEK	TEFLON	EPOXY	VINYLESTER	POLYSULFONE	VITON	EPDM	NEOPRENE	BUNA N (NITRILE)	CARBON	CERAMIC	304 STAINLESS STEEL	316 STAINLESS STEEL	TITANIUM	HASTELLOY C
			PLASTIC											ELASTOMER				SEAL			METAL					
Phosphoric Acid	H_3PO_4	80	-	140	190	180	250	70	70	-	X	250	68	350	100	200	-	200	70	X	X	-	-	A	-	-	-
Phosphoric Acid	H_3PO_4	85	-	140	-	180	200	70	70	X	X	250	-	350	100	200	-	200	70	X	X	-	-	A	-	-	-
Phosphoric Acid	H_3PO_4	100	1.8	-	-	-	-	-	-	X	X	-	-	350	-	-	-	100	70	X	X	-	-	A	-	-	-
Phosphoric Acid Crude	H_3PO_4	-	1.83	-	-	-	-	-	-	-	X	-	-	250	-	-	-	100	70	X	X	-	-	-	-	-	-
Phosphorus Oxychloride	$POCL_3$	-	1.68	73	73	X	200	X	X	X	-	-	-	250	X	-	-	-	-	X	-	-	-	X	X	-	B
Phosphorus Red	-	-	-	70	68	68	250	-	-	-	-	-	-	350	-	X	-	-	-	-	-	-	-	A	-	-	-
Phosphorus Trichloride,dry	PCL_3	-	1.57	X	X	X	250	X	X	X	200	-	-	300	-	-	-	150	100	X	X	-	-	-	-	-	-
Phosphorus Yellow	-	-	-	68	68	68	250	-	-	-	-	73	-	350	-	-	-	-	-	-	-	-	-	-	-	-	-
Photographic Developer	-	-	-	140	190	150	250	X	140	-	-	-	-	350	-	-	-	190	-	100	-	A	A	-	-	-	-
Photographic Solutions	-	-	-	140	190	150	250	X	140	-	-	121	—	400	-	-	-	180	-	200	200	-	-	-	-	-	-
Phthalic Acid	-	-	-	-	-	-	-	-	-	-	-	-	68	400	-	-	-	-	-	-	-	-	-	-	-	-	-
(Terephthalic Acid)	$C_6H_4(COOH)_2$	-	1.59	X	X	X	200	-	-	-	-	-	-	-	-	-	-	140	100	X	X	-	-	A	A	-	B
Phthalic Anhydride	$C_6H_4(CO)_2O$	-	1.53	X	X	X	-	-	-	X	-	-	-	350	220	200	-	-	-	-	-	-	-	-	-	-	-
Pickle Brine	-	-	-	140	180	140	250	-	-	-	-	-	-	-	-	-	-	70	100	X	100	-	-	-	-	-	-
Pickling Solutions	-	-	-	140	180	180	250	X	140	-	-	-	-	400	-	-	-	-	X	X	X	-	-	-	-	-	-
Picric Acid	$C_6H_2(NO_2)_3OH$	-	1.77	X	X	73	70	X	100	-	-	73	-	400	100	100	-	190	140	200	X	-	-	A	-	-	A
Pine Oil	-	-	1.48	-	-	-	-	-	-	X	-	-	-	400	150	150	-	70	X	X	70	-	-	A	-	-	-
Plating Solutions,	-	-	-	-	-	-	-	-	-	-	-	-	-	300	-	-	-	-	-	-	-	-	-	-	-	-	-
Antimony	-	-	-	140	190	250	240	140	140	-	-	-	-	-	-	-	-	140	-	100	100	-	-	A	-	-	-
Plating Solutions, Arsenic	-	-	-	140	190	150	240	140	140	-	-	-	-	300	-	-	-	100	-	100	100	-	-	A	-	-	-
Plating Solutions, Brass	-	-	-	140	180	180	240	140	140	-	-	121	-	300	-	-	-	150	70	200	180	-	X	B	-	-	-
Plating Solutions, Bronze	-	-	-	140	180	180	200	140	140	-	-	121	-	250	-	-	-	70	70	100	-	-	-	A	-	-	-
Plating Solutions, Cadmium	-	-	-	140	180	X	240	140	140	-	-	121	-	250	-	-	-	180	70	200	180	-	-	A	-	-	-
Plating Solutions, Chrome	-	-	-	140	180	X	250	140	140	-	-	121	-	250	-	-	-	250	-	100	X	-	-	A	-	-	-
Plating Solutions, Copper	-	-	-	140	180	180	210	140	140	-	-	121	-	250	-	-	-	180	70	80	180	-	-	-	-	-	-
Plating Solutions, Gold	-	-	-	100	180	X	250	140	140	-	-	121	-	250	-	-	-	180	70	80	180	-	-	-	-	-	-
Plating Solutions, Indium	-	-	-	140	180	120	200	140	140	-	-	-	-	350	-	-	-	100	-	130	-	-	-	-	-	-	-
Plating Solutions, Iron	-	-	-	140	180	140	200	140	140	-	-	-	-	400	-	-	-	-	-	X	180	-	-	-	-	-	-
Plating Solutions, Lead	-	-	-	140	180	140	250	140	140	-	-	121	-	350	-	-	-	180	70	100	180	-	-	-	-	-	-
Plating Solutions, Nickel	-	-	-	140	140	140	250	140	140	-	-	121	-	350	-	-	-	180	70	200	180	-	-	A	-	-	-
Plating Solutions, Rhodium	-	-	-	140	140	140	250	140	140	-	-	121	-	350	-	-	-	180	-	80	180	-	-	-	-	-	-
Plating Solutions, Silver	-	-	-	140	100	180	250	140	140	-	-	121	-	350	-	-	-	180	70	100	180	-	-	A	-	-	-
Plating Solutions, Tin	-	-	-	140	180	180	250	140	140	-	-	121	-	350	-	-	-	180	100	100	180	-	-	-	C	-	-
Plating Solutions, Zinc	-	-	-	140	180	180	250	140	140	-	-	121	-	350	-	-	-	180	70	200	180	-	-	-	-	-	-
Polyethylene Glycol	-	-	-	140	180	180	250	-	-	-	-	121	-	350	150	-	-	200	100	-	-	-	-	-	-	-	-
Polyvinyl Acetate	-	-	1.19	-	-	-	250	-	-	-	-	-	-	350	150	100	-	68	-	200	68	-	-	-	-	-	-
Emulsion	-	-	-	-	-	-	-	-	-	68	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Polyvinyl Alcohol	$(CH_2CHOH)_2$	-	-	140	140	180	250	-	-	-	-	-	-	400	150	100	-	140	-	-	100	-	-	-	-	-	-
Potash (Potassium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
(Carbonate)	K_2CO_3	-	-	140	180	180	250	-	-	176	-	-	-	400	100	150	-	200	-	-	150	-	-	-	-	-	-
Potassium Acetate	$KC_2H_3O_2$	-	1.6	70	180	100	250	-	-	-	-	-	-	400	-	-	-	68	100	-	68	-	-	-	-	-	-
Potassium Alum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
(Aluminum Potassium	-	-	-	140	180	180	250	140	140	-	-	250	-	400	270	200	-	200	180	160	180	-	-	-	-	-	-
Sulfate)	-	-	-	-	-	-	-	-	-	176	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Potassium Bicarbonate	$KHCO_3$	-	2.2	140	200	180	250	-	-	176	-	-	-	400	100	150	-	200	170	160	70	A	A	A	-	-	-
Potassium Bichromate	-	-	-	-	-	-	-	-	-	-	-	212	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
(see Potassium Dichromate)	$K_2Cr_2O_7$	-	2.7	140	180	180	250	-	-	-	-	-	-	300	200	200	-	250	170	-	180	-	-	-	-	-	-
Potassium Bisulfate	$KHSO_4$	-	-	140	180	180	250	-	-	176	-	212	-	300	-	-	-	200	170	140	180	-	-	-	-	-	-
Potassium Bromate	$KBrO_3$	-	3.3	140	180	180	250	-	-	176	-	-	-	350	-	-	-	220	-	140	180	-	-	-	-	-	-
Potassium Bromide	KBr	30	2.7	140	180	180	250	-	-	176	-	250	-	300	220	200	-	200	150	160	180	-	-	-	-	-	-
Potassium Carbonate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
(Potash)	K_2CO_3	-	2.4	140	180	180	250	-	-	176	-	250	-	300	100	150	-	200	160	160	180	-	-	A	-	-	-
Potassium Chlorate Aqueous	$KCLO_3$	30	2.3	140	180	180	250	-	-	176	-	250	-	300	-	-	-	180	140	100	100	-	-	-	A	-	-
Potassium Chloride	KCl	-	2.0	140	180	180	250	-	-	176	200	250	-	350	200	200	-	200	200	140	180	-	-	-	-	-	-

CHEMICAL RESISTANCE GUIDE

CHEMICAL	FORMULAS	APPROX. SP.GRAVITY @ 100% CONC.	PVC	CPVC	POLYPROPYLENE (PP)	POLYVINYLIDENE FLUORIDE (PVDF)	POLYETHYLENE (PE)	POLYETHYLENE-CROSS LINKED (XLPE)	DURAPLUS ABS	RYTON	HALAR	PEEK	TEFLON	EPOXY	VINYLESTER	POLYSULFONE	VITON	EPDM	NEOPRENE	BUNA N (NITRILE)	CARBON	CERAMIC	304 STAINLESS STEEL	316 STAINLESS STEEL	TITANIUM	HASTELLOY C
		PLASTIC											ELASTOMER				SEAL				METAL					
Potassium Chromate	K_2CrO_4	-	2.7	140	180	180	250	-	-	-	-	250	-	-	-	-	-	100	170	70	140	A	X	-	-	-	-
Potassium Copper	-	-	-	-	-	-	-	-	-	-	-	250	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide	KCuCN	-	-	140	180	200	250	-	-	-	-	-	-	350	-	-	-	200	140	-	140	-	-	-	-	-	-
Potassium Cyanide	KCN	-	1.5	140	180	180	250	-	-	176	-	-	-	350	230	180	-	190	140	160	180	C	A	A	-	-	-
Potassium Dichromate	$K_2Cr_2O_7$	10	2.7	140	180	180	250	-	-	176	-	250	-	350	200	200	-	180	170	160	180	-	-	-	-	-	-
Potassium Ferricyanide	$K_3Fe(CN)_6$	-	-	140	180	140	250	-	-	176	-	250	-	350	220	200	-	140	140	150	70	-	-	-	-	-	-
Potassium Ferrocyanide	$K_4Fe(CN)_6$	-	1.9	140	180	140	250	-	-	176	-	250	-	350	220	200	-	180	140	200	180	-	-	-	-	-	-
Potassium Fluoride	KF	-	2.5	140	180	180	250	-	-	176	-	250	-	350	-	-	-	180	140	-	180	-	-	-	-	-	-
Potassium Hydroxide	KOH	-	2.0	-	-	-	-	-	-	176	-	-	-	-	-	-	-	-	200	160	70	-	-	A	-	-	-
(Caustic Potash)	-	-	-	-	-	-	-	-	-	-	-	250	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Potassium Hydroxide	KOH	25	-	140	180	180	140	-	-	176	200	-	-	350	100	120	-	-	200	160	100	-	-	A	-	-	-
Potassium Hydroxide	KOH	10	-	140	180	100	X	-	-	176	200	250	-	350	-	-	-	-	200	160	70	-	-	A	-	-	-
Potassium Hypochlorite	KHOCL	-	-	140	180	73	250	X	-	-	-	250	-	300	-	-	-	100	70	X	X	-	-	A	-	-	-
Potassium Iodide	KI	-	3.12	140	180	180	48	-	-	176	-	-	-	350	-	-	-	100	140	160	80	-	-	-	-	-	-
Potassium Nitrate (Salt Peter)	KNO_3	-	2.1	140	180	150	250	-	-	176	-	-	-	350	270	200	-	180	210	200	180	-	-	A	-	-	A
Potassium Perbotate	-	-	-	140	180	180	250	-	-	-	-	-	-	350	-	-	-	-	-	70	70	-	-	-	-	-	-
Potassium Perchlorate	$KClO_4$	-	2.5	140	180	180	250	-	-	-	-	-	-	350	-	-	-	150	140	X	X	-	-	-	-	-	-
Potassium Permanganate	$KMNO_4$	20	2.7	140	*	120	250	-	-	-	200	73	-	350	X	150	-	150	210	100	X	A	A	B	B	-	B
Potassium Persulfate	$K_2S_2O_8$	-	2.5	140	180	120	250	-	-	-	-	300	-	400	-	180	-	200	210	140	X	A	A	-	A	-	-
Potassium Phosphate	K_3HPO_4	-	-	-	180	-	-	-	-	-	-	121	-	400	180	100	-	140	100	100	100	-	-	-	-	-	-
Potassium Salts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Potassium Sulfate	K_2SO_4	-	2.7	140	180	180	250	-	-	176	-	-	-	400	250	180	-	200	180	140	140	A	A	-	-	-	-
Potassium Sulfide	K_2S	-	1.8	100	120	-	250	-	-	-	-	250	-	300	-	-	-	100	-	70	100	-	-	-	-	-	-
Potassium Thiosulfate	$K_2S_2O_3$	-	-	-	-	-	-	-	-	176	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Propane (Dimethyl- Methane)	C_3H_8	-	-	72	72	73	250	-	-	X	-	-	-	300	150	100	-	300	X	70	100	-	-	-	-	-	-
Propanol (see Alcohol, Propyl)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Propargyl Alcohol	$HC{:}CCH_2OH$	-	-	72	72	120	150	-	-	-	-	-	-	350	-	-	-	140	-	X	X	-	-	-	-	-	-
Propyl Acetate	$C_3H_7OOCCH_3$	-	0.89	-	-	-	100	-	-	X	-	73	-	140	-	-	-	X	70	X	100	-	-	-	-	-	-
Propyl Alcohol	$CH_3CH_2CH_2OH$	-	0.8	120	160	150	150	-	-	X	-	250	-	400	-	-	-	200	140	200	-	-	-	-	-	-	-
Propylene	$CH_3CH{:}CH_2$	-	0.51	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-
Propylene Dichloride	$CH_3CHCLCH_2CL$	-	1.58	X	X	X	150	-	-	X	-	-	-	400	-	-	-	70	X	X	100	-	-	-	-	-	-
Propylene Glycol	$CH_3CHOHCH_2OH$	-	1.0	-	-	-	250	X	140	-	-	-	-	400	200	-	-	200	-	100	X	-	-	-	-	-	-
Pyridine	$N(CH)_4CH$	-	1.0	X	X	73	X	-	-	X	200	-	-	350	-	-	-	X	70	X	80	-	-	-	B	-	-
Pyrogallic Acid (Pyrogallol)	$C_6H_3(OH)_3$	-	1.47	73	-	-	150	-	-	-	-	121	-	350	-	-	-	80	-	200	-	-	-	-	-	-	-
Quaternary Ammonium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Salts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	A	A	-	-	-	-
Rayon Coagulating Bath	-	-	-	140	180	73	73	X	140	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-
Rhodan Salts (Thiocyanates)	-	-	-	140	140	140	250	-	-	-	-	-	-	-	-	-	-	180	-	-	-	-	-	-	-	-	-
Rosins	-	-	-	-	-	-	-	-	-	-	-	-	-	350	-	-	-	-	-	-	-	-	-	-	-	-	-
Rum	-	-	-	100	100	100	-	-	-	-	-	-	-	-	-	-	-	70	-	-	-	-	-	-	-	-	-
Rust Inhibitors	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Salad Dressings	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	A	A	-	-	-	-
Salicylaldehyde	C_6H_4OHCHO	-	1.17	X	X	-	140	-	-	-	-	73	-	200	-	-	-	-	-	-	-	-	-	-	-	-	-
Salicylic Acid	$C_6H_4(OH)(COOH)$	-	1.44	-	-	-	210	-	-	-	-	-	-	250	-	-	-	200	-	-	68	A	A	-	-	-	-
Saline Solutions (Brine)	-	-	-	140	190	180	250	140	140	-	-	250	-	400	200	-	-	280	250	160	180	-	-	B	-	-	-
Salt Brine	-	-	-	140	190	180	250	140	140	-	-	250	-	400	200	-	-	280	250	160	180	A	A	B	-	-	B
Sea Water	-	-	-	140	190	180	250	140	140	176	-	250	-	400	200	-	-	280	250	160	180	A	A	C	-	-	A
Selenic Acid	H_2SeO_4	-	22.6	140	190	73	70	70	70	-	-	-	-	350	-	-	-	-	-	-	-	-	-	-	-	-	A
Sewage	-	-	-	140	180	180	250	-	-	-	-	-	-	350	-	-	-	180	140	140	150	A	A	A	-	-	-
Shellac Bleached	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Shellac Orange	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Salicic Acid	SiO_2H_2O	-	-	140	180	180	250	140	140	-	-	-	-	250	-	-	-	200	140	140	180	-	-	-	-	-	-
Silicone Oil	-	-	-	140	150	150	250	-	-	-	-	73	-	350	-	-	-	190	140	70	140	A	A	A	-	-	-
Silver Bromide	AgBr	-	6.47	-	-	-	-	140	140	-	-	-	-	-	-	-	-	-	-	-	-	A	-	-	-	-	-

CHEMICAL RESISTANCE GUIDE

CHEMICAL	FORMULAS	APPROX. SP.GRAVITY @ 100% CONC.	PVC	CPVC	POLYPROPYLENE (PP)	POLYVINYLIDENE FLUORIDE (PVDF)	POLYETHYLENE (PE)	POLYETHYLENE-CROSS LINKED (XLPE)	DURAPLUS ABS	RYTON	HALAR	PEEK	TEFLON	EPOXY	VINYLESTER	POLYSULFONE	VITON	EPDM	NEOPRENE	BUNA N (NITRILE)	CARBON	CERAMIC	304 STAINLESS STEEL	316 STAINLESS STEEL	TITANIUM	HASTELLOY C
		PLASTIC											ELASTOMER				SEAL				METAL					
Silver Cyanide	AgCN	-	3.95	140	180	180	250	140	140	-	-	250	-	350	-	-	-	140	140	70	X	-	-	-	-	-	-
Silver Nitrate	$AgNO_3$	-	4.32	140	180	180	280	140	140	-	-	250	-	350	-	-	-	250	200	160	140	A	A	A	-	-	-
Silver Salts	-	-	-	140	180	180	280	140	140	-	-	-	-	350	-	-	-	140	140	100	-	-	-	A	-	-	-
Silver Sulfate	Ag_2SO_4	-	5.45	140	180	140	250	140	140	-	-	250	-	250	-	-	-	200	170	100	100	-	-	-	-	-	-
Soap Solutions	-	-	-	140	180	180	280	X	140	-	-	121	-	350	-	-	-	200	200	140	180	A	A	A	-	-	-
Soda Ash (Sodium Carbonate)	Na_2CO_3	-	1.55	140	180	180	280	-	-	176	-	250	-	400	100	150	-	250	140	140	140	-	-	A	-	-	-
Sodium	Na	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium Acetate	$NaC_2H_3O_2$	-	1.5	140	180	180	250	140	140	176	-	250	-	350	220	200	-	X	170	200	X	A	A	A	-	-	A
Sodium Alum	-	-	-	140	180	180	250	140	140	-	-	250	-	350	-	-	-	210	160	140	180	-	-	-	-	-	-
Sodium Aluminate	$Na_2AL_2O_4$	-	-	-	-	-	-	-	-	176	-	-	-	-	-	-	-	200	200	140	180	A	A	-	-	A	A
Sodium Benzoate	C_6H_5COONa	-	-	140	180	180	250	140	140	-	-	250	-	300	200	180	-	200	210	-	140	-	-	-	-	-	-
Sodium Bicarbonate	$NaHCO_3$	-	2.2	140	180	180	280	140	140	176	200	250	-	400	250	150	-	300	210	160	180	A	A	-	-	A	A
Sodium Bichromate (see	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium Dichromate)	$Na_2Cr_2O_7$	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium Bisulfate	$NaHSO_4$	-	2.4	140	180	180	280	140	140	176	200	250	-	250	250	200	-	250	200	140	180	A	A	-	-	A	-
Sodium Bisulfite	$NaHSO_3$	-	1.5	140	180	180	250	140	140	176	200	250	-	350	-	-	-	250	200	140	180	-	-	-	-	A	A
Sodium Borate (Borax)	$Na_2B_4O_7$	-	1.7	100	180	200	250	140	140	176	-	-	-	300	-	-	-	180	140	200	180	A	A	-	-	A	A
Sodium Bromate	$NaBrO_3$	-	3.34	-	-	-	-	140	140	176	-	-	-	-	140	-	-	-	-	-	-	-	-	-	-	-	-
Sodium Bromide	NaBr	-	3.2	140	180	180	250	-	-	176	-	250	-	300	250	200	-	250	210	70	70	-	-	-	-	A	-
Sodium Carbonate (Soda Ash)	Na_2CO_3	-	1.55	140	180	180	250	-	-	176	200	250	-	350	100	150	-	200	140	200	200	B	A	-	-	A	A
Sodium Chlorate	$NaCLO_3$	-	2.5	100	180	180	250	-	-	176	-	250	-	350	-	180	-	180	140	70	180	A	A	-	-	A	-
Sodium Chloride (Salt)	NaCL	-	2.2	140	180	180	280	140	140	176	200	250	-	350	270	200	-	200	140	160	140	-	-	-	-	B	A
Sodium Chlorite	$NaCLO_2$	25	-	140	180	73	140	-	-	-	-	212	-	400	-	-	-	X	X	-	X	-	-	-	-	-	-
Sodium Chromate	Na_2CrO_4	-	-	-	-	-	200	-	-	-	200	-	-	-	-	-	-	70	70	70	70	-	-	-	-	A	-
Sodium Cyanide	NaCN	-	-	140	170	180	250	-	-	176	-	250	-	350	230	200	-	200	140	140	140	-	-	-	-	A	-
Sodium Dichromate	$Na_2Cr_2O_7$	-	2.5	140	140	140	250	-	-	176	200	121	-	350	200	200	-	200	140	70	140	-	-	-	-	-	-
Sodium Ferricyanide	$Na_3Fe(CN)_6$	-	1.5	140	180	150	250	-	-	176	-	-	-	300	270	200	-	140	140	-	70	-	-	A	-	-	-
Sodium Ferrocyanide	$Na_4Fe(CN)_6$	-	1.5	140	180	150	250	-	-	176	-	-	-	350	270	200	-	140	140	-	70	-	-	-	-	-	-
Sodium Fluoride	NaF	-	2.6	140	180	180	250	-	-	176	-	250	-	350	-	-	-	140	140	70	70	-	-	A	-	-	-
Sodium Hydrosulfide	NaSH	-	-	-	-	-	-	-	-	-	-	250	-	-	120	-	-	-	-	-	-	-	-	-	-	-	-
Sodium Hydrosulfite	$Na_2S_2O_6$	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium Hydroxide	NaOH	15	-	140	180	180	150	X	140	176	200	250	-	400	120	100	-	100	210	160	140	-	-	A	-	-	-
Sodium Hydroxide	NaOH	20	-	140	180	180	73	X	140	176	200	-	-	350	120	100	-	100	210	160	100	-	-	A	-	-	-
Sodium Hydroxide	NaOH	30	-	140	180	180	X	X	140	176	200	212	-	350	120	100	-	100	210	160	100	-	-	A	-	-	-
Sodium Hydroxide	NaOH	50	2.1	140	180	180	X	X	140	176	200	212	-	350	150	X	-	X	180	160	X	-	-	A	-	-	-
Sodium Hydroxide	NaOH	70	-	140	180	180	X	X	140	176	-	-	-	350	-	-	-	X	70	100	X	-	-	-	-	-	-
Sodium Hydroxide Conc.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
(Caustic Soda)	NaOH	-	-	140	180	120	X	X	140	176	-	-	-	70	-	-	-	X	100	X	X	-	-	-	-	-	-
Sodium Hypochlorite (Bleach)	NaOCL	-	-	140	180	120	100	140	140	X	X	250	-	300	X	150	-	140	70	X	X	-	-	A	-	-	-
Sodium Hypochlorite Conc	NaOCL	15	-	140	100	72	100	-	-	X	X	-	-	300	X	-	-	180	X	70	X	-	-	-	-	-	-
Sodium Hyposulfate	$Na_2S_2O_3$	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium Iodide	NaI	-	-	-	-	-	280	-	-	-	-	121	-	-	-	-	-	-	-	160	-	-	-	-	-	-	-
Sodium Metaphosphate	$(NaPO_3)n$	-	-	140	180	150	250	-	-	68	-	250	-	-	-	-	-	180	70	100	150	-	-	A	-	-	-
Sodium Metasilicate	Na_2SiO_3	-	-	140	180	180	250	-	-	176	-	-	-	350	-	-	-	200	-	-	170	-	-	-	-	-	-
Sodium Nitrate	$NaNO_3$	-	2.3	140	180	180	250	-	-	-	-	-	-	400	270	200	-	210	200	190	170	A	A	A	-	-	-
Sodium Nitrate	$NaNO_3$	-	2.2	140	180	180	250	-	-	176	-	250	-	400	270	200	-	200	170	140	X	A	A	A	-	-	-
Sodium Palmitate	-	-	-	140	180	120	250	-	-	-	-	-	-	400	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium Perborate	$NaBO_3$	-	-	140	180	180	250	-	-	-	-	-	-	350	-	-	-	180	70	200	200	-	-	A	-	-	-
Sodium Perchlorate	$NaCLO_4$	-	2.02	140	180	180	250	-	-	-	-	73	-	350	-	-	-	-	-	-	70	-	-	-	-	-	-
Sodium Peroxide	Na_2O_2	10	2.8	140	180	180	200	-	-	-	-	250	-	350	-	-	-	180	140	200	200	-	-	A	-	-	-
Sodium Phosphate Acid	Na_2HPO_4	-	1.7	140	180	140	280	-	-	-	-	250	-	350	-	-	-	200	170	140	140	-	-	A	-	-	-
Sodium Phosphate Alkaline	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
(Mono Basic	NaH_2PO_4	-	2.04	140	180	180	250	-	-	-	-	250	-	350	-	-	-	200	170	140	140	-	-	A	-	-	-
Sodium Phosphate Neutral (Tri Basic)	Na_3PO_4	-	1.62	140	180	180	250	120	-	-	200	250	-	350	-	-	-	200	170	140	140	-	-	-	-	-	-

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CHEMICAL	FORMULAS	APPROX. SP.GRAVITY @ 100% CONC.	PVC	CPVC	POLYPROPYLENE (PP)	POLYVINYLIDENE FLUORIDE (PVDF)	POLYETHYLENE (PE)	POLYETHYLENE-CROSS LINKED (XLPE)	DURAPLUS ABS	RYTON	HALAR	PEEK	TEFLON	EPOXY	VINYLESTER	POLYSULFONE	VITON	EPDM	NEOPRENE	BUNA N (NITRILE)	CARBON	CERAMIC	304 STAINLESS STEEL	316 STAINLESS STEEL	TITANIUM	HASTELLOY C
		PLASTIC												ELASTOMER			SEAL				METAL					
Sodium Polyphosphate	-	-	-	140	180	180	250	120	-	-	200	-	-	350	-	-	-	200	150	140	140	A	A	A	-	-	-
Sodium Silicate (Water Glass)	Na_2OSiO_2	-	-	140	180	180	250	-	-	176	200	250	-	350	220	200	-	200	200	140	140	A	A	A	-	-	-
Sodium Sulfate	Na_2SO_4	-	2.7	140	180	150	280	140	140	176	200	250	-	400	270	200	-	200	140	140	140	A	A	A	-	-	-
Sodium Sulfide	Na_2S	50	1.4	140	180	180	250	140	140	-	200	250	-	350	-	150	-	200	140	140	140	A	A	A	-	-	-
Sodium Sulfite	Na_2SO_3	-	2.6	140	180	180	250	140	140	176	-	250	-	350	200	200	-	200	140	140	140	A	A	A	A	-	B
Sodium Tetraborate	$Na_2B_4O_7$	-	-	140	180	120	250	140	140	176	-	-	-	300	-	-	-	140	100	100	70	A	A	A	-	-	-
Sodium Thiocyanate	NaSCN	-	-	140	140	140	240	140	140	-	-	-	-	250	200	180	-	180	140	-	100	A	A	-	-	-	-
Sodium Thiosulfate (HypO)	$Na_2S_2O_3$	-	1.7	140	180	180	250	140	140	176	200	250	-	350	150	200	-	200	-	160	200	A	A	-	B	-	-
Sorghum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Soy Sauce	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Soybean Oil	-	-	-	140	180	180	250	X	70	-	-	-	-	250	-	-	-	200	X	70	140	A	A	A	-	-	-
Stannic Chloride (Tin Chloride)	Na_2SnCL_6	-	2.3	140	180	150	280	-	-	-	-	250	-	350	250	200	-	200	100	X	140	A	A	C	X	-	-
Stannic Salts	-	-	-	140	180	150	280	-	-	-	-	-	-	350	250	200	-	200	100	X	140	-	-	C	X	-	-
Stannous Chloride (Tin Salts)	$SnCL_2$	-	-	140	180	180	250	-	-	-	-	250	-	350	220	200	-	200	100	X	140	-	-	C	A	-	-
Starch (Amylum)	-	-	1.51	140	180	180	250	140	140	176	-	121	-	350	-	-	-	200	140	140	170	A	A	A	-	-	-
Stearic Acid	-	-	0.84	140	180	120	250	-	-	176	-	121	-	350	220	200	-	80	X	70	200	-	-	A	A	-	-
Stoddard Solvent (Dry	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cleaning Solvent)	-	-	-	X	X	70	250	-	-	X	200	250	-	300	-	-	-	180	X	X	180	A	A	A	B	-	-
Strontium Carbonate	$SrCO_3$	-	3.62	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Styrene	$C_6H_5CH{:}CH_2$	-	0.9	X	X	X	200	-	-	X	-	-	-	250	100	180	-	X	X	X	X	-	-	A	-	-	-
Succinic Acid (Butaned-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ioic Acid)	-	-	1.55	140	170	150	150	-	-	-	-	212	-	200	-	-	-	70	70	-	70	-	-	A	-	-	-
Sugar Solutions	-	-	-	140	200	180	270	-	-	-	-	-	-	350	220	180	-	200	140	140	100	-	-	-	-	-	-
Sulfamic Acid	HSO_3NH_2	25	2.1	-	180	X	X	-	-	176	-	-	-	-	100	180	-	-	-	-	-	-	-	-	-	-	-
Sulfate Liquors (Paper Pulp)	-	-	-	140	190	150	150	-	-	-	-	73	-	200	-	-	-	80	70	140	80	-	-	A	-	-	-
Sulfonated Detergents	-	-	-	140	190	150	200	-	-	-	-	-	-	300	-	-	-	100	-	-	-	-	-	-	-	-	-
Sulfur	S	0	-	-	73	-	248	70	70	68	-	212	-	350	-	-	-	73	X	80	X	-	-	A	A	-	A
Sulfur Dioxide	SO_2	-	-	-	-	-	-	-	-	X	200	-	-	-	180	200	-	-	-	-	-	-	-	-	-	-	-
Sulfite Liquor (Sulfite	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-
Paper Process)	-	-	-	140	180	180	250	-	-	-	-	73	-	-	150	200	-	140	140	70	70	-	-	A	-	-	-
Sulfur Chloride	S_2CL_2	-	1.69	140	-	X	250	-	-	-	-	73	-	-	X	X	-	180	X	X	X	-	-	C	-	-	-
Sulfur Dioxide Dry	SO_2	-	-	140	180	180	250	70	70	X	-	212	-	300	X	200	-	100	70	X	X	-	-	A	-	-	-
Sulfur Dioxide Wet	SO_2	-	-	100	150	180	250	70	70	X	-	121	-	300	-	-	-	140	140	X	X	-	-	A	-	-	-
Sulfur Slurries	-	-	-	140	180	X	250	-	-	-	-	-	-	350	-	-	-	200	X	70	X	-	-	A	-	-	-
Sulfur Trioxide Dry	SO3	-	-	X	X	X	X	-	-	-	-	-	-	-	X	X	-	150	X	X	X	-	-	B	-	-	-
Sulfuric Acid	H_2SO_4	10	-	140	180	180	250	140	140	176	200	212	-	350	100	200	-	200	140	100	100	A	A	X	X	X	A
Sulfuric Acid	H_2SO_4	30	-	140	180	150	250	140	140	176	200	212	-	350	100	180	-	200	140	100	100	-	-	X	X	X	A
Sulfuric Acid	H_2SO_4	50	-	140	180	150	200	140	140	68	200	212	-	350	100	180	-	200	140	100	100	-	-	X	X	X	A
Sulfuric Acid	H_2SO_4	60	-	140	180	140	200	X	70	X	200	212	-	350	*	120	-	200	140	100	X	-	-	X	X	X	A
Sulfuric Acid	H_2SO_4	70	-	140	180	140	200	X	70	X	200	212	-	350	X	X	-	200	140	X	X	-	-	X	X	X	B
Sulfuric Acid	H_2SO_4	80	-	140	180	X	200	X	70	X	200	212	-	350	X	X	-	200	70	X	X	-	-	X	C	X	B
Sulfuric Acid	H_2SO_4	90	-	73	150	X	200	X	70	X	200	212	-	350	X	X	-	200	X	X	X	-	-	X	C	X	B
Sulfuric Acid	H_2SO_4	95	-	X	150	X	180	X	70	X	200	212	-	350	X	X	-	200	X	X	X	-	-	C	B	X	B
Sulfuric Acid	H_2SO_4	98	1.84	X	100	X	140	X	X	X	200	212	-	350	X	X	-	200	X	X	X	-	-	C	B	X	B
Sulfuric Acid	H_2SO_4	100	-	X	X	X	X	X	X	X	-	-	-	-	X	X	-	100	X	X	X	-	-	C	B	X	B
Sulfurous Acid	H_2SO_3	-	1.03	140	170	170	250	140	-	-	-	212	-	350	-	-	-	180	X	X	X	-	-	A	B	-	B
Sulfuryl Chloride	SO_2CL_2	-	1.67	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	B
Syrup (Sucrose in water)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tall Oil	-	-	-	140	180	180	250	X	70	-	-	250	-	250	200	200	-	300	X	70	200	-	-	A	B	-	-
Tallow (Animal Fat)	-	-	0.86	-	-	-	-	X	70	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tannic Acid	$C_{76}H_{52}O_{46}$	-	-	140	200	180	250	X	140	-	-	212	-	250	225	200	-	100	70	100	100	-	-	A	B	-	-
Tanning Liquors	-	-	-	140	190	73	68	-	-	-	-	212	-	250	-	-	-	200	-	70	180	A	A	A	B	-	-
Tar	-	-	-	X	X	-	250	-	-	-	-	250	-	250	-	-	-	190	X	70	X	-	-	A	-	-	-
Tartaric Acid (DihydroxySuccinic Acid)	-	-	1.8	140	180	140	250	140	140	176	-	212	-	250	250	200	-	180	X	180	70	-	-	A	-	-	-

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CHEMICAL	FORMULAS	APPROX. SP.GRAVITY @ 100% CONC.	PVC	CPVC	POLYPROPYLENE (PP)	POLYVINYLIDENE FLUORIDE (PVDF)	POLYETHYLENE (PE)	POLYETHYLENE-CROSS LINKED (XLPE)	DURAPLUS ABS	RYTON	HALAR	PEEK	TEFLON	EPOXY	VINYLESTER	POLYSULFONE	VITON	EPDM	NEOPRENE	BUNA N (NITRILE)	CARBON	CERAMIC	304 STAINLESS STEEL	316 STAINLESS STEEL	TITANIUM	HASTELLOY C
			PLASTIC										ELASTOMER				SEAL				METAL					
Tertiary Butyl Alcohol	-	-	-	68	68	68	250	-	-	X	-	-	-	250	-	-	-	70	-	-	X	-	-	A	-	-	-
Tetrachlorethane	$CHCL_2CHCL_2$	-	-	X	X	X	250	-	-	X	-	-	-	350	-	-	-	70	X	X	X	-	-	A	-	-	-
Tetraethyl Lead	$Pb(C_2H_5)_4$	-	1.65	72	72	73	250	-	-	-	-	250	-	350	-	-	-	150	X	X	X	-	-	-	-	-	-
Tetrahydrofuran	-	-	-	X	X	X	X	X	X	X	200	X	-	350	120	100	-	X	X	X	X	-	-	-	X	-	-
Tetralin (Tetrahydro-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Naphthalene)	$C_{10}H_{12}$	-	-	X	X	X	-	X	X	X	-	-	-	300	-	-	-	68	X	X	X	-	-	-	-	-	-
Thionyl Chloride	$SOCL_2$	-	1.64	X	X	X	X	X	X	X	-	121	-	350	X	X	-	73	X	X	X	-	-	X	X	-	-
Thread Cutting Oils	-	-	-	140	72	120	150	-	-	-	-	250	-	400	-	-	-	70	X	-	70	-	-	B	B	-	-
Titanium Tetrachloride	$TiCL_4$	-	-	X	X	X	X	-	-	-	-	-	-	400	-	-	-	150	X	X	X	-	-	C	C	A	C
Titanous Sulfate	$Ti_2(SO_4)_3$	-	1.47	140	180	180	250	-	-	-	-	-	-	350	-	-	-	-	-	-	-	-	-	-	-	-	-
Toluene	$CH_3C_6H_5$	-	0.9	X	X	X	150	X	X	X	200	121	-	350	150	X	-	70	X	X	-	A	A	A	A	A	A
Tomato Juice	-	-	-	140	180	150	250	70	140	68	200	-	-	400	-	-	-	200	200	100	150	-	-	C	B	-	B
Toxaphene-Xylene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Transformer Oil (Liquid	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Insulators) Mineral Oil Type	-	-	-	140	190	73	200	X	70	176	-	212	-	400	150	X	-	180	X	100	180	-	-	A	-	-	-
Tributyl Phosphate	$(C_4H_9)_3PO_4$	-	-	X	X	70	100	-	-	X	-	73	-	400	-	-	-	X	70	X	X	A	A	-	-	A	-
Trichloroacetic Acid	CCL_3COOH	-	1.6	73	72	120	100	-	-	-	200	121	-	400	-	-	-	180	70	70	70	-	-	X	X	B	-
Trichloroethane (Methyl	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chloroform)	$CHCL_2CH_2CL$	-	-	X	X	X	-	-	-	X	-	-	-	350	-	-	-	-	X	X	X	-	-	-	-	A	-
Trichloroethylene	$CHCL:CCL_2$	-	1.1	X	X	68	170	X	X	X	-	73	-	350	120	X	-	200	X	X	X	-	-	-	-	A	-
Trichloropropane	-	-	1.39	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	A	-
Tricresyl Phosphate (TCP)	$(CH_3C_6H_4O)_3PO$	-	1.16	X	X	-	-	-	-	X	-	212	-	-	-	-	-	-	-	X	X	-	-	-	-	A	-
Triethanolamine	$(HOCH_2CH_2)_3N$	-	1.12	X	X	X	X	-	-	73	-	73	-	-	150	X	-	X	70	70	70	-	-	C	C	A	-
Triethyl Phosphate	$(C_2H_5)_3PO_4$	-	0.73	-	-	-	-	-	-	X	200	73	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Triethylamine	$(C_2H_5)_3N$	-	-	73	72	72	70	-	-	-	-	121	-	-	100	X	-	200	73	70	140	-	-	-	-	-	-
Trimethylpropane	$(CH_2OH)_3C_3H_5$	-	-	73	-	-	250	-	-	-	-	-	-	300	-	-	-	200	-	150	150	-	-	-	-	-	-
Trisodium Phosphate	Na_3PO_4	-	-	140	180	180	250	-	-	-	-	250	-	350	-	-	-	180	70	200	200	-	-	A	-	-	-
Turbine Oil	-	-	-	72	72	70	-	-	-	-	-	-	-	350	-	-	-	140	X	X	68	A	A	A	-	-	-
Turpentine	$C_{10}H_{16}$	-	0.9	X	X	X	250	X	X	X	200	250	-	300	150	X	-	180	X	X	100	-	-	A	A	-	B
Urea	$CO(NH_2)_2$	-	1.3	140	180	180	250	X	140	176	-	212	-	250	200	150	-	180	140	140	140	-	-	-	-	-	-
Urine	-	-	-	140	180	180	250	140	140	68	-	121	-	350	-	-	-	180	140	140	100	-	-	A	-	-	-
Vanilla Extract (Vanillin)	-	-	-	-	-	-	-	X	140	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Varnish	-	-	-	-	-	-	250	-	-	68	-	-	-	250	-	-	-	68	X	X	68	-	-	A	-	-	-
Vaseline	-	-	-	140	180	180	250	-	-	176	-	121	-	400	-	-	-	70	X	140	140	-	-	-	-	-	-
Vegetable Oil	-	-	-	140	150	140	200	-	70	-	-	-	-	400	-	-	-	300	140	200	100	-	-	A	A	-	B
Vinegar (4-8% Acetic Acid)	-	-	-	140	180	140	200	140	140	68	200	212	-	400	200	200	-	180	140	200	X	-	-	A	B	-	C
Vinyl Acetate	-	-	0.93	X	X	-	250	-	-	X	-	73	-	350	150	X	-	X	70	X	X	-	-	A	A	-	-
Vinyl Chloride	$CH_2:CHCL$	-	-	X	X	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vinyl Ether	$CH_2:CHOCH:CH_2$	-	0.77	X	X	X	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Acid Mine	-	-	-	140	180	150	280	-	-	-	200	250	-	400	-	-	-	180	250	160	180	A	A	A	A	-	A
Water Deionized	H_20	-	-	140	180	180	280	140	140	176	200	250	-	400	250	180	-	140	250	160	180	A	A	A	-	-	A
Water Demineralized	H_20	-	-	140	180	180	280	140	140	176	200	250	-	400	250	200	-	180	250	160	200	A	A	A	-	-	A
Water Distilled	H_20	-	-	140	180	180	280	140	140	176	200	250	-	400	250	200	-	140	250	160	180	A	A	A	-	-	A
Water Potable	H_20	-	-	140	180	180	280	140	140	176	200	250	-	400	270	200	-	140	250	160	180	A	A	A	-	-	A
Water Salt	H_20	-	-	140	180	180	280	140	140	-	200	250	-	400	270	200	-	180	250	160	180	A	A	B	-	-	A
Water Sewage	H_20	-	-	140	180	180	280	140	140	-	200	250	-	400	250	200	-	180	250	160	180	A	A	A	-	-	A
Whey	-	-	-	-	-	-	-	-	-	-	200	-	-	-	-	-	-	-	-	-	-	A	A	-	-	-	-
Whiskey	-	-	0.9	140	180	180	250	X	140	X	200	250	-	350	-	-	-	180	200	200	180	A	A	A	-	-	-
White Acid	NH_4HF_2HF	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	A	A	-	-	-	-
White Liquor	-	-	-	140	180	180	250	-	-	-	-	212	-	350	100	150	-	180	-	140	140	A	A	B	B	-	-
Wines	-	-	-	140	180	140	250	140	140	-	-	212	-	300	-	-	-	180	170	200	180	A	A	A	A	-	-
Xenon	Xe	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Xylene	$C_6H_4(CH_3)_2$	-	0.9	X	X	X	250	X	X	X	200	-	200	350	150	X	-	180	X	X	X	A	A	-	-	-	-
Yeast	-	-	-	-	-	-	-	-	-	68	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

CHEMICAL RESISTANCE GUIDE

CHEMICAL	FORMULAS	APPROX. SP.GRAVITY @ 100% CONC.	PLASTIC: PVC	CPVC	POLYPROPYLENE (PP)	POLYVINYLIDENE FLUORIDE (PVDF)	POLYETHYLENE (PE)	POLYETHYLENE-CROSS LINKED (XLPE)	DURAPLUS ABS	RYTON	HALAR	PEEK	ELASTOMER: TEFLON	EPOXY	VINYLESTER	POLYSULFONE	SEAL: VITON	EPDM	NEOPRENE	BUNA N (NITRILE)	METAL: CARBON	CERAMIC	304 STAINLESS STEEL	316 STAINLESS STEEL	TITANIUM	HASTELLOY C
Zeolite	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zinc Acetate	$Zn(C_2H_3O_2)_2$	-	1.7	140	180	180	250	140	140	-	-	-	-	350	180	-	-	70	180	160	-	-	-	-	-	-
Zinc Carbonate	$ZnCO_3$	-	4.45	-	-	-	-	140	140	176	-	-	-	-	-	-	-	-	-	-	100	A	A	-	-	-
Zinc Chloride	$ZnCL_2$	-	2.9	140	190	180	250	140	140	X	200	250	-	350	250	200	-	200	180	160	70	A	A	-	-	-
Zinc Chromate	$ZnCrO_4$	-	3.4	-	-	-	-	140	140	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zinc Nitrate	$Zn(NO_3)_2$	-	2.06	140	190	180	250	140	140	176	-	250	-	350	-	-	-	200	180	100	140	-	-	-	-	-
Zinc Phosphate	$Zn_3(PO_4)_2$	-	4	-	-	-	-	140	140	176	-	-	-	-	180	200	-	-	-	-	-	-	-	-	-	-
Zinc Salts	-	-	-	140	190	180	250	140	140	-	-	-	-	350	-	-	-	200	180	-	140	-	-	-	-	-
Zinc Sulfate	$ZnSO_4$	-	2	140	190	180	50	140	140	176	-	250	-	400	250	200	-	200	180	140	140	A	A	-	-	-

* Caution: Further testing needed, suspect with certain stress levels.

The Teflon included in the tables is PFA or PTFE which are similar in chemical resistance and temperature. For data on FEP Teflon, please call Harrington's technical service department.

NOTE: Recent studies have shown that surfactants and detergents even in trace quantities can adversely affect the performance of certain thermoplastics in applications like sodium hydroxide, e.g. cross-linked polyethylene and CPVC.

MIXED CHEMICALS

Table 6

CHEMICALS	CONCENTRATION (%)	PVC*	CPVC*	PP*	PVDF*	TEFLON*	VITON*	EPT*
Sulfuric Add Chromic Add Sodium Silicon–fluoride	0.7 250 g/l 1	140	176	_	248	248	_	_
Sulfuric Add Hydrofluoric Acid	20 10	140	140	_	248	248	104	104
Sulfuric Acid Hydrofluoric Add	25 15	140	140	_	248	248	_	_
Sulfuric Add Nitric Acid Chlorine Gas	75 5 Little	140	176	104	176	248	_	_
Sulfuric Acid Sulfurous Acid	75 4	140	176	176	248	248	104	140
Sulfuric Acid Spelter Manganese Sulfate	150 g/l 80 2	140	176	176	248	248	176	176
Sodium Sulfide Sulfuric Acid Formaldehyde	225 g/l 225 g/l 50	104	176	176	212	212	212	140

NOTE: * Temperature at °F.

MIXED CHEMICALS

Table 6 (cont'd)

CHEMICALS	CONCENTRATION (%)	PVC*	CPVC*	PP*	PVDF*	TEFLON*	VITON*	EPT*
Hydrochloric Acid Allyl Chloride	36 12 PPM	104	104	140	248	248	176	104
Hydrochloric Acid Benzene	36 54 PPM	140	176	176	248	248	140	68
Hydrochloric Acid Chlorobenzene	18 490 PPM	140	176	176	248	248	140	68
Hydrochloric Acid Chlorobenzene	36 890 PPM	104	—	104	212	248	104	—
Hydrofluoric Acid Chromium Sulfate Sodium Silico-fluoride	220 g/l 1 g/l 12 g/l	140	176	—	248	248	—	—
Hydrofluoric Acid Sodium Silico-fluoride Oxalic Acid	350 g/l 17 g/l 1 g/l	104	104	—	248	248	—	—
Hydrochloric Acid Ferrous Chloride	35 28	—	—	—	248	248	—	176
Hydrochloric Acid Hydrofluoric Acid	10 15	140	140	—	248	248	—	—
Hydrochloric Acid Hydrofluoric Acid	18 20	140	176	—	248	248	—	—
Hydrochloric Acid Nitric Acid	20 50	140	140	—	68	248	248	—
Hydrochloric Acid Ortho-chlorophenal	36 170 PPM	140	140	140	248	248	176	104
Hydrochloric Acid Sulfuric Acid	36 g/l 98 g/l	68	68	—	176	248	—	—
Hydrochloric Acid Sulfuric Acid	20 5	140	176	176	248	248	176	176
Hydrochloric Acid Sulfuric Acid	36 98	140	176	176	248	248	—	—
Hydrofluoric Acid Ammonium Fluoride	250 g/l 8 g/l	140	140	—	248	248	—	—

NOTE: * Temperature at °F

MIXED CHEMICALS

Table 6 (cont'd)

CHEMICALS	CONCENTRATION (%)	PVC*	CPVC*	PP*	PVDF*	TEFLON*	VITON*	EPT*
Hydrochloric Acid Ferric Chloride	25 28	140	212	212	248	248	176	176
Hydrochloric Acid Ferrous Chloride	20 28	—	—	—	248	248	176	176
Nitric Acid Hydrofluoric Acid	15 3	140	140	140	248	248	—	—
Nitric Acid Hydrofluoric Acid	15 5	140	104	104	248	248	176	104
Nitric Acid Hydrofluoric Acid	15 10	140	68	104	248	248	—	—
Nitric Acid Hydrofluoric Acid	15 15	140	68	104	248	248	—	—
Nitric Acid Hydrofluoric Acid	5 20	140	176	—	248	248	—	—
Nitric Acid Sulfuric Acid	50 100g 50 100g	68	68	68	248	248	—	—
Sulfuric Acid Chromic Acid	2 1	140	176	68	248	248	104	68
Sulfuric Acid Chromic Acid	10 10	104	104	—	248	248	104	68
Sulfuric Acid Chromic Acid	10 25	104	104	—	248	248	68	—
Sulfuric Acid Chromic Acid	4 g/l 400 g/l	140	140	—	248	248	—	—
Sulfuric Acid Chromic Acid Phosphoric Acid	15 5 80	140	176	—	248	248	140	104
Sulfuric Acid Chromic Acid Water	2 10 80	140	176	—	248	248	104	—

NOTE: *Temperature at °F