



SPEARS® LabWaste™ CPVC Corrosive Waste Drainage System

LW-2-0502

Proven Solvent Cement Joining Eliminates Troublesome Fusion Equipment, Mechanical Joints & Elastomer Problems



- Complete System of Pipe, Fittings & Adapters
- All CPVC Construction in Full Assortment of Standard DWV Patterns
- Custom Fabricated Accessories - Drains, Neutralization Tanks & Pump Stations
- Specially Formulated One-Step Solvent Cement Provides Chemical Resistance Equal to System Pipe & Fittings
- ULC Flame & Smoke Rated
- Full Technical Support

Chemical & Corrosion Resistant CPVC

One of the key advantages of **LabWaste™** CPVC System is its excellent resistance to a broad range of corrosive environments. CPVC is inert to most mineral acids, bases, salts and aliphatic hydrocarbons, and compares favorably to other non-metals in these chemical environments. See accompanying Chemical Resistance Table.

General Chemical Resistance Overview:

Weak Acids	Excellent
Strong Acids	Excellent
Weak Bases	Excellent
Strong Bases	Excellent
Salts	Excellent
Aliphatic Solutions	Good
Halogens	Good-Fair
Strong Oxidants	Good-Fair

LabWaste™ - A Complete System

Spears **LabWaste™** is offered as a complete system of pipe, fittings, solvent cement and a broad assortment of additional accessories are available including Valves, Unions, Flanges and Adapters.

Full Product Technical Support

Spears offers the best in product support for resolving any concerns over orders, delivery, installation, specifications, chemical resistance or special product needs. Simply contact Spears Technical Services.

Cost Saving Solvent Weld Joining – Eliminates Troublesome Electro-Fusion and Mechanical Connections

A proven joining method reliably used for over 50 years, Solvent Cement Welding requires no special tools, no costly fusion equipment, and provides a solid, chemically bonded joint for easy installation, repairs or alterations. Most importantly, solvent cement joints end problems typical of polypropylene system installation, such as mechanical connector pullout, maintenance on elastomer sealed joints, internal fusion wire corrosion, and cumbersome fusion joining methods. Saves time, saves cost, saves worry!

Full Assortment of Drainage Pattern Fitting Configurations

Spears broad line of **LabWaste™** CPVC fittings are produced in ASTM D 3311 and other drainage patterns required in corrosive waste system installations. Standard configurations are available in nominal sizes of 1-1/2" through 4" with many specialty fittings produced through 12".

ULC Flame & Smoke Rated Components

Spears **LabWaste™** system components have been evaluated as finished products for surface burning characteristics of flame spread and smoke density by Underwriters Laboratories of Canada under standard test method CAN 102.2-M88. Suitable for air plenum installations (check local codes).

Spears® LabWaste™ Custom System Accessories

Complete drainage waste systems are composed of more than just pipe and fittings. Spears offers custom fabrication of virtually any system accessory for use with LabWaste™ CPVC Corrosive Waste Drainage Systems such as Floor Drains, Wall Drains, Collection Tanks, Neutralization Tanks, and Pump Stations. Plus, custom built supplemental equipment including Fume Hoods, Wet-Station, Laboratory Faucets and much more – all fabricated from corrosion resistant thermoplastic materials.

LabWaste™ Neutralization Tanks

Neutralization tanks allow pH balancing of corrosive wastes prior to disposal. Custom produced to virtually any capacity.



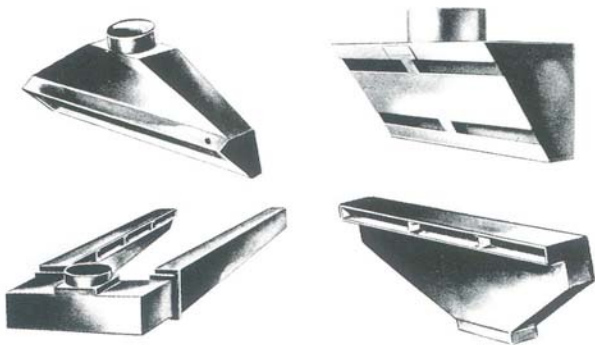
LabWaste™ Complete Tank & Pump Station

Tank & Pump Station provides collection of corrosive waste for Neutralization, holding, or transfer. Standard tank holding capacities range from 12 to 1100 gallons with pumping rates from 5 to 75 GPM and can be custom produced to virtually any capacity with optional actuated control valves and pH sensors for full automation.

Engineered for installation above or below ground with internal piping, pumps and liquid level controls ready for electrical and drainage system connection.



Supplemental Equipment for LabWaste™ Installations



Fume Hoods & Wet Process Stations

Full cabinet or counter-top models built to specifications



Laboratory Fixtures

Standard and Recirculating designs

Spears® LabWaste™ System General Specifications

Spears CPVC **LabWaste™** System is a specially designed product line for which there is no designated ASTM Standard Specification of conformance. However, certain portions of existing ASTM Standards are used in its design and manufacture as specified below.

LabWaste™ Material

CPVC	ASTM D 1784, Cell Classification 23447
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LabWaste™ Pipe

Dimensions	ASTM F441, Schedule 40
Hydrostatic Burst	ASTM D 2665
Flattening	ASTM F441

LabWaste™ Fittings

Dimensions	ASTM D 2665 ¹
Hydrostatic Burst	ASTM D 2665
Load Deflection	ASTM D 2665
Standard Patterns	ASTM D 3311
Other Patterns	Spears Specifications
Threads	
(Accessory Fittings)	ASTM F 1498
Flange Bolt Pattern	
(Accessory Fittings)	ANSI B16.5, Class 150

LabWaste™ Solvent Cement

CPVC, primerless type “One-Step”, Special Formulation for corrosive Applications ²	ASTM F 493
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LabWaste™ Fire Resistance

Flamability	V0	UL94
Flame Spread	5	CAN 102.2-M88
Smoke Density	25	CAN 102.2-M88

Notes:

- 1 – Fittings socket dimensions run slightly smaller than standard DWV for improved interference fit.
- 2 – “One-Step” solvent cement requires no primer application; chemical formulation developed specifically for caustic solutions such as sodium hypochlorite and sodium hydroxide that can have adverse effect on standard CPVC cements.

Chemical Resistance Information

In general, CPVC is inert to most mineral acids, bases, salts and aliphatic hydrocarbons, and is comparable to other non-metals in these chemical environments. Application conditions including chemical concentration, temperature, pressure, and external stress must be taken into consideration. Due to the many variables involved, final suitability often must be based on in-service testing.

The following information and Chemical Resistance Tables are compiled from the Plastic Pipe Institute (PPI), *Technical Report TR 1/2000, Thermoplastic Piping for the Transport of Chemicals*, provided as a service to the plastics industry, and other industry sources. The information is offered in good faith and believed to be accurate at the time of its preparation, but is offered without any warranty, expressed or implied, including warranties of merchantability and fitness for a particular purpose by PPI or Spears Manufacturing Company. Chemical resistance testing is generally based on 90-day immersion tests in different chemicals at 73°(23°C) and 180°F (82°C). Results for each sample are evaluated for changes in weight and tensile strength to develop the recommendation shown for non-pressure applications. Immersion testing results are applicable only if the system is not under applied mechanical or thermal stress. These recommendations are guidelines for use and the final decision regarding material suitability must rest with the end-user.

Noted Caution Areas for CPVC

1. CPVC is not recommended for use with most polar organic materials including various solvents such as chlorinated or aromatic hydrocarbons, esters, or ketones. Solvents that are insoluble in water, such as aromatics, will be absorbed by the piping system over time, leading to a decreased service life expectancy. Most solvents are prohibited by law from disposal in chemical waste drainage systems.
2. CPVC may or may not be affected by combinations of chemicals. Chemicals that individually have no effect may have an effect when used in combination. The following Chemical Resistance Tables do not reflect chemicals used in combination. Testing closely duplicating field conditions should be made in advance with the chemical or chemical combinations to be used.
3. Chemicals that do not normally affect CPVC can cause cracking to occur when stress is applied. Test samples under stress can exhibit environmental stress cracking when exposed to surfactants, certain oils, or grease. This is a result of chemical attack on the material being propagated by external stresses. Such stresses include external stresses from expansion/contraction and installation. Special consideration should be taken during design and installation to avoid unusual stresses in the piping system.
4. In general, chemical resistance of plastics tends to decrease with an increase in chemical concentration and/or temperature. As a result, various chemicals may be safely handled in limited concentrations or within certain temperature limits and are specified accordingly in the Chemical Resistance Tables.

CHEMICAL RESISTANCE TABLE

Resistance Rating Codes

- 180 = resistant to temperature indicated, °F.
 R to 73 = resistant to temperature indicated, °F, but may have limited resistance to higher temperatures.
 C to 73 = limited resistance to temperature indicated, °F, and may be suitable for some conditions.
 N = not resistant to specified chemical.
 — = data not provided

CHEMICAL	RATING	CHEMICAL	RATING	CHEMICAL	RATING
A					
Acetaldehyde	N	Beet Sugar Liquors	180	Chlorine Gas 0-20	C to 73
Acetaldehyde Aq. Of 40%	N	Benzaldehyde 10%	R to 73	Chlorine Gas 20-50 PPM	N
Acetamide	---	Benzaldehyde 99%	---	Chlorine Gas 50 + PPM	N
Acetic Acid Vapor	180	Benzene	N	Chlorine Liquid	N
Acetic Acid 5%	---	Benzene Sulfonic Acid 10%	180	Chlorinated Water 10 PPM	180
Acetic Acid 10%	---	Benzene Sulfonic Acid 10% +	N	Chlorinated Water Sat'd	180
Acetic Acid 25%	180	Benzoic Acid	180	Chloroacetic Acid 50%	180
Acetic Acid 40%	---	Benzoyl Chloride	---	Chloroacetic Acid > 10%	---
Acetic Acid 50%	---	Benzyl Alcohol	N	Chloroacetyl Chloride	---
Acetic Acid 60%	N	Benzyl Chloride	---	Chlorobenzene Dry	N
Acetic Acid 80%	---	Bismuth Carbonate	180	Chlorobenzene Liquid	---
Acetic Acid 85%	N	Black Liquor	180	Chlorobenzyl Chloride	N
Acetic Acid glacial	N	Bleach 5% Active	180	Chloroethanol	---
Acetic Anhydride	N	Bleach 12% Active	185	Chloroform Dry	N
Acetone 5%	N	Borax	180	Chloroform Liquid	---
Acetone 10%	---	Boric Acid	180	Chloromethane	---
Acetone 100%	---	Brake Fluid	---	Chloropicrin	---
Acetophenone	---	Brine	180	Chlorosulfonic Acid	73
Acetyl Chloride	N	Bromic Acid Sat'd	180	Chlorosulfonic Acid 50%	---
Acetylene	N	Bromic Acid 10%	---	Chlorosulfonic Acid 100%	---
Acetylnitrile	N	Bromine Liquid	N	Chromic Acid Sat'd	---
Acrylic Acid	---	Bromine Vapor 25%	180	Chromic Acid 10%	180
Acrylonitrile	N	Bromine Water Cold	180	Chromic Acid 20%	---
Adipic Acid	180	Bromobenzene	---	Chromic Acid 25%	---
Allyl Alcohol	C to 73	Bromotoluene	---	Chromic Acid 30%	180
Aluminum Ammonium	180	Butadiene	180	Chromic Acid 40%	180
Aluminum Chloride	180	Butane 50%	180	Chromic Acid 50%	C to 140
Aluminum Flouride	180	Butane Gas	---	Chromium Pot Sulfate >10%	---
Aluminum Hydroxide	180	n-Butanol	---	Chromium Pot Sulfate Sat'd	---
Aluminum Nitrate	180	Butyl Acetate	N	Citric Acid	180
Aluminum Oxychloride	180	Butyl Alcohol	C to 73	Coconut Oil	C to 180
Aluminum Potassium	180	Butyl Cellosolve	N	Cod Liver Oil	---
Aluminum Sulfate	180	n-Butyl Chloride	N	Coffee	180
Ammonia Gas	N	Butyl Glycol	---	Coke Oven Gas	---
Ammonia Liquid	N	Butylene ©	---	Copper Acetate	73
Ammonia Acetate	180	Butyl Phenol	---	Copper Carbonate	180
Ammonium Bifluoride	180	Butyl Phthalate	N	Copper Chloride	180
Ammonium Bisulfide	---	Butyl Stearate	---	Copper Cyanide	180
Ammonium Carbonate	180	Butynediol	---	Copper Fluoride	180
Ammonium Chloride	180	Butyric Acid	N	Copper Nitrate 30%	180
Ammonium Dichromate	73	Butyric Acid 20%	---	Copper Nitrate 50%	---
Ammonium Fluoride 10%	180	C			
Ammonium Fluoride 25%	180	Cadmium Cyanide	180	Copper Sulfate	180
Ammonium Hydroxide 10%	N	Calcium Bisulfide	73	Corn Oil	C to 180
Ammonium Hydroxide 30%	---	Calcium Bisulfite	180	Corn Syrup	185
Ammonium Nitrate	180	Calcium Bisulfite Sat'd	---	Cottonseed Oil	C to 180
Ammonium Persulphate	---	Calcium Carbonate	180	Creosote	N
Ammonium Phosphate	180	Calcium Chlorate	180	Cresol	N
Ammonium Sulfate Sat'd	180	Calcium Chloride 5%	180	Cresylic Acid	180
Ammonium Sulfate 20%	---	Calcium Chloride Sat'd	180	Croton Aldehyde	N
Ammonium Sulfide	180	Calcium Hydroxide	180	Croton Aldehyde Liquid	---
Ammonium Thiocyanate	180	Calcium Hydroxide 2%	---	Crude Oil	C to 180
Amyl Acetate	N	Calcium Hydroxide 30%	---	Cupric Chloride	---
Amyl Alcohol	N	Calcium Hypochlorite 30%	180	Cupric Fluoride	180
Amyl Alcohol 100%	---	Calcium Hypochlorite Sat'd	---	Cupric Sulfate	180
n-Amyl Chloride	N	Calcium Nitrate	180	Cuprous Chloride	180
Anisol	---	Calcium Nitrate 50%	---	Cyclohexane	N
Aniline	N	Calcium Nitrate Sat'd	---	Cyclohexanol	N
Aniline Chlorohydrate	N	Calcium Oxide	180	Cyclohexanone	N
Aniline Hydrochloride	N	Calcium Sulfate	180	D	
Anthraquinone	180	Calcium Sulfate	180	Detergents	C to 180
Anthraquinone Sulfonic Acid	180	Calcium Hydrogen	---	Dextrin	180
Antifreeze	---	Camphor	---	Dextrose	180
Antimony Trichloride	180	Cane Sugar Liquors	180	Diacetone Alcohol	N
Aqua Regia	R to 73	Carbitol	N	Dibutoxyethyl Phthalate	---
Arsenic Acid	180	Carbon Dioxide Dry	180	n-Dibutyl Ether	---
Aryl Sulfonic Acid	180	Carbon Dioxide Wet	180	Dibutyl Phthalate	N
Asphalt	N	Carbon Disulfide	N	Dibutyl Sebacate	---
B		Carbon Monoxide	180	Dichloroacetic Acid	---
Barium Carbonate	180	Carbon Tetrachloride	N	Dichlorobenzene	N
Barium Chloride	180	Carbonic Acid	180	Dichlorobenzene Liquid	---
Barium Hydroxide Sat'd	180	Castor Oil	C to 180	Dichloroethylene	N
Barium Hydroxide 10%	---	Caustic Potash	180	Dichloroethylene Liquid	---
Barium Hydroxide 30%	---	Caustic Soda	160	Diesel Fuels	C to 180
Barium Nitrate	180	Cellosolve	N	Diethanolamine Solid	---
Barium Sulfate	180	Cellosolve Acetate	N	Diethanolamine 20%	---
Barium Sulfide	180	Chloral Hydrate	180	Diethylamine	N
Beer	180	Chloramine	N	Diethyl Ether	N
		Chloric Acid 10%	180	Diglycolic Acid Sat'd	180
		Chloric Acid 20%	185	Diglycolic Acid 10%	---

CHEMICAL	RATING	CHEMICAL	RATING	CHEMICAL	RATING
Dimethylamine	---	Glycerine Liquid	---	Lemon Juice	---
Dimethyl Formamide	N	Glycol	C to 180	Ligroin	---
Dimethylhydrazine	---	Glycolic Acid Sat'd	180	Lime Slurry	---
Dimethyl Phthalate	N	Glycolic Acid 10%	---	Lime Sulfur	73
Diocyl Phthalate	N	Glycolic Acid 30%	---	Linoleic Acid	180
Dioxane	N	Glycolic Acid 65%	---	Linoleic Oil	---
Dioxane Liquid	---	Glyoxal	---	Linseed Oil	C to 180
Diphenyl Oxide	---	Grape Sugar	180	Liqueurs	---
Disodium Phosphate	180	Grapefruit Juice	---	Lithium Bromide	---
Dishwashing Liquid	---	Grease	---	Lithium Chloride	---
Dow Therm A	---	Green Liquor	180	Lithium Hydroxide	---
Dow Therm A 40%	---			Lubricating Oil ASTM #1	180
Dow Therm A 95%	---			Lubricating Oil ASTM #2	180
Dow Therm A Liquid	---			Lubricating Oil ASTM #3	180
E		H		M	
Ether	N	Heptane (Type 1)	180	Magensium Carbonate	180
Ethyl Acetate	N	Heptane Liquid	---	Magnesium Chloride Sat'd	180
Ethyl Acetate Liquid	---	n-Hexane	73	Magnesium Chloride 50%	---
Ethyl Acetoacetate	N	n-Hexane Liquid	---	Magnesium Citrate	180
Ethyl Acrylate	N	Hexanol, Tertiary Type 1	180	Magnesium Hydroxide	180
Ethyl Alcohol	C to 140	Hydraulic Oil	---	Magnesium Nitrate	180
Ethyl Benzene	---	Hydrazine	N	Magnesium Oxide	---
Ethyl Chloride Dry	N	Hydrobromic Acid 20%	73	Magnesium Sulfate	180
Ethyl Chloride Gas	---	Hydrobromic Acid 50%	---	Maleic Acid Sat'd	180
Ethyl Chloroacetate	---	Hydrobromic Acid 66%	---	Maleic Acid 10%	---
Ethyl Ether	N	Hydrochloric Acid 1%	---	Maleic Acid 50%	---
Ethylene Bromide	N	Hydrochloric Acid 10%	180	Malic Acid	180
Ethylene Chloride	N	Hydrochloric Acid 20%	---	Manganese Sulfate	180
Ethylene Chlorohydrin	N	Hydrochloric Acid 30%	180	Margarin	---
Ethylene Chlorohydrin Liq	---	Hydrochloric Acid Conc.	---	Mercuric Chloride	180
Ethylene Diamine	---	Hydrocyanic Acid	180	Mercuric Chloride Sat'd	---
Ethylene Dichloride	N	Hydrocyanic Acid Sat'd	---	Mercuric Cyanide	180
Ethylene Glycol	C to 180	Hydrocyanic Acid 10%	---	Mercuric Sulfate	180
Ethylene Oxide	N	Hydrofluoric Acid Dilute	73	Mercurous Nitrate Sat'd	180
2-Ethylhexanol	---	Hydrofluoric Acid 30%	73	Mercurous Nitrate 10%	---
F		Hydrofluoric Acid 40%	---	Mercury	180
Fatty Acids	73	Hydrofluoric Acid 50%	N	Methane	73
Ferric Chloride	180	Hydrofluoric Acid 60%	---	Methanol	N
Ferric Hydroxide	180	Hydrofluoric Acid 70%	---	Methanol 5%	---
Ferric Nitrate	180	Hydrofluoric Acid 100%	N	Methanol Liquid	---
Ferric Sulfate	180	Hydrofluoric Acid Gas	---	Methoxyethyl Oleate	---
Ferrous Chloride	180	Hydrofluosilic Acid 50%	140	Methyl Acetate	N
Ferrous Hydroxide	180	Hydrogen	73	Methyl Acrylate	---
Ferrous Nitrate	180	Hydrogen Cyanide	---	Methyl Amine	N
Ferrous Sulfate	180	Hydrogen Fluoride	C	Methyl Bromide	N
Ferrous Sulfate 20%	---	Hydrogen Peroxide 3%	---	Methyl Butyl Ketone	---
Ferrous Sulfate Sat'd	---	Hydrogen Peroxide 10%	---	Methyl Cellosolve	N
Ferrous Chloride	180	Hydrogen Peroxide 30%	---	Methyl Chloride	N
Fish Oil	180	Hydrogen Peroxide 50%	180	Methyl Chloroform	N
Fluoboric Acid	73	Hydrogen Peroxide 90%	180	Methyl Ethyl Ketone	N
Fluoboric Acid Solid	---	Hydrogen Phosphide	73	Methyl Isobutyl Carbinol	N
Fluorine Gas (Dry)	73	Hydrogen Sulfide Dry	180	Methyl Isobutyl Ketone	N
Fluorine Gas (Wet)	73	Hydrogen Sulfide Wet	180	Methyl Isopropyl Ketone	N
Fluosilicic Acid 25%	---	Hydrogen Sulfite	---	Methyl Methacrylate	---
Fluosilicic Acid 30%	R to 140	Hydroquinone	180	Methyl Sulfate	73
Fluosilicic Acid 40%	---	Hydroxylamine Sulfate	180	Methylene Bromide	N
Fluosilicic Acid 50%	73	Hypochlorous Acid 10%	180	Methylene Chloride	N
Fluosilicic Acid Sat'd	---	Hypochlorous Acid 70%	---	Methylene Chlorobromide	N
Flormaldehyde Dilute	73			Methylene Iodine	N
Flormaldehyde 35%	C to 73	I		Methylsulfuric Acid	180
Flormaldehyde 37%	C to 73	Inks	---	Milk	180
Flormaldehyde 50%	C to 73	Iodine	73	Mineral Oil	180
Formic Acid	C to 73	Isobutyl Alcohol	C to 73	Molasses	180
Formic Acid 10%	---	Isocotane	---	Monochloroacetic Acid	---
Formic Acid 40%	---	Isocotane Liquid	---	Monochlorobenzene	N
Formic Acid 50%	---	Isopropyl Acetate	N	Monoethanolamine	---
Formic Acid 85%	---	Isopropyl Alcohol	C to 180	Motor Oil	180
Formic Acid 100%	---	Isopropyl Ether	N	Morpholine	---
Freon 11	73	J		Mustard, Aqueous	---
Freon 12 100%	73	JP-4 Fuel	C to 73	N	
Freon 12 Work. Sol	---	JP-5 Fuel	C to 73	N-methyl Pyrrolidone	---
Freon 21	---	K		Naphtha	73
Freon 22	73	Kerosene	73	Naphthalene	N
Freon 113	---	Ketchup	---	Natural Gas	---
Freon 114	---	Ketones	N	Nickel Acetate	---
Fructose Sat'd	180	Ketones Work. Sol.	---	Nickel Chloride	180
Fructose Work. Sol.	---	Kraft Liquors	180	Nickel Nitrate	180
Furfural	N	L		Nickel Sulfate	180
G		Lactic Acid 10%	---	Nicotine	180
Gallic Acid	73	Lactic Acid 20%	---	Nicotinic Acid	180
Gasoline, Leaded	N	Lactic Acid 25%	180	Nitric Acid 5%	---
Gasoline, Unleaded	N	Lactic Acid 80%	C to 180	Nitric Acid 10%	C to 73
Gasoline (Fuel)	---	Lactic Acid Liquid	---	Nitric Acid 20%	---
Gasohol	N	Lard Oil	C to 180	Nitric Acid 25%	---
Gasoline, Sour	N	Latex	---	Nitric Acid 30%	R to 130
Gelatin	180	Lauric Acid	180	Nitric Acid 35%	---
Glucose	180	Lauryl Chloride	73	Nitric Acid 40%	R to 120
Glucose 10%	---	Lead Acetate	180	Nitric Acid 50%	110
Glue	---	Lead Chloride	180	Nitric Acid 65%	---
Glycerine	180	Lead Nitrate	180	Nitric Acid 70%	100
		Lead Sulfate	180		
		Lead Tetraethyl	---		
		Lemon Oil	N		

CHEMICAL	RATING	CHEMICAL	RATING	CHEMICAL	RATING	CHEMICAL	RATING
Nitric Acid 85%	---	Potassium Borate	180	Sodium Bromide 50%	---	Tannic Acid 10%	180
Nitric Acid 95%	---	Potassium Bromate	180	Sodium Carbonate	180	Tannic Acid Sat'd	---
Nitric Acid 100%	N	Potassium Bromate 10%	---	Sodium Chlorate	180	Tanning Liquors	180
Nitrobenzene	N	Potassium Bromide	180	Sodium Chloride	180	Tar	N
Nitroglycerine	---	Potassium Carbonate	180	Sodium Chloride Sat'd	---	Tartaric Acid 10%	180
Nitroglycol	---	Potassium Chlorate	180	Sodium Chloride 10%	---	Tartaric Acid Sat'd	---
Nitrous Acid	180	Potassium Chloride	180	Sodium Chlorite	180	Terpineol	---
Nitrous Oxide	73	Potassium Chromate	180	Sodium Chromate	180	Tetrachloroethane	---
O		Potassium Cyanide	180	Sodium Chromate	180	Tetrachloroethylene	N
n-Octane	C to 73	Potassium Dichromate	180	Sodium Dichromate	180	Tetraethyl Lead	73
Oleic Acid	180	Potassium Ethyl Xanthate	---	Sodium Ferricyanide	180	Tetrahydrofuran	N
Oleum	N	Potassium Ferricyanide	180	Sodium Ferrocyanide	180	Tetralin	N
Olive Oil	C to 180	Potassium Ferrocyanide	180	Sodium Fluoride	180	Tetra Sodium Pyrophosphate	180
Oxalic Acid 50%	180	Potassium Fluoride	180	Sodium Hydrogen	---	Thionyl Chloride	N
Oxalic Acid 10%	---	Potassium Hydroxide 4%	---	Sodium Hydroxide 1%	---	Thread Cutting Oils	73
Oxalic Acid Sat'd	---	Potassium Hydroxide 10%	---	Sodium Hydroxide 5%	---	Tin (II) Chloride	---
Oxygen Gas	180	Potassium Hydroxide 20%	---	Sodium Hydroxide 15%	180	Tin (IV) Chloride	---
Ozone	180	Potassium Hydroxide 25%	180	Sodium Hydroxide 30%	180	Titanium Tetrachloride	---
Ozone Sat'd	---	Potassium Hydroxide 45%	---	Sodium Hydroxide 40%	---	Toluene (Toluol)	N
P		Potassium Hydroxide 50%	---	Sodium Hydroxide 50%	180	Tomato Juice	180
Palm Oil	---	Potassium Hydrogen 10%	---	Sodium Hydroxide 60%	---	Transformer Oil	180
Palmitic Acid 10%	73	Potassium Hydrogen Sat'd	---	Sodium Hydroxide 70%	180	Transformer Oil DTE/30	180
Palmitic Acid 70%	73	Potassium Hydrochlorite	180	Sodium Hypochlorite	180	Tributyl Citrate	---
Paraffin	180	Potassium Hydrochlorite 3%	---	Sodium Hypochlorite 2%	---	Tributyl Phosphate	N
Peanut Oil	C to 180	Potassium Iodide	180	Sodium Hypochlorite 12.5%	---	Trichloroacetic Acid 50%	---
n-Pentane	C to 180	Potassium Nitrate	180	Sodium Iodide	180	Trichloroacetic Acid 10%	---
Peracetic Acid	---	Potassium Nitrate 50%	---	Sodium Metaphosphate	180	Trichlorobenzene	---
Perchloric Acid 10%	---	Potassium Orthophosphate	---	Sodium Nitrate	180	Trichloroethane	---
Perchloric Acid 15%	180	Potassium Perborate	180	Sodium Nitrite	180	Trichloroethylene	N
Perchloric Acid 20%	---	Potassium Perchlorate	180	Sodium Palmirate	180	Triethanolamine	C to 73
Perchloric Acid 70%	180	Potassium Permanganate 10%	180	Sodium Perborate	180	Triethylamine	---
Perchloroethylene	C to 180	Potassium Permanganate 20%	---	Sodium Perchlorate	180	Trimethylpropane	---
Perphosphate	73	Potassium Permanganate 25%	180	Sodium Peroxide	180	Trisodium Phosphate	180
Petroleum Ether	---	Potassium Permanganate 30%	---	Sodium Phosphate Acid	180	Turpentine	N
Phenol	73	Potassium Permanganate Sat'd	---	Sodium Phosphate Alkaline	120	U	
Phenol 5%	---	Potassium Persulfate	180	Sodium Phosphate Neutral	120	Urea	180
Phenol 50%	---	Potassium Sulfate	180	Sodium Silicate	180	Urea 10%	---
Phenol Solid	---	Potassium Sulfide	180	Sodium Silicate 10%	---	Urea Sat'd	---
Phenol 90%	---	Potassium Sulfite	180	Sodium Silicate 50%	---	Urine	180
Phenyldiazine	N	Propane	73	Sodium Sulfate Sat'd	180	V	
Phenyldiazine 10%	---	Propargyl Alcohol	C to 180	Sodium Sulfate 0.1%	---	Vaseline	N
Phosphine	---	Propionic Acid	N	Sodium Sulfide	180	Vegetable Oil	C to 180
Phosphoric Acid 10%	180	Propyl Alcohol	C to 73	Sodium Sulfite	180	Vinegar	150
Phosphoric Acid 50%	180	Propylene Carbonate	---	Sodium Thiosulphate	180	Vinyl Acetate	N
Phosphoric Acid 75%	---	Propylene Dichloride	N	Sodium Thioussulphate 50%	---	W	
Phosphoric Acid 85%	180	Propylene Oxide	N	Sour Crude Oil	---	Water, Acid Mine	180
Phosphoric Acid 98%	---	Pyridine	N	Soybean Oil	---	Water, Deionized	180
Phosphoric Anhydride	73	Pyrogalllic Acid	---	Stannic Chloride	180	Water, Distilled	180
Phosphorous (Red)	---	Q		Stannous Chloride 15%	180	Water, Potable	180
Phosphorous (Yellow)	---	Quinone	---	Stannous Chloride Sat'd	---	Water, Salt	180
Phosphorous (Yellow) Liq.	---	R		Starch	180	Water, Sea	180
Phosphorous Pentoxide	73	Rayon Coagulating Bath	180	Starch Solution	---	Water, Soft	180
Phosphorous Trichloride	N	S		Stearic Acid	180	Water, Waste	180
Photographic Solutions	180	Salicylaldehyde	---	Stearic Acid 100%	---	Whiskey	180
Phtalic Acid	---	Salicylic Acid	---	Stoddard's Solvent	N	White Liquor	180
Phtalic Acid Susp.	---	Selenic Acid, Aq.	180	Styrene	---	Wine	180
Picric Acid 10%	N	Silicic Acid	180	Succinic Acid	180	Wine and Spirits	---
Picric Acid 50%	---	Silicone Oil	180	Sugar	180	X	
Picric Acid Sat'd	---	Silver Acetate	180	Sulfamic Acid	N	Xylene	N
Pine Oil	N	Silver Chloride	180	Sulfate Liquors	180	Z	
Plating Solutions (Brass)	180	Silver Cyanide	180	Sulfite Liquors	180	Zinc Acetate	180
Plating Solutions (Cadmium)	180	Silver Nitrate	180	Sulfur	180	Zinc Carbonate	180
Plating Solutions (Chrome)	180	Silver Nitrate 50%	---	Sulfur Chloride	---	Zinc Chloride	180
Plating Solutions (Copper)	180	Silver Sulfate	160	Sulfur Dioxide Gas Dry	73	Zinc Chloride 50%	---
Plating Solutions (Gold)	180	Soaps	180	Sulfur Dioxide Gas Wet	N	Zinc Chloride Sat'd	---
Plating Solutions (Lead)	180	Sodium Acetate	180	Sulfur Trioxide Gas Dry	---	Zinc Nitrate	180
Plating Solutions (Nickel)	180	Sodium Alum	180	Sulfur Trioxide Gas	N	Zinc Oxide	---
Plating Solutions (Rhodium)	180	Sodium Aluminate	---	Sulfuric Acid 5%	---	Zinc Oxide	180
Plating Solutions (Silver)	180	Sodium Benzoate	180	Sulfuric Acid 30%	180	Zinc Stearate	---
Plating Solutions (Tin)	180	Sodium Benzoate 35%	---	Sulfuric Acid 50%	180	Zinc Sulfate	180
Plating Solutions (Zinc)	180	Sodium Benzoate 50%	---	Sulfuric Acid 60%	180	Zinc Sulfate Sat'd	---
Potash	180	Sodium Bicarbonate	180	Sulfuric Acid 70%	180		
Potassium Alum	180	Sodium Bichromate Sat'd	180	Sulfuric Acid 80%	180		
Potassium Aluminum	180	Sodium Bichromate 50%	180	Sulfuric Acid 90%	150		
Potassium Amyl Xanthate	---	Sodium Bisulfate	180	Sulfuric Acid 93%	140		
Potassium Bicarbonate	180	Sodium Bisulfate 50%	---	Sulfuric Acid 94%-98%	130		
Potassium Bichromate Sat'd	180	Sodium Bisulfite	180	Sulfuric Acid 100%	N		
Potassium Bichromate 40%	---	Sodium Borate	180	Sulfurous Acid	180		
Potassium Bisulfate	180	Sodium Bromide Sat'd	180	T			
				Tall Oil	C to 180		

