

CHEMICAL RESISTANCE OF PLASTIC PIPING MATERIALS

TR-19
2020



Foreword

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The purpose of this technical report is to provide information on the transport of various chemicals using plastic piping materials.

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The Plastics Pipe Institute, Inc.

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This Technical Report, TR-19, was first issued in 1973 and was updated in 1983, 1991, 1999, 2000, 2007, and December 2020.

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CHEMICAL RESISTANCE OF PLASTIC PIPING MATERIALS

1.0 INTRODUCTION

This technical report has been developed as an informative guide on the resistance of plastic piping and fitting materials to chemical attack.

It is divided into several sections:

- Section 2.0: Chemical resistance in general, and considerations for end use applications
- Section 3.0: Types of chemical attack on plastics
- Section 4.0: Other considerations
- Section 5.0: Chemical Resistance Data for Plastic Piping in Non-Pressure Applications and Data Table

Listings of chemical resistance data are presented in **Table 3** for common plastic piping materials applicable to **non-pressure applications**.

Determination of suitability for specific applications under stress (e.g. pressurized service) is beyond the scope of this report. Users should contact the specific pipe or fitting manufacturer for recommendations on pressurized applications.

Note 1: Drinking water, also known as potable water, is water that is safe to drink or to use for food preparation. Across North America, the majority of the drinking water that is provided in public water systems is treated with a disinfectant to control the growth of harmful microorganisms. Potable water disinfectants include chlorine, chloramines, and rarely, chlorine dioxide. Piping materials intended for treated water must be resistant to such disinfectants at various levels, as described in product standards.

For specific information about the resistance of crosslinked polyethylene (PEX) to disinfectants, please see **PPI Technical Note-53 *Guide to Chlorine Resistance Ratings of PEX Pipes and Tubing for Potable Water Applications*** and **PPI Statement A *Relative Oxidative Aggressiveness of Chloramines and Free Chlorine Disinfectants on Crosslinked Polyethylene (PEX) Pipes used in Treated Potable Water***.

For specific information about the resistance of high-density polyethylene (HDPE) to disinfectants, please see **PPI Technical Note-44 *Long Term Resistance of AWWA C906 Polyethylene (PE) Pipe to Potable Water Disinfectants*** and **PPI Technical Note-49 *Recommendations for AWWA C901 Service Tubes in Potable Water Applications***.

For specific information about the resistance of chlorinated polyvinyl chloride (CPVC) to disinfectants, please see *Section 4: Effects of Potable Water Disinfectants on CPVC* of **PPI Technical Note-62 Suitability and Fitness of CPVC Piping Systems for Commercial Building Applications**.

2.0 CHEMICAL RESISTANCE IN GENERAL

Plastic pipe and fitting materials are generally resistant to attack from many chemicals. This inherent property makes them suitable for use in numerous fluid and gas transport applications.

However, there are certain chemicals that may damage plastic pipes, either through exposure on the outside of the pipe to chemicals, on the internal surface of the pipe during the transport of such chemicals, or with exposure to inert fluids containing chemicals in various concentrations.

Each material has unique resistance to chemicals in various situations. The suitability of a pipe or fitting system for use in a particular fluid or gas application is a function of several factors, described below:

2.1. Pipe and Fitting Materials

The specific plastic material used in pipe and fittings impacts its chemical resistance. This report includes the materials listed in **Table 1 Plastic Materials Identification**.

Table 1: Plastic Materials Identification

ABS	acrylonitrile-butadiene-styrene
CPVC	chlorinated polyvinyl chloride
PP	polypropylene
PP-R ¹	polypropylene random copolymer
PP-RCT ¹	polypropylene random copolymer with modified crystallinity and temperature resistance
PVC	polyvinyl chloride
PE	polyethylene (representative of medium density polyethylene [MDPE] and high density polyethylene [HDPE]; not representative of low density polyethylene [LDPE])
PE-RT ²	polyethylene of raised temperature resistance
PB	Polybutylene
PVDF	polyvinylidene fluoride
PEX	crosslinked polyethylene
PA11/ PA12	polyamide 11 / polyamide 12
PSU	Polysulfone
PPSU	Polyphenylsulfone

¹ PP-R and PP-RCT are chemically similar to PP and are grouped together in Table 3; they may be assumed to have similar chemical resistance

² PE-RT is chemically similar to MDPE and HDPE and are grouped together in Table 3; they may be assumed to have similar chemical resistance

2.2. Product Design and Joining Systems

Piping dimensions, including wall thickness, construction, and composition (layers, fillers, etc.), can affect chemical resistance.

The type of joining system can also affect the performance of the system in chemical handling applications. Heat fusion and solvent cementing do not introduce different materials into the system. The resistance of solvent cement to certain chemicals can vary from grade to grade.

Other components and appurtenances in the piping system can have different chemical resistances. Certain types of mechanical joints include gaskets using elastomers with their own unique resistances. Some piping systems include other plastic or non-plastic materials used as mechanical fitting components which can have different chemical resistance.

2.3. Operating Conditions - Internal and External

- Chemicals or mixtures of chemicals, and their concentrations.
- Operating temperature — maximum, minimum, and cyclical variations.
- Operating pressure or applied stress — maximum, minimum and cyclical variations.

3.0 TYPES OF CHEMICAL ATTACK ON PLASTICS

In general, chemicals that affect plastics do so in several ways, including solvation, chemical attack, and environmental stress cracking.

3.1. Permeation, Swelling, Plasticization, Solvation, and Extraction

Permeation is the transport of chemicals through the pipe wall via diffusion through the free volume of the polymer matrix without significant change in the material properties. Permeability may be of interest in situations where the pipe is to function as a liner pipe for a less resistant material (e.g., fiberglass or steel), where the pipe is transporting particularly hazardous substances, or where the pipe is installed in contaminated soil.

Permeability of specific plastic piping materials is not addressed in this document. **PPI Statement N *Barrier Properties of Plastic Pipe Used for Potable Water Service***, states “In areas of known or suspected contamination, the design of the distribution system should be based on a careful analysis of the situation.

Appropriate technical data and individual manufacturers' recommendations should be consulted on the overall design of a pipe system for these systems."

Note 2: See also *PPI Comments on Permeation of Water Pipes and on the AWWA-RF Report on Hydrocarbons* at <https://plasticpipe.org/pdf/ppi-comment-permeation-hydrocarbons.pdf>

Absorption occurs when a chemical diffuses into the free volume of the polymer matrix and accumulates there. This may result in one or more of the following effects: swelling, plasticization, or solvation. In the case of absorption, physical properties may be affected, but the polymer molecule itself is not chemically changed, degraded or destroyed.

Swelling is an increase in the bulk volume of a material caused by the absorption of liquids or vapors from the environment. It may or may not be accompanied by plasticization, which results in softening and loss of strength in the material.

In extreme cases, the solvating compound can fully dissolve the plastic material.

Sometimes the polymer itself may not be soluble, but it may contain a soluble formulary ingredient that may be extracted from the polymer compound. This is more common in plasticized materials where loss of plasticizer may result in embrittlement. It is not common in plastic materials used for pipes and fittings and is not addressed in this document.

In gas or vapor transmission service, there may be a very slight loss of contents through the pipe wall.

Lastly, a solvating or permeating chemical entrained in the material may be released when heat fusion or solvent cement joining is performed. Thus, heat fusion (e.g. welding) or solvent cement joining may be unreliable if performed on permeated pipes. Caution should be used in performing these processes if solvation or permeation are suspected.

3.2. Direct Chemical Attack

Direct chemical attack occurs when exposure to a chemical causes a chemical alteration of the polymer molecules by chain scission, crosslinking, oxidation, or substitution reactions.

Direct chemical attack frequently causes a severe reduction of mechanical physical properties such as tensile strength, ductility, burst pressure, and impact resistance.

Chemical resistance may vary greatly from one plastic material to another (i.e., PVC, ABS, PE, etc.), and also among different cell classifications of the same plastic type (e.g. PVC 1120 to PVC 2110, PE 3608 to PE 4710, etc.). There may also be slight variations among commercial products having the same cell classification, based on compound ingredients known as stabilizers or “additive packages”.

The chemical resistance of plastic piping and fittings is basically a function of the chemical resistance of the plastic material, including additives and other ingredients in the final compound. In general, the fewer filler ingredients used, the better the chemical resistance. Plastic pipes with significant filler percentages may be susceptible to chemical attack whereas an unfilled material may be affected to a lesser degree or not at all.

3.3. Environmental Stress Cracking

Environmental stress cracking (ESC) is defined as the “development of cracks in a material that is subjected to stress or strain in the presence of specific chemicals”, as per **ASTM F412 Standard Terminology for Plastic Piping Systems**.

Environmental stress cracking is a fundamentally different phenomenon than chemical attack, even though they may present similarly (e.g. crazing or whitening of parts, sloughing of material, minor crack formation). ESC does not result in chemical alteration of the polymer molecule. ESC is caused by a chemical agent in combination with inherent and applied stresses. It can often be minimized with proper installation. Direct chemical attack does not require any stress or strain on the material in order to occur, although it may be accelerated in conditions of high stress or strain.

4.0 OTHER CONSIDERATIONS

4.1. Chemical Families

While the effect of each individual chemical is specific, some chemicals can be grouped into general categories based on similarities in chemical characteristics (acids, bases, alcohols, etc.). For example, water-based (aqueous) solutions of neutral inorganic salts generally have the same effect on plastic piping materials as water alone; thus, sodium chloride, potassium alum, calcium

chloride, copper sulfate, potassium sulfate and zinc chloride solutions have the same effect as water.

However, at elevated temperatures or high concentrations, some salt solutions may attack some plastic materials through either oxidation or chemical substitution when they would be benign at lower temperatures and concentrations.

4.2. Accelerating factors (concentration, temperature, stress)

Generally, the resistance of a particular plastic to a specific chemical will decrease with an increase in concentration. For example, for some materials, dilute sulfuric acid may be acceptable, whereas 95% sulfuric acid may not.

The resistance of a particular plastic to a specific chemical generally decreases as temperature increases because the rate of chemical phenomenon (i.e. reactivity, permeation rate, solvation) tends to increase. This rate increase is logarithmic with respect to temperature over most plastic functional temperatures and generally follows to the Arrhenius equation.

The chemical resistance of a particular plastic generally decreases with increasing applied stress. This is commonly seen when the presence of certain chemicals causes environmental stress cracking where unstressed parts exhibit good chemical resistance.

The chemical resistance of a particular plastic generally decreases where temperature or applied stress are varied or cycled. These effects can be greater overall in combination. Testing should be conducted if the system is expected to perform across a wide range of temperatures and stresses to determine the overall combined effect.

4.3. Combinations of Chemicals

In some cases, combinations of chemicals may have a synergistic effect on damaging a plastic material, and a mixture may cause damage where the individual chemicals do not. It cannot be assumed that an individual chemical's lack of effect would apply for combinations that include several chemicals. When the possible combined effect of several chemicals is unknown, the material should be tested in the complete chemical mixture(s) in question.

4.4. Multi-Layered (Composite) Piping

Some piping products utilize a multi-layered (composite) construction, in which the pipe wall is constructed of layers of different materials. The layers may consist of both plastic and non-plastic.

For example, PE/AL/PE and PEX/AL/PEX pipes contain mid-wall aluminum layers. Examples of all-plastic composite pipes include PVC/ABS/PVC and fiber-core PP-R or PP-RCT pipes. Layered composite material pipes may have chemical resistance that differs from the chemical resistance of the individual materials.

4.5. Rate of Chemical Attack

Chemicals that attack plastics do so at a certain rate, some slowly and some more quickly. But usually, any chemical attack is increased when temperature or stress are increased, or when temperature or stress are varied. The particular rate of chemical attack must be taken into consideration in the life-cycle evaluation for a particular application. Each combination of material cost, installation cost and service life must be evaluated and judged on its own merits.

In certain cases involving a slow rate of chemical attack, particularly when the application will be pressurized, simple immersion data, like that represented in **Table 3**, may not adequately characterize performance throughout the intended design life. Longer-term testing to replicate service conditions is advisable to fully measure the effects of these chemicals.

5.0 CHEMICAL RESISTANCE DATA FOR PLASTIC PIPING IN NON-PRESSURE APPLICATIONS and DATA TABLE

When plastic pipes come into contact with chemical agents it is important to know how the pipe may be affected. For non-pressure applications, where the pipe is not subject to continuous internal pressure or stress, chemical immersion test data may provide suitable information. The pipe manufacturer may have additional data from similar tests, or information on previous installations under similar field conditions.

The following cautions apply to Table 3 *List of Chemical Resistances*:

- *Data Sources.* The information in **Table 3** has been obtained from numerous sources. The data are based primarily on plastic material test specimens that have been immersed in the chemical and evaluated, and to a lesser degree, on field-experience. In most cases, detailed information on the test conditions (e.g. exposure time), and on test results (e.g. change in weight, change in volume, and change in strength) was not available. Therefore, this information is best used only for comparison of different plastic materials.
- *Combinations of Chemicals.* Chemicals that individually do not have an effect may affect the pipe if combined with certain other chemicals. The list of possible combinations of chemicals is endless. **Table 3** does not address chemical combinations.
- *Composite Piping.* Layered composite piping may have chemical resistance that differs from that of the individual materials in the layers. **Table 3** is not applicable to layered composite piping products.
- *Applicability to fiberglass and filled materials.* **Table 3** is not applicable to reinforced epoxy resin (fiberglass) pipes, and to plastic pipes containing significant percentages of filler materials.
- *Concentrations.* Where no concentrations are given (indicated as '**P**'), the commercially pure material is indicated, except in the case of solids where saturated aqueous solutions are indicated.

See **Table 2** for the **Resistance Codes** which are used throughout **Table 3**.

Table 2: Resistance Codes

Code	Meaning	Typical Result
R to xx°F	Plastic material is generally Resistant up to the temperature (°F) indicated by code and may have limited resistance at higher temperatures	Swelling < 3% or weight loss < 0.5% and elongation at break not significantly changed Typical performance properties not significantly affected
L to xx°F	Plastic material has Limited resistance at the temperature (°F) indicated by code. Compatibility at lower temperatures should not be assumed	Material may experience swelling in the range of 3 - 8% or weight loss of 0.5 - 5% and/or reduction in elongation at break by < 50% Some effect on performance properties
N	Plastic material is Not resistant.	Material may experience swelling > 8% or weight loss > 5% and/or reduction in elongation at break by > 50%
P	Pure Concentration	
—	Data not available Check with piping manufacturer	

Chemicals that do not normally affect the properties of an unstressed plastic may cause completely different behavior (such as stress cracking) when under mechanical stress, such as constant internal pressure or mechanical stress cycles.

Unstressed immersion test chemical resistance information is applicable only when the plastic pipe will not be subject to mechanical load or stress that is constant, or cycles frequently.

When the pipe will be subject to a continuous applied mechanical stress or to combinations of chemicals, testing that duplicates the expected field conditions, as closely as possible, should be performed on representative samples of the pipe product to properly evaluate that plastic pipe for use in this application.

*****May not be fully applicable to pressurized applications*****

Table 3: List of Chemical Resistances (°F)

Chemical Formula	Concentration	ABS	CPVC	PP (PP-R, PP- RCT)	PVC	PE (MDPE, HDPE, PE-RT)	PB	PVDF	PEX	PA (PA11, PA12)	PSU	PPSU
Acetaldehyde	40%	---	N	---	L to 73	R to 73	---	N	R to 73	---	---	---
CAS# 75-07-0 CH ₃ CHO	Pure	---	N	R to 140	N	L to 73	L to 73	---	L to 140	L to 176	R to 73	---
Acetamide												
CAS# 60-35-5 CH ₃ CONH ₂	5%	R to 120	---	R to 140	---	R to 140	---	---	R to 140	---	---	---
Acetic Acid	vapor	R to 120	R to 180	R to 180	R to 140	R to 140	R to 140	---	R to 140	---	---	---
CAS# 64-19-7 CH ₃ COOH	10%	---	R to 180	---	---	---	---	R to 248	R to 180	R to 176	---	---
	25%	N	N	R to 180	R to 140	R to 140	R to 140	---	R to 140	---	---	---
	40%	---	---	---	---	---	---	R to 140	---	---	---	---
	50%	---	---	---	---	---	---	R to 140	---	L to 68	---	---
	60%	N	N	R to 180	R to 73	R to 73	R to 73	R to 104	---	---	---	---
	85%	N	N	R to 120	R to 73	R to 73	R to 73	---	---	---	R to 167	R to 167
	glacial	N	N	R to 120	R to 73	R to 73	R to 73	R to 104	R to 68	---	R to 167	R to 167
Acetic Anhydride												
CAS# 108-24-7 (CH ₃ CO) ₂ O	---	N	N	R to 73	N	R to 73	R to 140	N	R to 73	L to 68	---	---
Acetone	5%	N	R to 180	R to 73	N	L to 73	R to 140	R to 212	L to 73	L to 140	N	---
CAS# 67-64-1 CH ₃ COCH ₃	10%	---	L to 180	---	---	---	---	R to 122	---	---	---	---
	100%	---	N	---	---	---	---	---	---	---	---	---
Acetophenone												
CAS# 98-86-2 C ₆ H ₅ COCH ₃	---	N	N	R to 120	--	R to 73	---	R to 68	R to 73	---	---	---
Acetyl Chloride												
CAS# 75-36-5 CH ₃ COCl	---	N	N	---	N	---	---	N	---	---	---	---

May not be fully applicable to pressurized applications

Chemical Formula	Concentration	ABS	CPVC	PP (PP-R, PP- RCT)	PVC	PE (MDPE, HDPE, PE-RT)	PB	PVDF	PEX	PA (PA11, PA12)	PSU	PPSU
Acetylene CAS# 74-86-2 HC≡CH	gas 100%	R to 73	N	R to 73	N	R to 73	L to 73	---	R to 73	R to 140	---	---
Acrylonitrile CAS# 79-10-7 H ₂ C=CHCOOH	97%	---	N	---	N	R to 140	---	---	R to 140	---	---	---
Acrylonitrile CAS# 107-13-1 H ₂ C=CHC≡N	---	---	N	---	N	R to 140	---	---	R to 140	---	---	---
Adipic Acid CAS#124-04-9 COOH(CH ₂) ₄ COOH	Saturated	---	R to 180	R to 140	R to 140	R to 140	R to 73	R to 176	R to 140	---	---	---
Allyl Alcohol CAS# 107-18-6 CH ₂ =CHCH ₂ OH	96%	---	L to 73	R to 140	R to 73	N	R to 140	---	L to 100	---	---	---
Allyl Chloride CAS# 107-05-1 CH ₂ =CHCH ₂ Cl	-- Liquid	---	N	---	N	L to 73	---	R to 140	L to 73	---	---	---
Aluminum Ammonium Sulfate (Alum) CAS# 7784-25-0 AlNH ₄ (SO ₄) ₂ •12H ₂ O	Saturated	---	R to 180	R to 140	R to 140	R to 140	---	---	R to 140	---	---	---
Aluminum Chloride CAS# 7446-70-0 AlCl ₃	Saturated	R to 160	R to 180	R to 180	R to 140	R to 140	R to 140	R to 212	R to 140	---	---	---
Aluminum Fluoride Anhydrous CAS# 7764-18-1 AlF ₃	Saturated	R to 160	R to 180	R to 180	R to 73	R to 140	R to 140	R to 212	R to 140	---	---	---

May not be fully applicable to pressurized applications

Chemical Formula	Concentration	ABS	CPVC	PP (PP-R, PP- RCT)	PVC	PE (MDPE, HDPE, PE-RT)	PB	PVDF	PEX	PA (PA11, PA12)	PSU	PPSU
Aluminum Hydroxide CAS# 21645-51-2 Al(OH) ₃	Saturated	R to 160	R to 180	R to 180	R to 140	R to 140	R to 140	R to 212	R to 140	---	---	---
Aluminum Nitrate CAS# 13473-90-0 Al(NO ₃) ₃ •9H ₂ O	Saturated	---	R to 180	R to 180	R to 140	R to 140	R to 140	R to 212	R to 140	---	---	---
Aluminum Oxychloride CAS# 1327-41-9	--	---	R to 180	R to 180	R to 140	---	R to 140	---	---	---	---	---
Aluminum Potassium Sulfate (Alum) CAS# 10043-67-1 AlK(SO ₄) ₂ •12H ₂ O	Saturated	R to 160	R to 180	R to 140	R to 140	R to 140	---	R to 212	R to 140	---	---	---
Aluminum Sulfate CAS# 10043-01-3 Al ₂ (SO ₄) ₃	Saturated	R to 160	R to 180	R to 140	R to 140	R to 140	C to 73	R to 212	R to 140	R to 194	---	---
Ammonia Gas CAS# 7664-41-7 NH ₃	100%	N	N	R to 140	R to 140	R to 140	R to 140	---	R to 140	R to 140	---	---
Ammonium Acetate CAS# 631-61-8 CH ₃ COONH ₄	Saturated	R to 120	R to 180	R to 73	R to 140	R to 140	---	R to 212	R to 140	---	---	---
Ammonium Bifluoride CAS# 1341-49-7 NH ₄ HF ₂	Saturated	---	R to 180	R to 180	R to 140	---	R to 140	---	R to 140	---	---	---
Ammonium Bisulfide CAS# 12124-99-1 (NH ₄)HS	---	---	---	---	R to 140	---	---	---	---	---	---	---
Ammonium Carbonate CAS# 506-87-6 (NH ₄) ₂ CO ₃	Saturated	---	R to 180	R to 212	R to 140	R to 140	R to 140	R to 248	R to 140	---	---	---

May not be fully applicable to pressurized applications

Chemical Formula	Concentration	ABS	CPVC	PP (PP-R, PP- RCT)	PVC	PE (MDPE, HDPE, PE-RT)	PB	PVDF	PEX	PA (PA11, PA12)	PSU	PPSU
Ammonium Chloride CAS# 12125-02-9 NH ₄ Cl	Saturated	R to 120	R to 180	R to 212	R to 140	R to 140	R to 140	R to 212	R to 140	---	---	---
Ammonium Dichromate CAS# 7789-09-5 (NH ₄) ₂ Cr ₂ O ₇	--	---	R to 73	---	R to 73	---	---	---	---	---	---	---
Ammonium Fluoride CAS# 12125-01-8 NH ₄ F	10% 25%	R to 120 R to 120	R to 180 R to 180	R to 212 R to 212	R to 140 L to 140	R to 140 R to 140	--- R to 73	R to 212 ---	R to 140 R to 140	--- ---	--- ---	--- ---
Ammonium Hydroxide CAS# 1336-21-6 NH ₄ OH	10% 30% Saturated	R to 120 --- ---	N --- ---	R to 212 --- ---	R to 140 --- ---	R to 140 R to 140 ---	R to 140 --- ---	--- --- ---	R to 140 R to 140 R to 194	--- --- ---	--- --- ---	--- --- ---
Ammonium Metaphosphate CAS# 13446-46-3 NH ₃ HPO ₃	Saturated	--	--	R to 212	R to 140	R to 140	R to 140	R to 248	R to 140	---	---	---
Ammonium Nitrate CAS# 6484-52-2 NH ₄ NO ₃	Saturated	R to 120	R to 180	R to 212	R to 140	R to 140	R to 140	R to 212	R to 140	---	---	---
Ammonium Persulfate CAS# 7727-54-0 (NH ₄) ₂ S ₂ O ₈	---	---	R to 180	R to 140	R to 140	R to 140	R to 140	R to 212	R to 140	---	---	---
Ammonium Phosphate (Monobasic) CAS# 7722-76-1 NH ₄ H ₂ PO ₄	---	R to 120	L to 73	R to 212	R to 140	R to 140	R to 140	R to 248	R to 140	---	R to 199	R to 199
Ammonium Sulfate CAS# 7783-20-2 (NH ₄) ₂ SO ₄	Saturated	R to 120	R to 180	R to 212	R to 140	R to 140	R to 140	R to 212	R to 140	---	---	---
Ammonium Sulfide CAS# 12135-76-1 (NH ₄) ₂ S	dilute Saturated	R to 120 ---	R to 180 ---	R to 212 ---	R to 140 ---	R to 140 R to 140	R to 140 ---	--- ---	R to 140 ---	--- ---	--- ---	--- ---

May not be fully applicable to pressurized applications

Chemical Formula	Concentration	ABS	CPVC	PP (PP-R, PP- RCT)	PVC	PE (MDPE, HDPE, PE-RT)	PB	PVDF	PEX	PA (PA11, PA12)	PSU	PPSU
Ammonium Thiocyanate CAS# 1762-95-4 NH ₄ SCN	50-60%	R to 120	R to 180	R to 212	R to 140	R to 140	R to 140	R to 212	R to 73	---	---	---
Amyl Acetate CAS# 628-63-7 CH ₃ COOC ₅ H ₁₁	--	N	N	N	N	R to 73	---	R to 122	R to 73	C to 194	---	---
Amyl Alcohol CAS# 75-41-0 C ₅ H ₁₁ OH	-- 100%	---	N	---	N	R to 140	R to 140	R to 212	R to 140	---	---	---
		---	---	---	---	---	L to 140	---	---	---	---	---
n-Amyl Chloride CAS# 543-59-9 CH ₃ (CH ₂) ₃ CH ₂ Cl	--	N	N	N	N	L to 73	---	---	L to 73	---	---	---
Aniline CAS# 62-53-3 C ₆ H ₅ NH ₂	--	N	N	---	N	R to 73	L to 140	R to 68	L to 140	---	---	---
Aniline Chlorohydrate CAS# 142-04-1 C ₆ H ₅ NH ₂ •HCl	-- Saturated	---	N	---	N	L to 73	N	---	L to 73	---	---	---
		---	N	---	N	R to 140	N	---	R to 140	---	---	---
Anthraquinone CAS# 84-65-2 C ₁₄ H ₈ O ₂	--	---	R to 180	---	R to 140	L to 73	L to 73	---	L to 73	---	---	---
Anthraquinone Sulfonic Acid CAS# 82-49-5 C ₁₄ H ₇ O ₂ • SO ₃ • H ₂ O	--	---	R to 180	R to 73	R to 140	R to 140	L to 73	---	L to 73	---	---	---
Antimony Trichloride CAS# 10025-91-9 SbCl ₃	Saturated	---	R to 180	R to 140	R to 140	R to 140	R to 140	R to 140	R to 140	---	---	---

May not be fully applicable to pressurized applications

Chemical Formula	Concentration	ABS	CPVC	PP (PP-R, PP- RCT)	PVC	PE (MDPE, HDPE, PE-RT)	PB	PVDF	PEX	PA (PA11, PA12)	PSU	PPSU
Aqua Regia CAS# 8007-56-5 (Nitrohydrochloric Acid) HCl+HNO ₃	--	N	R to 73	N	L to 73	N	N	L to 194	N	---	N	---
Arsenic Acid CAS# 7778-39-4 H ₃ AsO ₄	80%	---	R to 180	R to 140	R to 140	R to 140	R to 140	R to 248	R to 140	---	---	---
Asphalt CAS# 8052-42-4	--	---	N	R to 73	N	R to 73	R to 140	---	R to 73	---	---	---
Barium Carbonate CAS# 513-77-9 BaCO ₃	Saturated	R to 120	R to 180	R to 140	R to 140	R to 140	R to 140	R to 248	R to 140	---	---	---
Barium Chloride CAS# 10361-37-2 BaCl ₂ • 2H ₂ O	Saturated	R to 120	R to 180	R to 140	R to 140	R to 140	R to 140	R to 212	R to 140	R to 194	---	---
Barium Hydroxide CAS# 17194-00-2 Ba(OH) ₂	30% Saturated	---	---	---	---	R to 140	---	---	R to 140	---	---	---
		R to 73	R to 180	R to 140	R to 140	R to 140	R to 140	---	R to 212	---	---	---
Barium Nitrate CAS# 10022-31-8 Ba(NO ₃) ₂	Saturated	R to 73	R to 180	R to 140	R to 73	R to 140	---	---	R to 140	---	---	---
Barium Sulfate CAS# 7727-43-7 BaSO ₄	Saturated	R to 73	R to 180	R to 140	R to 140	R to 140	R to 140	R to 212	R to 140	---	---	---
Barium Sulfide CAS# 21109-95-5 BaS	Saturated	R to 73	R to 180	R to 140	R to 140	R to 140	R to 140	---	R to 248	---	---	---
Beer	--	R to 120	R to 180	R to 180	R to 140	R to 140	R to 140	R to 248	R to 140	R to 68	---	---
Beet Sugar Liquors	--	---	R to 180	R to 180	R to 140	R to 73	R to 140	---	R to 73	---	---	---

May not be fully applicable to pressurized applications

Chemical Formula	Concentration	ABS	CPVC	PP (PP-R, PP- RCT)	PVC	PE (MDPE, HDPE, PE-RT)	PB	PVDF	PEX	PA (PA11, PA12)	PSU	PPSU
Benzaldehyde CAS# 100-52-7 C ₆ H ₅ CHO	10%	N	N	R to 73	R to 73	R to 73	L to 73	---	R to 73	R to 104	---	---
Benzene CAS# 71-43-2 C ₆ H ₆	--	N	N	N	N	N	N	N	N	---	N	---
Benzene Sulfonic Acid CAS# 98-11-3 C ₆ H ₅ SO ₃ H	10% 10%+	---	R to 180 N	R to 180 ---	R to 140 N	R to 73 ---	---	---	R to 73 ---	---	---	---
Benzoic Acid CAS# 65-85-0 C ₆ H ₅ COOH	100%	R to 160	R to 180	R to 73	R to 140	R to 140	R to 140	---	R to 140	---	---	---
Benzoyl Chloride CAS# 99-88-4 C ₆ H ₅ COCl	Sat. Sol.	---	---	---	---	---	---	L to 68	---	---	---	---
Benzyl Alcohol CAS# 100-51-6 C ₆ H ₅ CH ₂ OH	--	---	N	R to 120	N	R to 140	---	R to 122	R to 140	R to 68	---	---
Benzyl Chloride CAS# 100-44-7 C ₇ H ₇ Cl	--	---	N	---	---	---	---	---	R to 140	---	---	---
Bismuth Carbonate CAS#5892-10-4 (BiO) ₂ CO ₃	Saturated	---	R to 180	R to 180	R to 140	R to 140	R to 140	---	R to 140	---	---	---
Black Liquor	Saturated	---	R to 180	R to 140	R to 140	R to 120	R to 140	---	R to 120	---	---	---
Bleach-See Sodium Hypochlorite												
Borax CAS# 1303-96-4 Na ₂ B ₄ O ₇ •10H ₂ O	Saturated	R to 160	R to 180	R to 212	R to 140	R to 140	R to 140	---	R to 140	---	---	---

May not be fully applicable to pressurized applications

Chemical Formula	Concentration	ABS	CPVC	PP (PP-R, PP- RCT)	PVC	PE (MDPE, HDPE, PE-RT)	PB	PVDF	PEX	PA (PA11, PA12)	PSU	PPSU
Boric Acid CAS# 10043-35-3 H ₃ BO ₃	Saturated	R to 160	R to 180	R to 212	R to 140	R to 140	R to 140	R to 212	R to 140	---	R to 113	---
Bromic Acid CAS# 15541-45-4 HBrO ₃	Saturated 10%	---	R to 180 ---	N ---	R to 140 ---	N R to 140	R to 140 ---	R to 212 ---	N ---	---	---	---
Bromine CAS# 7726-95-6 Br ₂	Liquid vapor 25%	R to 73 ---	N R to 180	N N	N R to 140	N N	N ---	R to 248 ---	N N	N ---	---	---
Bromine Water	Saturated	---	R to 180	N	R to 140	N	L to 73	R to 176	N	---	---	---
Bromobenzene CAS# 108-86-1 C ₆ H ₅ Br	--	---	N	---	N	---	---	---	---	---	---	---
Bromotoluene (Benzyl bromide) CAS# 95-46-5 C ₆ H ₅ CH ₂ Br	--	---	N	L	N	---	---	---	---	---	---	---
Butadiene CAS# 106-99-0 H ₂ C=CHCH=CH ₂	50% Gas	---	---	N ---	R to 140 ---	R to 73 ---	---	---	R to 73 ---	---	---	---
Butane CAS# 106-97-8 C ₄ H ₁₀	50% Gas	---	R to 180 ---	R to 140 ---	R to 140 ---	R to 140 ---	N ---	---	R to 140 ---	---	---	---
n-Butanol CAS# 71-36-3 C ₄ H ₉ OH	Liquid	---	L to 73	---	---	---	---	R to 140	---	---	N	---
Butyl Acetate CAS# 123-86-4 CH ₃ COOCH ₂ CH ₂ CH ₂ CH ₃	100%	N	N	L to 73	N	L to 73	L to 73	L to 104	L to 73	R to 194	---	---

May not be fully applicable to pressurized applications

Chemical Formula	Concentration	ABS	CPVC	PP (PP-R, PP- RCT)	PVC	PE (MDPE, HDPE, PE-RT)	PB	PVDF	PEX	PA (PA11, PA12)	PSU	PPSU
Butyl Alcohol CAS# 71-36-3 CH ₃ (CH ₂) ₂ CH ₂ OH	--	---	L to 73	R to 180	R to 140	R to 140	R to 140	---	R to 140	L to 104	R to 73	---
Butyl Cellosolve CAS# 111-76-2 HOCH ₂ CH ₂ O(CH ₂) ₃ CH ₃	--	---	N	---	R to 73	---	---	---	---	---	---	---
n-Butyl Chloride CAS# 109-69-3 C ₄ H ₉ Cl	--	N	N	---	---	---	---	---	---	---	---	---
Butyl Glycol CAS# 111-76-2 HOCH ₂ CH ₂ O(CH ₂) ₃ CH ₃	Liquid	---	N	---	---	---	---	R to 212	---	---	---	---
Butylene CAS# 107-01-7 (isomer not specified) CH ₃ CH=CHCH ₃	Liquid	---	---	N	R to 140	N	---	---	N	---	---	---
Butyl Phenol CAS# 98-54-4 (CH ₃) ₃ C ₆ H ₄ OH	--	---	---	N	L to 73	R to 73	R to 73	---	R to 73	---	---	---
Butyl Phthalate CAS# 84-74-2 C ₁₆ H ₂₂ O ₄	--	---	N	R to 180	---	---	---	R to 140	---	---	---	---
Butyl Stearate CAS# 123-95-5 CH ₃ (CH ₂) ₁₆ COO(CH ₂) ₃ CH ₃	--	---	---	---	R to 73	---	---	---	---	---	---	---
Butynediol CAS# 110-65-6 HOCH ₂ C≡CCH ₂ OH	--	---	---	---	R to 73	---	---	---	---	---	---	---
Butyric Acid CAS# 107-92-6 CH ₃ CH ₂ CH ₂ COOH	-- 20% Liquid	N --- ---	N --- ---	R to 180 --- ---	R to 73 --- ---	R to 73 --- ---	R to 73 --- ---	--- R to 212 R to 176	R to 73 --- R to 73	--- --- ---	--- --- ---	--- --- ---

May not be fully applicable to pressurized applications

Chemical Formula	Concentration	ABS	CPVC	PP (PP-R, PP- RCT)	PVC	PE (MDPE, HDPE, PE-RT)	PB	PVDF	PEX	PA (PA11, PA12)	PSU	PPSU
Cadmium Cyanide CAS# 542-83-6 Cd(CN) ₂	--	---	R to 180	---	R to 140	---	---	---	---	---	---	---
Calcium Bisulfide Ca(HS) ₂ o6H ₂ O	--	---	R to 180	---	N	R to 140	---	---	R to 140	---	---	---
Calcium Bisulfite CAS# 13780-03-5 Ca(HSO ₃) ₂	-- Saturated	---	R to 180	R to 180	R to 140	N	R to 140	---	N	---	---	---
Calcium Carbonate CaCO ₃	Saturated	---	R to 180	R to 180	R to 140	R to 140	R to 140	R to 248	R to 140	---	---	---
Calcium Chlorate CAS# 10137-74-3 Ca(ClO ₃) ₂ •2H ₂ O	--	---	R to 180	R to 180	R to 140	R to 140	R to 140	R to 248	R to 140	---	---	---
Calcium Chloride CAS# 10043-52-4 CaCl ₂	Saturated	R to 120	R to 180	R to 180	R to 140	R to 140	R to 140	R to 248	R to 176	R to 194	---	---
Calcium Hydrogen Sulfide CAS# 9046-53-1 Ca(HS) ₂	>10%	---	---	---	---	---	---	R to 248	---	---	---	---
Calcium Hydroxide CAS# 1305-62-0 Ca(OH) ₂	-- 30%	R to 160	R to 180	R to 180	R to 140	R to 140	R to 140	---	R to 140	---	---	---
Calcium Hypochlorite CAS# 7778-54-3 Ca(OCl) ₂	30% Saturated	R to 160	R to 180	R to 140	R to 140	R to 140	R to 140	---	R to 140	---	---	---
Calcium Nitrate CAS# 10124-37-5 Ca(NO ₃) ₂	-- 50% Saturated	---	R to 180	R to 180	R to 140	R to 140	R to 140	---	R to 140	---	---	---
		---	---	---	---	R to 140	---	R to 212	R to 140	---	---	---
		---	---	---	---	---	---	R to 176	---	---	---	---

May not be fully applicable to pressurized applications

Chemical Formula	Concentration	ABS	CPVC	PP (PP-R, PP- RCT)	PVC	PE (MDPE, HDPE, PE-RT)	PB	PVDF	PEX	PA (PA11, PA12)	PSU	PPSU
Calcium Oxide CAS# 1305-78-8 CaO	--	---	R to 180	---	R to 140	R to 140	---	---	R to 140	---	---	---
Calcium Sulfate CAS# 7778-18-9 CaSO ₄	--	R to 100	R to 180	R to 180	R to 140	R to 140	R to 140	R to 212	R to 140	---	---	---
Camphor CAS# 76-22-2 C ₁₀ H ₁₆ O	--	N	---	R to 73	R to 73	R to 73	---	---	R to 73	---	---	---
Cane Sugar Liquors (Sucrose) CAS# 57-50-1 C ₁₂ H ₂₂ O ₁₁	--	---	R to 180	R to 180	R to 140	R to 140	R to 150	---	R to 140	---	---	---
Carbitol CAS# 111-90-0 CH ₃ CH ₂ O(CH ₂) ₂ O(CH ₂) ₂ OH	--	---	N	---	R to 73	---	---	---	---	---	---	---
Carbon Dioxide CAS# 124-38-9 CO ₂	Dry 100% Wet	R to 160 R to 160	R to 180 R to 180	R to 140 R to 140	R to 140 R to 140	R to 140 R to 140	--- R to 140	R to 212 ---	R to 140 R to 140	--- ---	--- ---	--- ---
Carbon Disulfide CAS# 75-15-0 CS ₂	--	N	N	N	N	L to 140	---	---	L to 73	R to 104	N	---
Carbon Monoxide CAS# 630-08-0 CO	Gas	---	R to 180	R to 180	R to 140	R to 140	R to 140	R to 140	R to 140	---	---	---
Carbon Tetrachloride CAS# 56-23-5 CCl ₄	--	N	N	N	R to 73	L to 73	N	L to 212	L to 68	N	N	---
Carbonic Acid CAS# 463-79-6 H ₂ CO ₃	Saturated	R to 185	R to 180	R to 140	R to 140	R to 140	---	---	R to 140	---	---	---

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Chemical Formula	Concentration	ABS	CPVC	PP (PP-R, PP- RCT)	PVC	PE (MDPE, HDPE, PE-RT)	PB	PVDF	PEX	PA (PA11, PA12)	PSU	PPSU
Castor Oil CAS# 8001-79	--	---	L to 180	R to 140	R to 140	R to 73	R to 140	---	R to 73	---	---	---
Caustic Potash CAS# 1310-58-3 KOH	50%	R to 160	R to 180	R to 180	R to 140	R to 140	R to 73	---	R to 140	---	---	---
Cellosolve CAS# 110-80-2	--	---	N	R to 73	R to 73	L to 120	R to 140	---	L to 120	---	N	---
Cellosolve Acetate CAS# 111-15-9 CH ₃ COOCH ₂ CH ₂ OC ₂ H ₅	--	---	N	R to 73	R to 73	---	---	---	---	---	---	---
Chloral Hydrate CAS# 302-17-0 CCl ₃ CH (OH) ₂	All	---	---	L to 73	R to 140	R to 120	R to 140	---	R to 120	---	---	---
Chloramine CAS# 10599-90-3 NH ₂ Cl	Dilute	---	R to 180	R to 73	R to 73	R to 73	---	---	R to 73	---	---	---
Chloric acid CAS# 7790-93-4 HClO ₃	10% 20%	---	R to 180 R to 185	R to 73 R to 73	R to 140 R to 140	R to 73 R to 73	---	---	R to 73 R to 73	---	---	---
Chlorine Gas CAS# 7782-50-5 Cl ₂	0-20 PPM moisture content 20-50 PPM moisture content 50+ PPM moisture content	N N N	L to 73 L to 73 L to 73	N N N	L to 73 N N	L to 73 L to 73 L to 73	---	R to 212 ---	L to 73 L to 73 L to 73	---	---	---
Chloroacetic Acid CAS# 79-11-8 CH ₂ ClCOOH	50% >10%	N ---	N ---	L to 73 ---	R to 140 ---	R to 120 ---	N ---	---	R to 120 ---	---	---	---

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Chemical Formula	Concentration	ABS	CPVC	PP (PP-R, PP- RCT)	PVC	PE (MDPE, HDPE, PE-RT)	PB	PVDF	PEX	PA (PA11, PA12)	PSU	PPSU
Chloroacetyl Chloride CAS# 79-04-9 ClCH ₂ COCl	--	---	N	---	R to 73	---	---	---	---	---	---	---
Chlorobenzene CAS# 108-90-7 C ₆ H ₅ Cl	Dry Liquid	N ---	N ---	R to 73 ---	N ---	L to 73 ---	N ---	--- R to 140	L to 73 R to 68	--- L to 176	--- ---	--- ---
Chlorobenzyl Chloride CAS# 104-83-6 ClC ₆ H ₄ CH ₂ Cl	--	---	N	---	N	L to 120	---	---	L to 120	---	---	---
Chloroethanol CAS# 107-07-3 ClCH ₂ CH ₂ OH	Liquid	---	N	---	---	---	N	R to 122	---	---	---	---
Chloroform CAS# 67-66-3 CHCl ₃	Dry Liquid	N ---	N ---	N ---	N ---	L to 73 ---	L to 73 ---	--- R to 212	N N	--- ---	N ---	--- ---
Chloromethane CAS# 74-87-3 CH ₃ Cl	Gas	---	N	---	---	---	---	R to 212	---	---	---	---
Chloropicrin CAS# 76-06-2 CCl ₃ NO ₂	--	---	N	---	N	R to 73	---	---	R to 73	---	---	---
Chlorosulfonic Acid CAS# 7790-94-5 ClSO ₂ OH	-- 50% 100%	--- --- ---	R to 73 --- ---	N --- ---	R to 73 --- ---	L to 120 --- N	N --- ---	--- R to 68 ---	N --- N	--- --- ---	--- --- ---	--- --- ---
Chromic Acid CAS# 7738-94-5 H ₂ CrO ₄	Saturated 10% 30% 40% 50%	--- R to 73 N N N	--- R to 180 R to 180 R to 180 L to 140	--- R to 140 R to 73 R to 73 R to 73	--- R to 140 R to 140 R to 140 N	--- R to 73 R to 73 R to 73 R to 73	--- R to 140 R to 140 R to 73 N	--- R to 212 R to 212 R to 212 R to 212	--- R to 73 R to 73 R to 73 R to 73	--- N --- --- ---	--- N N N N	--- N N N N

May not be fully applicable to pressurized applications

Chemical Formula	Concentration	ABS	CPVC	PP (PP-R, PP- RCT)	PVC	PE (MDPE, HDPE, PE-RT)	PB	PVDF	PEX	PA (PA11, PA12)	PSU	PPSU
Chromium Potassium Sulfate (dodecahydrate)	>10%	---	---	---	---	---	---	R to 212	---	---	---	---
CAS# 7788-99-0	--	---	---	R to 73	---	R to 73	---	---	R to 73	---	---	---
$\text{CrK}(\text{SO}_4)_2 \cdot 12\text{H}_2\text{O}$	Saturated	---	---	---	---	---	R to 212	---	---	---	---	---
Citric Acid CAS# 77-92-9	Saturated	R to 160	R to 180	R to 140	R to 140	R to 140	R to 140	R to 248	R to 140	L to 140	---	L
$\text{C}_6\text{H}_8\text{O}_7$												
Coconut Oil	--	---	L to 180	R to 73	R to 140	R to 73	R to 140	R to 248	R to 73	---	---	---
CAS# 8001-31-8												
Cod Liver Oil	Work Sol.	---	L to 180	---	---	---	---	R to 248	---	---	---	---
Coffee	--	---	R to 180	R to 140	R to 140	R to 140	---	---	R to 140	---	R to 203	R to 203
Coke Oven Gas	--	---	---	R to 73	R to 140	R to 140	---	---	R to 140	---	---	---
Copper Acetate	Saturated	---	R to 73	R to 73	R to 73	---	---	---	---	---	---	---
CAS# 142-71-2												
$\text{Cu}(\text{C}_2\text{H}_3\text{O}_2)_2 \cdot \text{H}_2\text{O}$												
Copper Carbonate	Saturated	---	R to 180	---	R to 140	R to 140	---	---	R to 140	---	---	---
CAS # 12069-69-1												
CuCO_3												
Copper Chloride	Saturated	R to 73	R to 180	R to 140	R to 140	R to 140	R to 140	---	R to 140	---	---	---
CAS# 7447-39-4												
CuCl_2												
Copper Cyanide	Saturated	---	R to 180	---	R to 140	R to 140	R to 140	R to 212	R to 140	---	---	---
CAS# 544-92-3												
CuCN												
Copper Fluoride Dihydrate	2%	---	R to 180	R to 73	R to 140	R to 140	R to 140	---	R to 140	---	---	---
CAS# 13454-88-1												
$\text{CuF}_2 \cdot 2\text{H}_2\text{O}$												
Copper Nitrate	30%	---	R to 180	R to 140	R to 140	R to 140	R to 140	---	---	---	---	---
CAS# 3251-23-8	50%	---	---	---	---	---	---	R to 212	---	---	---	---
$\text{Cu}(\text{NO}_3)_2 \cdot 3\text{H}_2\text{O}$												

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Chemical Formula	Concentration	ABS	CPVC	PP (PP-R, PP- RCT)	PVC	PE (MDPE, HDPE, PE-RT)	PB	PVDF	PEX	PA (PA11, PA12)	PSU	PPSU
Copper Sulfate CAS# 7758-99-8 CuSO ₄ • 5H ₂ O	Saturated	R to 120	R to 180	R to 120	R to 140	R to 140	R to 140	R to 212	R to 140	R to 194	---	---
Corn Oil CAS# 8001-30-7	--	---	L to 180	R to 73	R to 140	R to 120	---	---	R to 120	---	R to 200	---
Corn Syrup CAS# 8029-43-4 C ₆ H ₁₂ O ₆	--	---	R to 185	R to 140	R to 140	R to 140	---	---	R to 140	---	---	---
Cottonseed Oil CAS# 8001-29-4	--	R to 120	L to 180	R to 140	R to 140	R to 140	R to 140	---	R to 140	---	---	---
Creosote	--	---	N	R to 73	N	R to 140	---	---	R to 140	---	---	---
Cresol CAS# 95-48-7 CH ₃ C ₆ H ₄ OH	90%	N	N	R to 73	N	R to 73	N	R to 68	R to 73	---	---	---
Cresylic Acid CAS# 106-44-5	50%	---	N	---	R to 140	L to 73	N	---	L to 73	---	---	---
Crotonaldehyde CAS# 123-73-9 CH ₃ CH=CHCHO	-- Liquid	---	N	L to 73	N	---	---	---	---	---	---	---
		---	---	---	---	---	---	R to 104	--	---	---	---
Crude Oil CAS# 8002-05-9	--	---	L to 180	R to 140	R to 140	L to 120	L to 73	R to 212	L to 120	R to 140	---	---
Cupric Fluoride See Copper Fluoride Dihydrate												
Cupric Sulfate CAS# 7758-99-8 CuSO ₄ • 5H ₂ O	Saturated	R to 100	R to 180	R to 73	R to 140	R to 140	---	---	---	---	---	---
Cuprous Chloride CAS# 7758-89-6 CuCl	Saturated	R to 70	R to 180	---	R to 140	R to 140	---	---	R to 140	---	---	---

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Chemical Formula	Concentration	ABS	CPVC	PP (PP-R, PP- RCT)	PVC	PE (MDPE, HDPE, PE-RT)	PB	PVDF	PEX	PA (PA11, PA12)	PSU	PPSU
Cyclohexane CAS# 110-82-7 C ₆ H ₁₂	--	R to 73	R to 73	N	N	N	---	R to 248	N	L to 140	N	---
Cyclohexanol CAS# 108-93-0 C ₆ H ₁₁ OH	--	L to 120	L to 73	R to 140	N	R to 73	L to 73	R to 104	R to 73	---	---	---
Cyclohexanone CAS# 108-94-1 C ₆ H ₁₀ O	Liquid	N	N	R to 73	N	R to 120	N	N	R to 73	L to 140	---	---
Detergents (Heavy Duty)	--	---	L to 180	R to 180	R to 140	R to 140	---	---	R to 140	---	---	---
Dextrin (Starch Gum) CAS# 9004-53-9	Saturated	---	R to 180	R to 140	R to 140	R to 140	R to 140	---	R to 140	---	---	---
Dextrose CAS# 50-99-7 C ₆ H ₁₂ O ₆	Saturated	---	R to 180	R to 140	R to 140	R to 140	R to 140	---	R to 140	---	---	---
Diacetone Alcohol CAS# 123-42-2 CH ₃ COCH ₂ C(CH ₃) ₂ OH	--	---	N	R to 120	N	---	---	---	---	L to 140	N	N
Dibutoxyethyl Phthalate CAS# 117-83-9 C ₂₀ H ₃₀ O ₆	--	---	N	---	N	---	---	---	---	---	---	---
n-Dibutyl Ether CAS# 142-96-1 C ₄ H ₉ OC ₄ H ₉	--	---	N	---	---	R to 73	---	---	R to 73	---	---	---
Dibutyl Phthalate CAS# 84-74-2 C ₆ H ₄ (COOC ₄ H ₉) ₂	--	N	N	R to 73	N	R to 73	---	---	R to 73	---	N	---
Dibutyl Sebacate CAS# 109-43-3 C ₄ H ₉ OCO(CH ₂) ₈ OCOC ₄ H ₉	--	---	N	R to 73	R to 73	R to 73	---	---	R to 73	---	---	---

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Chemical Formula	Concentration	ABS	CPVC	PP (PP-R, PP- RCT)	PVC	PE (MDPE, HDPE, PE-RT)	PB	PVDF	PEX	PA (PA11, PA12)	PSU	PPSU
Dichloroacetic Acid CAS# 79-43-6 CHCl ₂ COOH	50%	---	N	---	---	---	---	R to 176	---	---	---	---
Dichlorobenzene CAS# 25321-22-6 C ₆ H ₄ Cl ₂	-- Liquid	N ---	N ---	L to 73 ---	N ---	L to 120 ---	---	---	L to 120 ---	---	N ---	---
Dichloroethylene CAS# 75-35-4 C ₂ H ₂ Cl ₂	-- Liquid	---	N ---	L to 73 ---	N ---	L to 120 ---	---	---	L to 120 ---	---	---	---
Diesel Fuels	--	---	L to 180	R to 140	R to 140	R to 73	L to 73	R to 212	R to 73	---	R to 122	R to 122
Diethanolamine CAS# 111-42-2 (CH ₂ CH ₂ OH) ₂ NH	Solid 20%	---	---	---	---	---	---	N ---	---	---	---	---
Diethylamine CAS# 109-89-7 C ₄ H ₁₀ NH	--	N	N	---	N	L to 120	N	N	L to 120	---	---	---
Diethyl Ether CAS# 60-29-7 C ₄ H ₁₀ O	--	N	N	R to 73	R to 73	L to 140	---	---	L to 140	R to 140	N	---
Diglycolic Acid CAS# 110-99-6 O(CH ₂ COOH) ₂	Saturated 10%	---	R to 73 ---	R to 140 ---	R to 140 ---	R to 140 ---	R to 140 ---	---	R to 140 ---	---	---	---
Dimethylamine CAS# 124-40-3 (CH ₃) ₂ NH	--	---	N	R to 73	R to 140	R to 73	N	N	R to 73	---	---	---
Dimethylformamide CAS# 68-12-2 HCON(CH ₃) ₂	-- Liquid	N ---	N ---	R to 180 ---	N ---	R to 120 ---	---	---	R to 120 N	---	---	---

May not be fully applicable to pressurized applications

Chemical Formula	Concentration	ABS	CPVC	PP (PP-R, PP- RCT)	PVC	PE (MDPE, HDPE, PE-RT)	PB	PVDF	PEX	PA (PA11, PA12)	PSU	PPSU
Dimethylhydrazine CAS# 57-14-7 (CH ₃) ₂ NNH ₂	--	---	N	---	N	---	---	---	---	---	---	---
Dimethyl Phthalate CAS# 131-11-3 C ₆ H ₄ (COOCH ₃) ₂	--	---	N	---	---	L to 73	---	---	L to 73	---	---	---
Diethyl Phthalate CAS# 117-81-7 C ₆ H ₄ (COOC ₂ H ₅) ₂	--	N	N	L to 73	N	L to 73	L to 73	---	L to 73	R to 140	R to 73	---
Dioxane CAS# 123-91-1 C ₄ H ₈ O ₂	-- Liquid	-- ---	N ---	L to 140 ---	N ---	R to 140 ---	---	---	R to 140 ---	---	---	---
Diphenyl Oxide CAS# 101-84-8 (C ₆ H ₅) ₂ O	Saturated	---	---	---	---	L to 73	---	---	L to 73	---	---	---
Disodium Phosphate CAS# 7558-79-4 Na ₂ HPO ₄	--	---	R to 180	R to 140	R to 140	R to 140	R to 140	---	R to 140	---	---	---
DOWTHERM A ethyl glycol CAS# 110-80-5	--	---	---	---	N	---	---	---	R to 180	---	---	---
Ethanol CAS# 64-17-5 C ₂ H ₅ OH	40% 95% Liquid	---	L to 140 L to 140 L to 140	---	---	---	---	R to 68 R to 122 R to 122	---	---	---	---
Ether CAS# 60-29-7 ROR	--	N	N	L to 73	N	R to 73	N	---	R to 73	---	---	---
Ethyl Acetate CAS# 141-78-6 CH ₃ COOCH ₂ CH ₃	-- Liquid	N ---	N ---	L to 140 ---	N ---	R to 73 ---	L to 73 ---	---	R to 73 ---	R to 140 ---	N ---	---

May not be fully applicable to pressurized applications

Chemical Formula	Concentration	ABS	CPVC	PP (PP-R, PP- RCT)	PVC	PE (MDPE, HDPE, PE-RT)	PB	PVDF	PEX	PA (PA11, PA12)	PSU	PPSU
Ethyl Acetoacetate CAS# 141-97-9 CH ₃ COCH ₂ COOC ₂ H ₅	--	N	N	---	N	---	---	---	---	---	---	---
Ethyl Acrylate CAS# 140-88-5 CH ₂ =CHCOOC ₂ H ₅	--	---	N	---	N	---	---	---	---	---	---	---
Ethyl Alcohol-See Ethanol												
Ethyl Benzene CAS# 100-41-4 C ₆ H ₅ C ₂ H ₅	--	---	N	L to 73	N	L to 73	---	---	---	---	---	---
Ethyl Chloride CAS# 75-00-3 C ₂ H ₅ Cl	Dry Gas	---	N	L to 73	N	L to 73	---	---	L to 73	---	---	---
Ethyl Chloroacetate CAS# 105-39-5 ClCH ₂ COOC ₂ H ₅	--	---	N	---	N	---	---	---	---	---	---	---
Ethyl Ether CAS# 60-29-7 (C ₂ H ₅) ₂ O	Liquid	---	N	N	N	N	N	R to 122	N	---	---	---
Ethylene Bromide CAS# 106-93-4 BrCH ₂ CH ₂ Br	Dry	---	N	---	N	---	N	---	---	---	---	---
Ethylene Chloride CAS# 75-01-4 (Vinyl Chloride) CH ₂ CH Cl	Dry	N	N	L to 73	N	L to 140	---	---	L to 140	---	N	---
Ethylene Chlorohydrin CAS# 107-07-3 ClCH ₂ CH ₂ OH	-- Liquid	---	N	R to 73	N	---	N	---	---	---	---	---
		---	---	---	---	---	---	L to 68	---	---	---	---

May not be fully applicable to pressurized applications

Chemical Formula	Concentration	ABS	CPVC	PP (PP-R, PP- RCT)	PVC	PE (MDPE, HDPE, PE-RT)	PB	PVDF	PEX	PA (PA11, PA12)	PSU	PPSU
Ethylene Diamine CAS# 107-15-3 NH ₂ CH ₂ CH ₂ NH ₂	--	N	N	R to 73	N	R to 140	---	---	R to 140	---	---	---
Ethylene Dichloride CAS# 107-06-2 C ₂ H ₄ Cl ₂	Dry	N	N	L to 140	N	L to 73	R to 140	---	L to 73	---	---	---
Ethylene Glycol CAS# 107-21-1 OHCH ₂ CH ₂ OH	Liquid 50% Solution	R to 73 ---	L to 180 R to 180	R to 212 ---	R to 140 ---	R to 140 ---	R to 140 ---	R to 212 ---	R to 212 ---	---	R to 73 R to 248	---
Ethylene Oxide CAS# 75-21-8 CH ₂ CH ₂ O	--	---	N	L to 73	N	R to 73	---	---	R to 73	L to 140	---	---
2-Ethylhexanol CAS# 104-76-7 CH ₃ (CH ₂) ₃ CHC ₂ H ₅ CH ₂ OH	--	---	---	---	---	R to 73	---	---	R to 73	---	---	---
Fatty Acids R-COOH	--	R to 160	R to 73	R to 120	R to 140	R to 120	R to 150	---	R to 120	R to 194	---	---
Ferric Chloride (Aqueous) CAS# 10025-77-1 FeCl ₃	Saturated	R to 120	R to 180	R to 140	R to 140	R to 140	R to 150	R to 212	R to 140	---	---	---
Ferric Hydroxide CAS# 1309-33-7 Fe(OH) ₃	Saturated	R to 160	R to 180	R to 140	R to 140	R to 140	---	---	R to 140	---	---	---
Ferric Nitrate CAS# 10421-48-4 Fe(NO ₃) ₃	Saturated	R to 160	R to 180	R to 140	R to 140	R to 140	R to 140	R to 212	R to 140	---	---	---
Ferric Sulfate CAS# 10028-22-5 Fe ₂ (SO ₄) ₃	-- Saturated	R to 160 ---	R to 180 ---	R to 140 ---	R to 140 ---	R to 140 ---	R to 140 ---	--- R to 212	R to 140 ---	---	---	---

May not be fully applicable to pressurized applications

Chemical Formula	Concentration	ABS	CPVC	PP (PP-R, PP- RCT)	PVC	PE (MDPE, HDPE, PE-RT)	PB	PVDF	PEX	PA (PA11, PA12)	PSU	PPSU
Ferrous Chloride CAS# 7758-94-3 FeCl ₂	Saturated	R to 160	R to 180	R to 140	R to 140	R to 140	R to 140	R to 212	R to 140	---	---	---
Ferrous Hydroxide CAS# 18624-44-7 Fe(OH) ₂	Saturated	R to 160	R to 180	R to 140	R to 140	R to 140	---	---	R to 140	---	---	---
Ferrous Nitrate Fe(NO ₃) ₂	--	R to 160	R to 180	R to 140	R to 140	R to 140	---	---	R to 140	---	---	---
Ferrous Sulfate CAS# 7720-78-7 FeSO ₄	-- Saturated	R to 160 ---	R to 180 ---	R to 140 ---	R to 140 ---	R to 140 ---	R to 140 ---	--- R to 212	R to 140 ---	---	---	---
Fish Oil CAS# 8016-13-5	---	---	L to 180	R to 180	R to 140	R to 140	R to 140	---	R to 140	---	---	---
Fluoroboric Acid CAS# 16872-11-0 HBF ₄	--- Solid	R to 73 ---	R to 73 ---	R to 140 ---	R to 140 ---	R to 140 ---	--- ---	--- R to 104	R to 140 ---	---	---	---
Fluorine Gas (Dry) CAS# 7782-41-4 F ₂	100%	---	L to 73	N	R to 73	L to 73	L to 73	---	L to 73	N	---	---
Fluorine Gas (Wet) CAS# 7782-41-4 F ₂	--	N	L to 73	N	R to 73	N	N	---	N	N	---	---
Fluorosilicic Acid CAS# 16961-83-4 H ₂ SiF ₆	30% 40% 50% Saturated	--- --- --- ---	R to 180 R to 180 R to 180 R to 180	R to 140 --- R to 73 ---	R to 140 --- R to 140 ---	R to 140 --- R to 140 ---	--- --- R to 140 ---	R to 212 R to 140 R to 212 R to 212	R to 140 --- -- ---	--- --- --- ---	---	---
Formaldehyde CAS# 50-00-0 HCHO	Dilute 35% 37% 50%	R to 160 R to 160 R to 160 ---	R to 73 N N N	R to 140 R to 140 R to 140 ---	R to 140 R to 140 R to 140 R to 140	R to 140 R to 140 R to 140 R to 140	R to 140 R to 140 R to 140 R to 140	R to 176 --- R to 212 ---	--- R to 140 R to 140 R to 140	L to 104 --- --- ---	---	R to 100 ---

May not be fully applicable to pressurized applications

Chemical Formula	Concentration	ABS	CPVC	PP (PP-R, PP- RCT)	PVC	PE (MDPE, HDPE, PE-RT)	PB	PVDF	PEX	PA (PA11, PA12)	PSU	PPSU
Formic Acid	10%	---	R to 180	---	---	---	---	R to 212	R to 140	N	---	---
CAS# 64-18-6	40%	---	---	---	---	---	---	R to 212	R to 140	---	---	---
HCOOH	50%	---	---	---	---	---	---	R to 176	R to 140	---	---	---
	85%	---	---	---	---	---	---	R to 212	---	---	R to 122	---
	100%	N	L to 73	R to 140	R to 73	R to 140	R to 150	---	R to 140	---	---	---
Freon 11												
CAS# 75-69-4	100%	N	N	N	R to 140	R to 73	---	---	R to 73	---	---	---
CCl ₃ F												
Freon 12	100%	---	N	R to 73	R to 140	R to 73	---	---	R to 73	R to 68	R to 73	---
CAS# 75-71-8	Work. Sol.	---	N	---	---	---	---	R to 212	R to 68	---	---	---
CCl ₂ F ₂												
Freon 21												
CAS# 75-43-4	100%	---	N	N	N	L to 120	---	---	L to 120	---	---	---
CHCl ₂ F												
Freon 22												
CAS# 75-45-6	100%	---	N	R to 73	N	L to 120	---	---	L to 120	R to 68	N	---
CHClF ₂												
Freon 113												
CAS# 76-13-1	100%	---	N	N	R to 140	R to 73	---	---	R to 73	---	---	---
C ₂ Cl ₂ F ₃												
Freon 114												
CAS# 76-14-2	100%	---	N	N	R to 140	R to 73	---	---	R to 73	---	---	---
C ₂ Cl ₂ F ₄												
Fructose												
CAS# 57-48-7	Saturated	R to 73	R to 180	R to 180	R to 140	R to 140	R to 140	---	R to 140	---	---	---
C ₆ H ₁₂ O ₆												
Fruit Juice	Work. Sol.	---	---	---	---	---	---	R to 212	---	R to 104	---	---

May not be fully applicable to pressurized applications

Chemical Formula	Concentration	ABS	CPVC	PP (PP-R, PP- RCT)	PVC	PE (MDPE, HDPE, PE-RT)	PB	PVDF	PEX	PA (PA11, PA12)	PSU	PPSU
Furfural												
CAS# 98-01-1 C ₄ H ₃ OCHO	100%	N	N	N	N	L to 140	---	---	L to 140	L to 140	---	---
Gallic Acid												
CAS# 149-91-7 C ₆ H ₂ (OH) ₃ CO ₂ H • H ₂ O	--	---	R to 180	---	R to 140	R to 73	---	---	R to 73	---	---	---
Gasoline, Leaded ³	--	N	N	N	R to 140	R to 73	N	---	R to 73	---	---	---
Gasoline, Unleaded ³	--	N	N	N	R to 140	R to 73	N	---	R to 73	---	---	R to 122
Gasoline (Fuel) ³												
CAS# 8006-61-9	--	---	---	---	---	---	---	R to 212	---	R to 160	---	R to 122
Gasohol ³	--	N	N	N	R to 140	R to 73	N	---	R to 73	---	---	R to 122
Gasoline, Sour ³	--	N	N	N	R to 140	L to 73	N	---	L to 73	---	---	---
Gelatin												
CAS# 9000-70-8	--	---	R to 180	R to 180	R to 140	R to 140	R to 140	---	R to 140	---	---	---
Glucose												
CAS# 50-99-7 C ₆ H ₁₂ O ₆ • H ₂ O	10%	R to 120	R to 180	R to 212	R to 140	R to 140	R to 140	---	R to 140	---	---	---
		---	---	---	---	---	---	R to 248	---	---	---	---
Glycerine												
CAS# 56-81-5 C ₃ H ₅ (OH) ₃	Liquid	R to 140	R to 180	R to 212	R to 140	R to 140	R to 140	---	R to 140	---	R to 73	---
		---	---	---	---	---	---	R to 248	---	---	---	---
Glycolic Acid												
CAS# 79-14-1 OHCH ₂ COOH	Saturated	---	N	R to 73	R to 140	R to 140	---	---	R to 140	---	---	---
	10%	---	---	---	---	---	---	R to 212	---	---	---	---
	30%	---	---	---	---	---	---	R to 140	---	---	---	---
	65%	---	---	---	---	---	---	R to 212	---	---	---	---
Glyoxal												
CAS# 107-22-2 OCHCHO	--	---	---	---	---	R to 140	---	---	R to 140	---	---	---
Grape Sugar												
CAS# 50-99-7	--	---	R to 180	---	R to 140	---	---	---	---	---	---	---
Grapefruit Juice	Work. Sol.	---	---	---	---	---	---	R to 122	---	---	---	---

May not be fully applicable to pressurized applications

Chemical Formula	Concentration	ABS	CPVC	PP (PP-R, PP- RCT)	PVC	PE (MDPE, HDPE, PE-RT)	PB	PVDF	PEX	PA (PA11, PA12)	PSU	PPSU
Grease	--	---	---	---	---	---	---	---	---	R to 194	---	---
Green Liquor	--	R to 160	R to 180	---	R to 140	---	R to 140	---	---	---	---	---
n-Heptane CAS# 142-82-5 C ₇ H ₁₆	Liquid	R to 73	R to 73	N	R to 140	R to 73	N	R to 212	R to 73	---	N	---
n-Hexane CAS# 110-54-3 C ₆ H ₁₄	Liquid	L	R to 73	R to 73	R to 73	---	---	R to 176	---	---	R to 73	---
Hexanol, Tertiary Type I CAS# 25917-35-5 CH ₃ (CH ₂) ₄ CH ₂ OH	--	---	L to 180	---	R to 140	R to 140	R to 140	---	R to 140	---	---	---
Hydraulic Oil (Petroleum)	--	---	---	---	R to 73	R to 73	---	---	R to 73	---	---	---
Hydrazine CAS# 302-01-2 H ₂ NNH ₂	--	---	N	R to 73	N	---	---	---	---	---	---	---
Hydrobromic Acid CAS# 10035-10-6 HBr	20% 50% 66%	R to 73 N ---	R to 73 --- ---	R to 140 R to 120 ---	R to 140 --- ---	R to 140 R to 140 ---	R to 140 --- ---	R to 212 --- R to 212	R to 140 R to 140 ---	---	---	---
Hydrochloric Acid CAS# 7647-01-0 HCl	10% 20% 30% Conc.	L to 120 --- L to 73 ---	R to 180 --- R to 180 ---	R to 140 --- R to 140 ---	R to 140 --- R to 140 ---	R to 140 --- R to 140 ---	R to 140 --- R to 140 ---	R to 212 R to 212 R to 212 ---	R to 212 R to 212 R to 140 R to 140	L to 104 --- ---	--- --- R to 140 ---	--- --- R to 122 ---
Hydrocyanic Acid CAS# 74-90-8 HCN	-- Saturated 10%	R to 160 --- ---	R to 73 --- ---	R to 73 --- ---	R to 140 --- ---	R to 140 --- ---	R to 140 --- ---	--- R to 248 R to 248	R to 140 --- ---	---	---	---

May not be fully applicable to pressurized applications

Chemical Formula	Concentration	ABS	CPVC	PP (PP-R, PP- RCT)	PVC	PE (MDPE, HDPE, PE-RT)	PB	PVDF	PEX	PA (PA11, PA12)	PSU	PPSU
Hydrofluoric Acid	Dilute	R to 73	R to 180	R to 180	R to 73	R to 140	R to 140	R to 212	R to 140	---	---	---
CAS# 7664-39-3	30%	N	L to 180	R to 140	R to 73	R to 140	R to 140	---	R to 140	---	---	---
HF	50%	N	N	R to 73	R to 73	R to 120	R to 140	R to 212	R to 120	---	---	---
	60%	---	---	---	---	R to 140	---	R to 140	R to 140	---	---	---
	70%	---	---	---	---	---	---	R to 212	---	---	---	---
	100%	N	N	L to 73	N	R to 120	---	---	R to 120	---	---	---
	Gas	---	---	---	---	---	---	R to 104	---	---	---	---
Hydrogen	Gas	---	R to 73	R to 140	R to 140	R to 140	R to 140	R to 248	R to 140	R to 194	---	---
CAS# 1333-74-0												
H ₂												
Hydrogen Cyanide	--	---	---	R to 73	R to 140	---	---	---	---	---	---	---
CAS# 74-90-8												
HCN												
Hydrogen Fluoride, Anhydrous	--	---	L	R to 73	N	---	---	---	---	---	---	---
CAS# 7664-39-3												
HF												
Hydrogen Peroxide	10%	---	R to 180	---	---	---	---	R to 212	---	---	---	---
CAS# 7722-84-1	30%	---	R to 180	---	---	---	---	R to 212	---	L to 104	R to 73	R to 73
H ₂ O ₂	50%	---	R to 120	R to 73	R to 140	R to 140	N	R to 212	R to 140	---	---	---
	90%	---	---	L to 73	R to 140	R to 73	N	---	R to 73	---	R to 73	---
Hydrogen Phosphide (Type I)	--	---	R to 73	---	R to 140	R to 140	R to 140	---	R to 140	---	---	---
CAS # 7803-51-2												
PH ₃												
Hydrogen Sulfide	Dry	---	R to 180	R to 150	R to 140	R to 140	R to 140	R to 248	R to 140	---	---	---
CAS# 7783-06-4	Wet	---	R to 180	---	R to 140	R to 140	---	---	R to 140	---	---	---
H ₂ S												

May not be fully applicable to pressurized applications

Chemical Formula	Concentration	ABS	CPVC	PP (PP-R, PP- RCT)	PVC	PE (MDPE, HDPE, PE-RT)	PB	PVDF	PEX	PA (PA11, PA12)	PSU	PPSU
Hydrogen Sulfite CAS# 15181-46-1 HO ₃ S	10%	---	---	---	---	R to 140	---	R to 248	R to 140	---	---	---
Hydroquinone CAS# 123-31-9 C ₆ H ₄ (OH) ₂	Saturated	---	R to 73	---	R to 140	R to 140	R to 140	---	---	R to 140	---	---
Hydroxylamine Sulfate CAS# 10039-54-0 (NH ₂ OH) ₂ SO ₄	--	---	---	---	R to 140	R to 140	---	---	R to 140	---	---	---
Hypochlorous Acid CAS# 7790-92-3 HOCl	10% 70%	R to 73 ---	L to 180 ---	R to 73 ---	R to 140 ---	R to 140 ---	R to 140 ---	--- R to 212	R to 140 ---	--- ---	--- ---	--- ---
Inks	--	---	---	R to 140	---	R to 140	---	---	R to 140	---	---	---
Iodine CAS# 7553-56-2 I ₂	10%	N	R to 73	R to 73	N	L to 120	N	R to 176	L to 120	---	---	---
IRM 901 Oil (ASTM #1)	--	---	180	L to 140	R to 140	R to 73	R to 140	R to 248	R to 73	---	---	---
IRM 902 Oil (ASTM #2)	--	---	180	L to 140	R to 140	R to 73	R to 140	---	R to 73	---	---	---
IRM 903 Oil (ASTM #3)	--	---	180	L to 140	R to 140	R to 73	R to 140	---	R to 73	---	---	---
Isobutyl Alcohol CAS# 78-83-1 (CH ₃) ₂ CHCH ₂ OH	--	L to 73	L to 73	R to 73	---	R to 140	---	---	R to 140	---	---	---
Isooctane CAS# 540-84-1 (CH ₃) ₃ CCH ₂ CH(CH ₃) ₂	Liquid	---	---	L to 73	---	R to 73	---	R to 212	R to 73	---	---	---
Isopropyl Acetate CAS# 108-21-4 CH ₃ COOCH(CH ₃) ₂	--	N	N	---	---	R to 73	---	---	R to 73	---	---	---

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Chemical Formula	Concentration	ABS	CPVC	PP (PP-R, PP- RCT)	PVC	PE (MDPE, HDPE, PE-RT)	PB	PVDF	PEX	PA (PA11, PA12)	PSU	PPSU
Isopropyl Alcohol CAS# 67-63-0 (CH ₃) ₂ CHOH	--	---	L to 180	R to 212	R to 140	R to 140	R to 140	L to 212	R to 140	---	---	---
Isopropyl Ether CAS# 108-20-3 (CH ₃) ₂ CHOCH(CH ₃) ₂	--	---	N	L to 73	N	R to 73	---	---	R to 73	---	---	---
JP-4 Fuel ³	--	---	L to 73	L to 73	R to 140	R to 73	---	---	R to 73	---	R to 73	---
JP-5 Fuel ³	--	---	L to 73	L to 73	R to 140	R to 73	---	---	R to 73	---	---	---
Kerosene ³ CAS# 8008-20-6	--	R to 73	N	L to 140	R to 140	L to 140	L to 73	---	L to 140	---	---	---
Ketchup	--	---	R to 180	---	R to 73	---	---	---	---	---	R to 72	---
Ketones	--	N	N	L to 73	N	R to 73	---	---	R to 73	---	---	---
Kraft Liquors	--	R to 73	R to 180	---	R to 140	R to 120	R to 140	---	R to 120	---	---	---
Lactic Acid CAS# 50-21-5 CH ₃ CHOHCOOH	10% 25% 80% Liquid	---	---	---	---	---	---	R to 140	---	---	---	---
		R to 73	R to 180	R to 212	R to 140	R to 140	R to 140	---	R to 140	---	---	---
		N	L to 180	R to 140	R to 73	R to 140	---	---	R to 140	---	---	---
		---	---	---	---	---	---	R to 212	---	R to 194	---	---
Lard Oil	--	---	L to 180	---	R to 140	L to 120	R to 73	---	L to 120	---	---	---
Latex	--	---	---	R to 140	---	R to 140	---	---	R to 140	---	---	---
Lauric Acid CAS# 143-07-7 CH ₃ (CH ₂) ₁₀ COOH	--	---	L to 180	R to 140	R to 140	R to 120	---	---	R to 120	---	---	---
Lauryl Chloride (Type I) CAS# 112-52-7 CH ₃ (CH ₂) ₁₀ CH ₂ Cl	--	---	N	---	R to 140	R to 120	R to 73	R to 248	R to 120	---	---	---
Lead Acetate (trihydrate) CAS# 6080-56-4 Pb(C ₂ H ₃ COO) ₂ ·3H ₂ O	Saturated	---	R to 180	R to 180	R to 140	R to 140	R to 140	R to 212	R to 140	---	---	---

May not be fully applicable to pressurized applications

Chemical Formula	Concentration	ABS	CPVC	PP (PP-R, PP- RCT)	PVC	PE (MDPE, HDPE, PE-RT)	PB	PVDF	PEX	PA (PA11, PA12)	PSU	PPSU
Lead Chloride CAS# 7758-95-4 PbCl ₂	--	---	R to 180	R to 140	R to 140	R to 120	---	---	R to 120	---	---	---
Lead Nitrate CAS# 10099-74-8 Pb(NO ₃) ₂	Saturated	---	R to 180	R to 140	R to 140	R to 120	---	---	R to 120	---	---	---
Lead Sulfate CAS# 7446-14-2 PbSO ₄	--	---	R to 180	R to 140	R to 140	R to 120	---	---	R to 120	---	---	---
Lead Tetraethyl CAS# 78-00-2 C ₈ H ₂₀ Pb	--	---	---	---	---	---	---	R to 212	---	---	---	---
Lemon Oil CAS# 8008-56-8	--	---	N	L to 73	---	---	---	---	---	---	---	---
Lemon Juice	--	---	---	---	---	L to 140	---	---	L to 140	---	R to 122	---
Ligroin (Petroleum Ether) CAS# 8032-32-4	--	---	---	R to 140	---	---	---	R to 212	---	---	---	---
Lime Slurry	--	---	---	---	---	R to 140	---	---	R to 140	---	---	---
Lime Sulfur CAS# 1344-81-6	--	---	R to 73	R to 73	R to 73	R to 120	R to 140	---	R to 120	---	---	---
Linoleic Acid CAS# 60-33-3 CH ₃ (CH ₂) ₄ (CH=CHCH ₂) ₂ (CH ₂) ₆ COOH	--	---	L to 180	R to 180	R to 140	---	R to 73	---	---	---	---	---
Linoleic Oil (Type I)	--	---	---	---	R to 140	---	R to 73	---	---	---	---	---
Linseed Oil CAS# 8001-26-1	--	73	L to 180	R to 140	R to 140	R to 73	R to 73	R to 248	R to 73	R to 194	---	---
Liqueurs	--	---	---	R to 140	R to 140	R to 120	R to 140	---	R to 120	---	---	---

May not be fully applicable to pressurized applications

Chemical Formula	Concentration	ABS	CPVC	PP (PP-R, PP- RCT)	PVC	PE (MDPE, HDPE, PE-RT)	PB	PVDF	PEX	PA (PA11, PA12)	PSU	PPSU
Lithium Bromide CAS# 7550-35-8 LiBr	-- 65%	---	---	R to 140	R to 140	R to 140	---	---	R to 140	---	---	---
Lithium Chloride CAS# 7447-41-8 LiCl	--	---	R to 180	R to 140	R to 140	R to 120	---	---	R to 120	---	---	---
Lithium Hydroxide CAS# 1310-65-2 LiOH	--	---	R to 73	R to 140	---	R to 120	---	---	R to 120	---	---	---
Magnesium Carbonate CAS# 546-93-0 MgCO ₃	--	R to 120	R to 180	R to 212	R to 140	R to 140	R to 140	R to 212	R to 140	---	---	---
Magnesium Chloride CAS# 7786-30-3 MgCl ₂	Saturated 50%	R to 120	R to 180	R to 140	R to 140	R to 140	R to 140	R to 140	R to 140	---	---	---
Magnesium Chloride CAS# 7786-30-3 MgCl ₂	Saturated 50%	---	---	---	---	---	---	R to 212	---	R to 194	---	---
Magnesium Citrate CAS# 6150-80-7 MgC ₆ H ₈ O ₇ o5H ₂ O	--	---	R to 180	---	R to 140	R to 140	---	---	R to 140	---	---	---
Magnesium Hydroxide CAS# 1309-42-8 Mg(OH) ₂	Saturated	R to 160	R to 180	R to 180	R to 140	R to 140	R to 140	R to 212	R to 140	---	---	---
Magnesium Nitrate CAS# 10377-60-3 Mg(NO ₃) ₂ o2H ₂ O	--	R to 160	R to 180	R to 212	R to 140	R to 140	R to 140	R to 248	R to 140	---	---	---
Magnesium Oxide CAS# 1309-48-4 MgO	--	R to 160	R to 180	---	---	---	---	---	---	---	---	---
Magnesium Sulfate CAS# 7487-88-9 MgSO ₄ o7H ₂ O	--	R to 160	R to 180	R to 212	R to 140	R to 140	R to 140	R to 212	R to 140	---	---	---

May not be fully applicable to pressurized applications

Chemical Formula	Concentration	ABS	CPVC	PP (PP-R, PP- RCT)	PVC	PE (MDPE, HDPE, PE-RT)	PB	PVDF	PEX	PA (PA11, PA12)	PSU	PPSU
Maleic Acid CAS# 110-16-7 HOOCCH=CHCOOH	Saturated 50%	R to 160 ---	R to 180 ---	R to 140 ---	R to 140 ---	R to 140 ---	R to 140 ---	R to 140 R to 212	R to 140 ---	---	---	---
Malic Acid CAS# 6915-15-7 COOHCH ₂ CH(OH)COOH	--	---	R to 180	R to 140	R to 140	R to 140	R to 140	---	R to 140	---	---	---
Manganese Sulfate CAS# 7785-87-7 MnSO ₄ • 4H ₂ O	--	---	R to 180	R to 180	R to 140	R to 140	---	---	R to 140	---	---	---
Margarine	Work Sol.	---	---	---	---	---	---	R to 248	---	---	---	---
Mercuric Chloride CAS# 7487-94-7 HgCl ₂	-- Saturated	---	R to 180 ---	R to 180 ---	R to 140 ---	R to 140 ---	R to 140 ---	---	R to 140 ---	---	---	---
Mercuric Cyanide CAS# 592-04-1 Hg(CN) ₂	Saturated	---	R to 180	R to 140	R to 140	R to 140	R to 140	R to 212	R to 140	---	---	---
Mercuric Sulfate CAS# 7783-35-9 HgSO ₄	Saturated	---	R to 180	R to 140	R to 140	R to 140	---	---	R to 140	---	---	---
Mercurous Nitrate (Dihydrate) CAS# 14836-60-3 HgNO ₃ • 2H ₂ O	10% Saturated	---	---	---	---	---	---	R to 212 ---	---	---	---	---
Mercury CAS# 7439-97-6 Hg	Liquid	---	R to 180	R to 140	R to 140	R to 140	R to 140	R to 248	R to 140	R to 194	---	---
Methane CAS# 74-82-8 CH ₄	--	N	R to 73	R to 73	R to 140	R to 140	---	---	R to 140	R to 140	---	---

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Chemical Formula	Concentration	ABS	CPVC	PP (PP-R, PP- RCT)	PVC	PE (MDPE, HDPE, PE-RT)	PB	PVDF	PEX	PA (PA11, PA12)	PSU	PPSU
Methanol (Methyl Alcohol) CAS# 67-56-1 CH ₃ OH	5% Liquid	---	R to 180 N	---	---	---	---	R to 140 L to 176	---	---	---	---
Methoxyethyl Oleate CAS# 111-10-4 CH ₃ OCH ₂ CH ₂ OOC C ₁₇ H ₃₃	--	---	N	---	R to 73	---	---	---	---	---	---	---
Methyl Acetate CAS# 79-20-9 CH ₃ CO ₂ CH ₃	--	N	N	R to 140	N	L to 120	---	---	L to 120	---	---	---
Methyl Acrylate CAS# 96-33-3 CH ₂ =CHCOOCH ₃	Tech Pure	---	N	---	---	R to 140	---	---	R to 140	---	---	---
Methylamine CAS# 74-89-5 CH ₃ NH ₂	--	---	N	N	N	---	---	---	---	---	---	---
Methyl Bromide CAS# 74-83-9 CH ₃ Br	--	---	N	N	N	L to 73	---	---	L to 73	R to 68	---	---
Methyl Butyl Ketone CAS# 591-78-6 CH ₃ CO(CH ₂) ₃ CH ₃	Liquid	---	N	---	---	---	---	L to 122	---	---	---	---
Methyl Cellosolve CAS# 109-86-4 HOCH ₂ CH ₂ OCH ₃	--	---	N	R to 73	N	L to 120	---	---	L to 120	---	---	---
Methyl Chloride CAS# 74-87-3 CH ₃ Cl	Dry	N	N	N	N	L to 120	N	---	L to 120	R to 68	---	---
Methyl Chloroform CAS# 71-55-6 CH ₃ CCl ₃	--	N	N	L to 73	N	L to 120	---	---	L to 120	---	---	---

May not be fully applicable to pressurized applications

Chemical Formula	Concentration	ABS	CPVC	PP (PP-R, PP- RCT)	PVC	PE (MDPE, HDPE, PE-RT)	PB	PVDF	PEX	PA (PA11, PA12)	PSU	PPSU
Methyl Ethyl Ketone (MEK) CAS# 78-93-3 CH ₃ COC ₂ H ₅	100%	N	N	R to 73	N	N	R to 73	L to 68	R to 73	L to 140	N	---
Methyl Isobutyl Carbinol CAS# 108-11-2 (CH ₃) ₂ CHCH ₂ CH(CH ₃)OH	--	---	N	---	N	---	---	---	---	---	---	---
Methyl Isobutyl Ketone CAS# 108-10-1 (CH ₃) ₂ CHCH ₂ COCH ₃	--	N	N	R to 73	N	R to 73	---	---	R to 73	---	---	---
Methyl Isopropyl Ketone CAS# 563-80-4 CH ₃ COCH(CH ₃) ₂	--	---	N	---	N	R to 73	---	---	R to 73	---	---	---
Methyl Methacrylate CAS# 80-62-6 CH ₂ =C(CH ₃)COOCH ₃	--	---	N	---	R to 73	R to 140	---	R to 68	R to 140	---	N	---
Methyl Sulfate CAS# 77-78-1 (CH ₃) ₂ SO ₄	--	---	R to 73	L to 73	R to 73	R to 140	---	---	---	R to 68	---	---
Methylene Bromide CAS# 74-95-3 CH ₂ Br ₂	--	---	N	N	N	L to 120	---	---	L to 120	---	---	---
Methylene Chloride CAS# 75-09-2 CH ₂ Cl ₂	100%	---	N	N	N	N	R to 73	L to 104	N	---	N	---
Methylene Chlorobromide CAS# 74-97-5 CH ₂ ClBr	--	---	N	--	N	---	---	---	---	---	---	---

May not be fully applicable to pressurized applications

Chemical Formula	Concentration	ABS	CPVC	PP (PP-R, PP- RCT)	PVC	PE (MDPE, HDPE, PE-RT)	PB	PVDF	PEX	PA (PA11, PA12)	PSU	PPSU
Methylene Iodide CAS# 75-11-6 CH ₂ I ₂	--	---	N	N	N	L to 120	---	---	L to 120	---	---	---
Methylsulfuric Acid CAS# 75-93-4 CH ₃ HSO ₄	--	---	---	R to 140	R to 140	---	---	---	---	---	---	---
Milk	--	R to 160	L to 180	R to 212	R to 140	R to 140	R to 140	R to 212	R to 140	R to 194	R to 200	---
Mineral Oil (Paraffin Oil) CAS# 8012-95-1	--	R to 73	R to 180	L to 140	R to 140	R to 73	L to 73	R to 212	L to 176	---	---	---
Molasses	--	---	R to 180	R to 140	R to 140	R to 140	R to 140	---	R to 140	---	---	---
Monochloroacetic Acid CAS# 79-11-8 CH ₂ ClCOOH	50%	---	N	R to 140	R to 140	R to 140	---	---	R to 140	---	---	---
Monochlorobenzene CAS# 108-90-7 C ₆ H ₅ Cl	Tech Pure	---	N	R to 73	N	L to 120	---	---	L to 120	---	---	---
Monoethanolamine CAS# 141-43-5 HOCH ₂ CH ₂ NH ₂	--	---	N	---	N	---	---	---	---	---	---	---
Motor Oil	--	---	R to 73	L to 140	R to 140	R to 140	---	---	R to 140	---	---	---
Morpholine CAS# 110-91-8 C ₄ H ₈ ONH	--	---	N	R to 140	---	R to 140	---	---	R to 140	---	N	N
Mustard, Aqueous	Work. Sol.	---	---	---	---	---	---	R to 248	---	---	R to 72	---
Naphtha CAS# 8030-30-6	--	---	R to 73	R to 73	R to 140	R to 73	R to 73	R to 122	L to 176	R to 140	---	---

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Chemical Formula	Concentration	ABS	CPVC	PP (PP-R, PP- RCT)	PVC	PE (MDPE, HDPE, PE-RT)	PB	PVDF	PEX	PA (PA11, PA12)	PSU	PPSU
Naphthalene CAS# 91-20-3 C ₁₀ H ₈	--	---	R to 73	R to 73	N	R to 73	R to 73	---	R to 73	R to 194	N	---
Natural Gas CAS# 68410-96-6	--	R to 73	---	R to 73	R to 140	R to 140	R to 73	---	R to 140	---	---	---
Nickel Acetate CAS# 373-02-4 Ni(OOCCH ₃) ₂ • 4H ₂ O	--	---	R to 180	R to 73	---	R to 140	---	---	R to 140	---	---	---
Nickel Chloride CAS# 7718-54-9 NiCl ₂	Saturated	R to 160	R to 180	R to 180	R to 140	R to 140	R to 140	R to 212	R to 140	---	---	---
Nickel Nitrate CAS# 13138-45-9 Ni(NO ₃) ₂ • 6H ₂ O	Saturated	R to 160	R to 180	R to 180	R to 140	R to 140	R to 140	R to 248	R to 140	---	---	---
Nickel Sulfate CAS# 7786-81-4 NiSO ₄	Saturated	R to 160	R to 180	R to 180	R to 140	R to 140	R to 140	R to 212	R to 140	---	R to 140	---
Nicotine CAS# 54-11-5 C ₁₀ H ₁₄ N ₂	--	---	---	---	R to 140	R to 140	R to 140	---	R to 140	---	---	---
Nicotinic Acid CAS# 59-67-6 C ₅ H ₄ NCOOH	--	---	---	---	R to 140	R to 140	R to 140	R to 212	R to 140	---	---	---

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Chemical Formula	Concentration	ABS	CPVC	PP (PP-R, PP- RCT)	PVC	PE (MDPE, HDPE, PE-RT)	PB	PVDF	PEX	PA (PA11, PA12)	PSU	PPSU
Nitric Acid	5%	---	---	---	---	---	---	R to 176	L to 140	N	R to 210	---
CAS# 7697-37-2	10%	L to 73	R to 180	R to 180	R to 140	R to 73	L to 73	R to 212	L to 140	---	---	---
HNO₃	20%	---	---	---	---	---	---	R to 212	L to 140	---	---	---
	30%	N	R to 130	R to 140	R to 140	R to 73	N	R to 212	L to 140	---	---	---
	40%	N	R to 120	R to 73	R to 140	R to 73	N	L to 248	L to 140	---	---	---
	50%	N	R to 110	N	R to 100	L to 73	N	---	L to 140	---	---	---
	65%	---	---	---	---	---	---	L to 248	---	---	---	---
	70%	N	R to 100	N	R to 73	L to 73	N	---	L to 73	---	---	---
	85%	---	---	---	---	---	---	N	---	---	---	---
	100%	N	N	N	N	N	N	---	N	---	---	---
Nitrobenzene												
CAS# 98-95-3	100%	N	N	L to 140	N	N	---	R to 122	N	---	---	---
C₆H₅NO₂												
Nitroglycerine	--	---	N	---	N	R to 73	---	---	R to 73	---	---	---
CAS# 55-63-0	1%	---	N	---	---	---	---	---	---	---	R to 73	R to 73
CH₂NO₃CHNO₃CH₂NO₃												
Nitroglycol												
CAS#628-96-6	--	---	---	---	N	---	---	---	---	---	---	---
NO₃(CH₂)₂NO₃												
Nitrous Acid												
CAS# 7782-77-6	10%	---	R to 73	L to 73	R to 140	R to 73	---	---	R to 73	---	---	---
HNO₂												
Nitrous Oxide												
CAS# 10024-97-2	--	---	R to 73	R to 73	R to 73	R to 73	---	---	R to 73	---	R to 68	---
N₂O												
n-Octane												
CAS# 111-65-9	--	---	R to 73	---	---	---	---	---	---	---	R to 73	---
C₈H₁₈												

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Chemical Formula	Concentration	ABS	CPVC	PP (PP-R, PP- RCT)	PVC	PE (MDPE, HDPE, PE-RT)	PB	PVDF	PEX	PA (PA11, PA12)	PSU	PPSU
Oleic Acid CAS# 112-80-1 CH ₃ (CH ₂) ₇ CH=CH(CH ₂) ₇ COOH	--	R to 160	L to 180	R to 73	R to 140	L to 140	R to 150	R to 248	L to 140	R to 140	R to 73	---
Oleum CAS# 57-06-7 x H ₂ SO ₄ oySO ₃	--	N	N	N	N	N	N	N	N	---	---	---
Olive Oil CAS# 8001-25-0	--	R to 160	L to 180	R to 73	R to 140	R to 140	---	R to 248	R to 140	---	---	---
Oxalic Acid CAS# 144-62-7 HOOC-COOH o2H ₂ O	50% 10% Saturated	R to 160 --- ---	R to 180 --- ---	R to 140 --- ---	R to 140 --- ---	R to 140 --- ---	R to 140 --- ---	--- R to 140 R to 122	R to 140 --- ---	--- R to 140 ---	--- --- ---	--- --- ---
Oxygen Gas CAS# 7782-44-7 O ₂	--	R to 160	R to 180	N	R to 140	R to 140	---	R to 212	R to 140	R to 140	---	---
Ozone CAS# 10028-15-6 O ₃	--	---	R to 180	L to 73	R to 140	L to 120	---	---	L to 120	L to 68	---	---
Palm Oil CAS# 8002-75-3	--	---	---	R to 73	---	R to 140	---	---	R to 140	---	---	---
Palmitic Acid CAS# 57-10-3 CH ₃ (CH ₂) ₁₄ COOH	10% 70%	R to 73 ---	R to 73 R to 73	R to 180 R to 180	R to 140 R to 73	R to 120 R to 120	R to 150 ---	--- ---	R to 120 R to 120	--- ---	--- ---	--- ---
Paraffin CAS# 8002-74-2 C ₃₆ H ₇₄	--	R to 73	R to 180	R to 140	R to 140	L to 140	---	R to 212	L to 140	---	---	---

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Chemical Formula	Concentration	ABS	CPVC	PP (PP-R, PP- RCT)	PVC	PE (MDPE, HDPE, PE-RT)	PB	PVDF	PEX	PA (PA11, PA12)	PSU	PPSU
Peanut Oil CAS# 8002-03-7	--	---	L to 180	R to 140	---	---	---	R to 248	---	---	---	---
n-Pentane CAS# 109-66-0 CH ₃ (CH ₂) ₃ CH ₃	--	N	L to 180	N	L to 140	L to 120	---	---	L to 120	---	---	---
Peracetic Acid CAS# 79-21-0 CH ₃ COOOH	40%	N	N	R to 73	R to 73	---	---	---	---	---	---	---
Perchloric Acid (Type I) CAS# 7601-90-3 HClO ₄	10% 15% 70%	--- --- R to 73	R to 73 --- ---	--- R to 140 L to 73	--- R to 73 R to 73	--- R to 140 R to 73	--- L to 73 N	R to 212 --- R to 212	--- R to 140 R to 73	--- --- ---	--- --- ---	--- --- ---
Perchloroethylene CAS# 127-18-4 (tetrachloroethylene) Cl ₂ C=CCl ₂	--	N	N	L to 73	L to 140	L to 120	---	L to 212	L to 120	L to 68	N	---
Perphosphate CAS# 7758-23-8	--	---	---	R to 140	R to 73	---	---	---	---	---	---	---
Petroleum Ether CAS# 8032-32-4	--	---	---	R to 140	---	---	---	R to 212	---	---	---	---
Phenol CAS# 108-95-2 C ₆ H ₅ OH	-- 5% 50% 90% Solid	N --- --- --- ---	R to 73 --- --- --- ---	R to 73 --- --- --- ---	R to 73 --- --- --- ---	R to 140 --- --- N ---	R to 73 --- --- --- ---	--- --- R to 176 --- L to 122	R to 73 L to 73 --- N ---	N --- --- --- ---	--- L to 140 --- --- ---	--- --- --- --- ---
Phenylhydrazine CAS# 100-63-0 C ₆ H ₅ NHNH ₂	--	---	N	N	N	N	---	R to 104	N	---	---	---

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Chemical Formula	Concentration	ABS	CPVC	PP (PP-R, PP- RCT)	PVC	PE (MDPE, HDPE, PE-RT)	PB	PVDF	PEX	PA (PA11, PA12)	PSU	PPSU
Phenylhydrazine Hydrochloride CAS# 59-88-1 C ₆ H ₅ NHNH ₂ ·HCl	10%	---	---	---	---	---	---	R to 140	N	---	---	---
Phosphine CAS# 7803-51-2 PH ₃	Gas	---	---	---	---	---	---	R to 104	---	---	---	---
Phosphoric Acid CAS# 7664-38-2 H ₃ PO ₄	10% 50% 85% 98%	---	R to 180 R to 180 R to 180 ---	R to 212 R to 212 R to 212 ---	R to 140 R to 140 R to 140 ---	R to 140 R to 140 R to 73 ---	R to 140 R to 73 ---	---	R to 140 R to 140 R to 73 ---	---	---	---
Phosphoric Anhydride CAS# 1314-56-3 P ₂ O ₅	--	---	R to 73	R to 73	R to 73	---	---	---	---	---	---	---
Phosphorous (Red) CAS# 7723-14-0 P	--	---	---	---	R to 73	R to 140	---	---	R to 140	---	R to 120	---
Phosphorous (White/Yellow) CAS# 12185-10-3 P ₄	--	--	---	---	R to 73	R to 140	---	---	R to 140	---	R to 120	---
Phosphorus Oxychloride CAS# 10025-87-3 POCl ₃	Liquid	---	---	---	---	---	---	R to 68	---	---	---	---
Phosphorus Pentoxide CAS# 1314-56-3 P ₂ O ₅	--	---	R to 73	R to 73	R to 73	R to 140	---	---	R to 140	---	---	---
Phosphorus Trichloride CAS# 7719-12-2 PCl ₃	--	--	N	R to 73	N	R to 120	L to 73	L to 122	R to 120	---	---	---

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Chemical Formula	Concentration	ABS	CPVC	PP (PP-R, PP- RCT)	PVC	PE (MDPE, HDPE, PE-RT)	PB	PVDF	PEX	PA (PA11, PA12)	PSU	PPSU
Phthalic Acid	--	---	N	R to 140	L to 140	R to 140	---	---	R to 140	---	---	---
CAS# 88-99-3 C ₆ H ₄ (COOH) ₂	Susp.	---	N	---	---	---	---	R to 212	---	---	---	---
Picric Acid	10%	N	N	R to 73	N	R to 73	R to 73	R to 212	R to 73	L to 68	---	---
CAS# 88-89-1 C ₆ H ₂ (NO ₂) ₃ OH	Saturated.	---	---	---	---	---	---	R to 212	---	---	---	---
Pine Oil	--	---	N	R to 140	---	R to 73	---	---	R to 73	---	---	---
CAS# 8002-09-3	--	---	N	R to 140	---	R to 73	---	---	R to 73	---	---	---
Plating Solutions (Brass)	--	---	R to 180	R to 140	R to 140	R to 140	L to 73	---	R to 140	---	---	---
Plating Solutions (Cadmium)	--	---	R to 180	R to 140	R to 140	R to 140	L to 73	---	R to 140	---	---	---
Plating Solutions (Chrome)	--	---	R to 180	R to 140	R to 140	R to 140	L to 73	---	R to 140	---	---	---
Plating Solutions (Copper)	--	---	R to 180	R to 140	R to 140	R to 140	L to 73	---	R to 140	---	---	---
Plating Solutions (Gold)	--	---	R to 180	R to 140	R to 140	R to 140	L to 73	---	R to 140	---	---	---
Plating Solutions (Lead)	--	---	R to 180	R to 140	R to 140	R to 140	L to 73	---	R to 140	---	---	---
Plating Solutions (Nickel)	--	---	R to 180	R to 140	R to 140	R to 140	L to 73	---	R to 140	---	---	---
Plating Solutions (Rhodium)	--	---	R to 180	R to 140	R to 140	R to 140	L to 73	---	R to 140	---	---	---
Plating Solutions (Silver)	--	---	R to 180	R to 140	R to 140	R to 140	L to 73	---	R to 140	---	---	---
Plating Solutions (Tin)	--	---	R to 180	R to 140	R to 140	R to 140	L to 73	---	R to 140	---	---	---
Plating Solutions (Zinc)	--	---	R to 180	R to 140	R to 140	R to 140	L to 73	---	R to 140	---	---	---
Potash (Aq)-See Potassium Hydroxide												
CAS# 1310-58-3 KOH												

May not be fully applicable to pressurized applications

Chemical Formula	Concentration	ABS	CPVC	PP (PP-R, PP- RCT)	PVC	PE (MDPE, HDPE, PE-RT)	PB	PVDF	PEX	PA (PA11, PA12)	PSU	PPSU
Potassium Alum CAS# 10043-67-1 AlK (SO ₄) ₂ o12H ₂ O	--	---	R to 180	---	R to 140	R to 140	---	---	R to 140	---	---	---
Potassium Aluminum Sulfate CAS# 10043-67-1 AlK (SO ₄) ₂ o12H ₂ O	--	---	R to 180	R to 180	R to 140	---	L to 73	---	---	---	---	---
Potassium Amyl Xanthate CAS# 2720-73-2 CH ₃ (CH ₂) ₄ OC(=S)-S.K	--	---	---	---	R to 73	---	---	---	---	---	---	---
Potassium Bicarbonate CAS# 298-14-6 KHCO ₃	Saturated	---	R to 180	R to 140	R to 140	R to 140	R to 140	R to 212	R to 140	---	---	---
Potassium Bi- chromate CAS# 7778-50-9 K ₂ Cr ₂ O ₇	Saturated 40%	---	R to 180	R to 140	R to 140	---	L to 73	R to 212	---	---	---	---
Potassium Bisulfate CAS# 7646-93-7 KHSO ₄	--	---	R to 180	R to 212	R to 140	R to 140	---	R to 212	R to 140	---	---	---
Potassium Borate CAS#12045-78-2 K ₂ B ₄ O ₇ o4H ₂ O	--	--	R to 180	R to 140	R to 140	R to 140	R to 140	R to 212	R to 140	---	---	---
Potassium Bromate CAS# 7758-01-2 KBrO ₃	-- 10%	---	R to 180	R to 212	R to 140	R to 140	R to 140	R to 212	R to 140	---	---	---
Potassium Bromide CAS# 7758-02-3 KBr	--	---	R to 180	R to 212	R to 140	R to 140	R to 140	R to 248	R to 140	---	---	---

May not be fully applicable to pressurized applications

Chemical Formula	Concentration	ABS	CPVC	PP (PP-R, PP- RCT)	PVC	PE (MDPE, HDPE, PE-RT)	PB	PVDF	PEX	PA (PA11, PA12)	PSU	PPSU
Potassium Carbonate CAS# 584-08-7 K ₂ CO ₃	--	R to 73	R to 180	R to 180	R to 140	R to 140	R to 140	N	R to 140	---	---	---
Potassium Chlorate (Aqueous) CAS# 3811-04-9 KClO ₃	--	R to 160	R to 180	R to 212	R to 140	R to 140	R to 140	N	R to 140	---	---	---
Potassium Chloride CAS# 7747-40-7 KCl	--	R to 160	R to 180	R to 212	R to 140	R to 140	R to 140	R to 212	R to 140	---	---	---
Potassium Chromate CAS# 7789-00-6 K ₂ CrO ₄	--	---	R to 180	R to 212	R to 140	R to 140	R to 140	---	R to 140	---	---	---
Potassium Cyanide CAS# 151-50-8 KCN	--	---	R to 180	R to 180	R to 140	R to 140	R to 140	R to 212	R to 140	---	---	---
Potassium Dichromate CAS# 7778-50-9 K ₂ Cr ₂ O ₇	Saturated	--	R to 180	R to 180	R to 140	R to 140	R to 140	---	R to 140	---	---	---
Potassium Ethyl Xanthate CAS# 140-89-6 KS ₂ COC ₂ H ₅	--	---	---	---	R to 73	---	---	---	---	---	---	---
Potassium Ferricyanide CAS# 13746-66-2 K ₃ Fe(CN) ₆	--	---	R to 180	R to 180	R to 140	R to 140	R to 140	R to 248	R to 140	---	---	---
Potassium Ferrocyanide CAS# 13943-58-3 K ₄ Fe(CN) ₆ o3H ₂ O	--	---	R to 180	R to 180	R to 140	R to 140	---	R to 248	R to 140	---	---	---
Potassium Fluoride CAS# 7789-23-3 KF	--	---	R to 180	R to 180	R to 140	R to 140	R to 140	R to 212	R to 140	---	---	---

May not be fully applicable to pressurized applications

Chemical Formula	Concentration	ABS	CPVC	PP (PP-R, PP- RCT)	PVC	PE (MDPE, HDPE, PE-RT)	PB	PVDF	PEX	PA (PA11, PA12)	PSU	PPSU
Potassium Hydroxide	10%	---	---	---	---	---	---	R to 176	---	---	---	---
CAS# 1310-58-3	20%	---	---	---	---	---	---	R to 176	---	---	---	---
KOH	25%	R to 160	R to 180	R to 212	R to 140	R to 140	R to 140	---	R to 140	---	---	---
	35%	---	---	---	---	---	---	---	---	---	R to 176	---
	50%	---	R to 180	---	---	---	---	R to 176	---	L to 104	---	---
Potassium Hydrogen Sulfite	10%	---	---	---	---	---	---	R to 140	---	---	---	---
CAS# 10117-38-1	Saturated	---	---	---	---	---	---	R to 212	---	---	---	---
KHSO ₃												
Potassium Hypochlorite	--	R to 160	R to 180	---	R to 140	R to 120	---	---	R to 120	---	---	---
CAS# 7778-66-7	3%	---	---	---	---	---	---	R to 212	---	---	---	---
KClO												
Potassium Iodide												
CAS# 7681-11-0	--	---	R to 180	R to 73	R to 73	R to 140	---	R to 212	R to 140	---	---	---
KI												
Potassium Nitrate	--	R to 160	R to 180	R to 140	R to 140	R to 140	R to 140	---	R to 140	L to 104	---	---
CAS# 7757-79-1	50%	---	---	---	---	---	---	R to 212	---	---	---	---
KNO ₃												
Potassium Orthophosphate												
CAS# 7778-77-0	Saturated	---	---	---	---	---	---	R to 212	---	---	---	---
H ₂ KPO ₄												
Potassium Perborate												
CAS# 13769-41-0	--	---	R to 180	R to 140	R to 140	R to 140	R to 140	---	R to 140	---	---	---
KBHO ₃												
Potassium Perchlorate												
CAS# 7778-74-7	--	---	R to 180	R to 140	R to 140	R to 140	R to 140	---	R to 140	---	---	---
KClO ₄												

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Chemical Formula	Concentration	ABS	CPVC	PP (PP-R, PP- RCT)	PVC	PE (MDPE, HDPE, PE-RT)	PB	PVDF	PEX	PA (PA11, PA12)	PSU	PPSU
Potassium Permanganate	10%	---	R to 180	R to 73	R to 140	R to 140	R to 140	R to 176	R to 140	---	---	---
CAS# 7722-64-7	20%	---	---	---	---	---	---	R to 212	---	---	---	---
KMnO ₄	25%	---	R to 180	R to 73	R to 73	R to 140	---	---	R to 140	---	---	---
	30%	---	---	---	---	---	---	R to 212	---	---	---	---
	Saturated	---	---	---	---	---	---	R to 212	---	---	---	---
Potassium Persulfate												
CAS# 7727-21-1	--	---	R to 180	R to 140	R to 140	R to 140	R to 140	R to 176	R to 140	---	---	---
K ₂ S ₂ O ₈												
Potassium Sulfate												
CAS# 7778-80-5	--	R to 160	R to 180	R to 180	R to 140	R to 140	R to 140	R to 212	R to 140	R to 194	---	---
K ₂ SO ₄												
Potassium Sulfide												
CAS# 1312-73-8	--	---	R to 180	R to 140	---	R to 140	R to 140	R to 68	R to 140	---	---	---
K ₂ S												
Potassium Sulfite												
CAS# 10117-38-1	--	---	R to 180	R to 140	---	R to 140	---	---	R to 140	---	---	---
K ₂ SO ₃ o2H ₂ O												
Propane												
CAS# 74-98-6	--	---	R to 73	R to 73	R to 140	R to 140	R to 73	R to 248	R to 140	R to 140	---	---
C ₃ H ₈												
Propargyl Alcohol												
CAS# 107-19-7	--	---	L to 180	R to 140	R to 140	R to 140	R to 140	---	R to 140	---	---	---
HC≡CCH ₂ OH												
Propionic Acid												
CAS# 79-09-4	--	N	N	R to 140	---	R to 140	---	R to 140	R to 140	---	N	L to 104
CH ₃ CH ₂ CO ₂ H												
Propyl Alcohol (Type I)												
CAS# 71-23-8	--	73	L to 73	R to 140	R to 140	R to 140	R to 140	R to 122	R to 140	---	---	---
CH ₃ CH ₂ CH ₂ OH												

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Chemical Formula	Concentration	ABS	CPVC	PP (PP-R, PP- RCT)	PVC	PE (MDPE, HDPE, PE-RT)	PB	PVDF	PEX	PA (PA11, PA12)	PSU	PPSU
Propylene Dichloride CAS# 78-87-5 CH ₃ CHClCH ₂ Cl	100%	---	N	N	N	N	---	---	N	---	---	---
Propylene Oxide CAS# 75-56-9 CH ₃ CHCH ₂ O	--	---	N	R to 73	N	R to 140	---	---	R to 140	---	---	---
Pyridine CAS# 110-86-1 N(CH) ₄ CH	--	---	N	L to 140	N	R to 73	---	R to 68	R to 73	L to 68	---	---
Pyrogalllic Acid CAS# 87-66-1 C ₆ H ₃ (OH) ₃	--	---	---	---	R to 73	--	--	---	---	---	---	---
Quinone CAS# 106-51-4 C ₆ H ₄ O ₂	--	---	---	R to 140	---	R to 140	---	---	R to 140	---	---	---
Rayon Coagulating Bath	--	---	R to 180	---	R to 140	R to 140	R to 140	---	R to 140	---	---	---
Salicylaldehyde CAS# 90-02-8 C ₆ H ₄ OHCHO	--	---	N	R to 73	N	R to 120	---	---	R to 120	---	---	---
Salicylic Acid CAS# 69-72-7 C ₆ H ₄ (OH)(COOH)	--	---	---	R to 140	R to 140	R to 140	---	R to 212	R to 140	---	---	---
Selenic Acid Aq. CAS# 13410-01-0 H ₂ SeO ₄	--	---	R to 180	---	R to 140	R to 140	R to 140	---	R to 140	---	---	---
Silicic Acid CAS# 10193-36-9 SiO ₂ onH ₂ O	--	---	R to 180	R to 140	R to 140	R to 140	R to 140	R to 212	R to 140	---	---	---

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Chemical Formula	Concentration	ABS	CPVC	PP (PP-R, PP- RCT)	PVC	PE (MDPE, HDPE, PE-RT)	PB	PVDF	PEX	PA (PA11, PA12)	PSU	PPSU
Silicone Oil (Polydimethylsiloxane) CAS# 63148-62-9	--	---	R to 180	R to 212	R to 73	R to 73	---	---	R to 73	---	---	---
Silver Acetate CAS# 563-63-3 AgCH ₃ COO	Saturated	---	R to 180	---	---	---	---	R to 212	---	---	---	---
Silver Chloride CAS# 7783-90-6 AgCl	--	R to 160	R to 180	R to 140	R to 140	---	---	---	---	---	---	---
Silver Cyanide CAS# 506-64-9 AgCN	--	---	R to 180	R to 180	R to 140	R to 140	R to 140	R to 212	R to 140	---	---	---
Silver Nitrate CAS# 7761-88-8 AgNO ₃	-- 50%	R to 160 ---	R to 180 ---	R to 180 ---	R to 140 ---	R to 140 ---	L to 73 ---	--- R to 212	R to 140 ---	---	---	---
Silver Sulfate CAS# 10294-26-5 Ag ₂ SO ₄	--	R to 160	R to 180	R to 140	R to 140	R to 140	L to 73	---	R to 140	---	---	---
Sodium Acetate CAS# 127-09-3 CH ₃ COONa	Saturated	---	R to 180	R to 212	R to 140	R to 140	R to 140	R to 212	R to 140	---	---	---
Sodium Alum CAS# 10102-71-3 AlNa(SO ₄) ₂ · 12H ₂ O	--	---	R to 180	---	R to 140	---	---	---	---	---	---	---
Sodium Aluminate CAS# 1302-42-7 Na ₂ Al ₂ O ₄	30% Saturated	---	---	---	---	---	---	---	---	---	R to 165	---
Sodium Benzoate CAS# 532-32-1 C ₆ H ₅ COONa	-- 50%	---	R to 180 ---	R to 140 ---	R to 140 ---	R to 140 ---	R to 140 ---	--- R to 212	R to 140 ---	---	---	---

May not be fully applicable to pressurized applications

Chemical Formula	Concentration	ABS	CPVC	PP (PP-R, PP- RCT)	PVC	PE (MDPE, HDPE, PE-RT)	PB	PVDF	PEX	PA (PA11, PA12)	PSU	PPSU
Sodium Bicarbonate CAS# 144-55-8 NaHCO ₃	--	R to 73	R to 180	R to 212	R to 140	R to 140	R to 140	R to 212	R to 140	---	---	---
Sodium Bisulfate CAS# 7681-38-1 NaHSO ₄	-- 50%	R to 73 ---	R to 180 ---	R to 140 ---	R to 140 ---	R to 140 ---	R to 140 ---	--- R to 212	R to 140 ---	---	---	---
Sodium Bisulfite CAS# 7631-90-5 NaHSO ₃	--	---	R to 180	R to 140	R to 140	R to 140	---	---	R to 140	---	---	---
Sodium Borate (Borax) CAS# 1303-96-4 Na ₂ B ₄ O ₇ o10H ₂ O	1% Saturated	--- R to 160	--- R to 180	--- R to 180	--- R to 140	--- R to 140	--- R to 140	--- ---	--- R to 140	--- ---	R to 113 ---	--- ---
Sodium Bromide CAS# 7647-15-6 NaBr	Saturated 50%	R to 120 ---	R to 180 --	R to 140 ---	R to 140 ---	R to 140 ---	R to 140 ---	--- R to 248	R to 140 ---	---	---	---
Sodium Carbonate CAS# 497-19-8 Na ₂ CO ₃	-- 1.70%	R to 73 ---	R to 180 ---	R to 212 ---	R to 140 ---	R to 140 ---	R to 140 ---	N ---	R to 140 ---	R to 140 ---	--- R to 210	--- ---
Sodium Chlorate CAS# 7775-09-9 NaClO ₃	Saturated	---	R to 180	R to 140	R to 73	R to 140	R to 140	N	R to 140	---	---	---
Sodium Chloride CAS# 7647-14-5 NaCl	Saturated 10%	- ---	R to 180 ---	R to 140 ---	R to 140 ---	R to 140 ---	R to 140 ---	R to 212 R to 212	R to 140 ---	R to 194 ---	--- R to 140	--- ---
Sodium Chlorite CAS# 7758-19-2 NaClO ₂	25%	---	R to 180	R to 73	N	R to 140	---	---	R to 140	---	---	---
Sodium Chromate CAS# 7775-11-3 Na ₂ CrO ₄ o4H ₂ O	--	R to 120	R to 180	R to 140	---	R to 140	---	R to 176	R to 140	---	---	---

May not be fully applicable to pressurized applications

Chemical Formula	Concentration	ABS	CPVC	PP (PP-R, PP- RCT)	PVC	PE (MDPE, HDPE, PE-RT)	PB	PVDF	PEX	PA (PA11, PA12)	PSU	PPSU
Sodium Cyanide CAS# 143-33-9 NaCN	--	---	R to 180	R to 180	R to 140	R to 140	R to 140	R to 212	R to 140	---	---	---
Sodium Dichromate CAS# 10588-01-9 Na ₂ Cr ₂ O ₇ o ₂ H ₂ O	Saturated 20% 50%	---	R to 180	---	R to 140	---	---	---	---	---	---	---
Sodium Ferricyanide CAS#14217-21-1 Na ₃ Fe(CN) ₆	Saturated	---	R to 180	R to 140	R to 140	R to 140	R to 140	---	R to 140	---	---	---
Sodium Ferrocyanide CAS# 14434-22-1 Na ₄ Fe(CN) ₆	Saturated	---	R to 180	R to 140	R to 140	R to 140	R to 140	---	R to 140	---	---	---
Sodium Fluoride CAS# 7681-49-4 NaF	--	R to 120	R to 180	R to 180	R to 140	R to 140	R to 140	R to 212	R to 140	---	---	---
Sodium Hydrogen Sulfite CAS# 7631-90-5 NaHSO ₃	50%	---	---	---	---	---	---	R to 212	---	---	---	---
Sodium Hydroxide (Caustic Soda) CAS# 1310-73-2 NaOH	5% 15% 30% 50% 70%	---	---	---	---	---	---	L to 68	---	---	---	---
		R to 120	R to 180	R to 212	R to 140	R to 140	R to 140	---	R to 140	---	---	R to 212
		R to 120	R to 180	R to 212	R to 140	R to 140	R to 140	N	R to 140	---	---	---
		R to 120	R to 180	R to 212	R to 140	R to 140	R to 140	---	R to 140	L to 104	R to 194	---
		R to 120	---	R to 212	R to 140	R to 140	R to 140	---	R to 140	---	---	---
Sodium Hypochlorite CAS# 7681-52-9 NaOClO ₅ H ₂ O	-- 2% Cl 5% Cl 12% Cl	R to 120	R to 180	R to 73	R to 73	R to 140	R to 140	---	R to 140	---	---	---
		---	---	---	---	---	---	R to 212	---	---	---	---
		---	R to 180	R to 120	R to 140	L to 140	---	---	L to 140	---	---	---
		R to 73	R to 180	R to 120	R to 140	R to 73	R to 140	R to 68	R to 73	---	R to 190	---

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Chemical Formula	Concentration	ABS	CPVC	PP (PP-R, PP- RCT)	PVC	PE (MDPE, HDPE, PE-RT)	PB	PVDF	PEX	PA (PA11, PA12)	PSU	PPSU
Sodium Iodide CAS# 7681-82-5 NaI	--	---	R to 180	---	R to 140	---	---	---	---	---	---	---
Sodium Metaphosphate CAS# 10361-03-2 (NaPO ₃) _n	--	---	R to 180	R to 120	R to 140	---	---	---	---	---	---	---
Sodium Metasilicate CAS# 6834-92-0 H ₂ SiO ₃	100%	---	---	---	---	---	---	---	---	---	R to 212	---
Sodium Nitrate CAS# 7631-99-4 NaNO ₃	Saturated	R to 160	R to 180	R to 180	R to 140	R to 140	R to 140	R to 212	R to 140	---	---	---
Sodium Nitrite 7632-00-0 NaNO ₂	--	R to 160	R to 180	R to 73	R to 140	R to 140	R to 140	R to 212	R to 140	---	---	---
Sodium Palmitate CAS# 408-35-5 CH ₃ (CH ₂) ₁₄ COONa	5%	---	R to 180	R to 140	R to 140	---	---	---	---	---	---	---
Sodium Perborate CAS# 7632-04-4 NaBO ₃ ·4H ₂ O	--	R to 120	R to 180	R to 73	R to 140	R to 73	---	---	R to 73	---	---	---
Sodium Perchlorate CAS# 7601-89-0 NaClO ₄	--	---	R to 180	R to 212	R to 140	R to 140	---	---	R to 140	---	---	---
Sodium Peroxide CAS# 1313-60-6 Na ₂ O ₂	10%	---	R to 180	---	R to 140	R to 140	---	---	R to 140	---	---	---
Sodium Phosphate CAS# 7601-54-9 NaH ₂ PO ₄	Acid Alkaline Neutral	R to 120 --- ---	R to 180 R to 120 R to 120	R to 212 R to 180 R to 180	R to 140 R to 212 R to 212	R to 140 R to 140 R to 140	R to 140 R to 140 R to 140	R to 140 --- ---	R to 140 R to 140 R to 180	--- --- ---	--- --- ---	--- --- ---

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Chemical Formula	Concentration	ABS	CPVC	PP (PP-R, PP- RCT)	PVC	PE (MDPE, HDPE, PE-RT)	PB	PVDF	PEX	PA (PA11, PA12)	PSU	PPSU
Sodium Silicate	--	---	R to 180	R to 140	R to 140	R to 140	R to 140	---	R to 140	---	---	---
CAS# 6834-92-0	10%	---	---	---	---	---	---	R to 140	---	---	---	---
$2\text{Na}_2\text{O}\cdot\text{SiO}_2$	50%	---	---	---	---	---	---	R to 212	---	---	---	---
	100%	---	---	---	---	---	---	---	---	---	R to 194	---
Sodium Sulfate	Saturated	R to 160	R to 180	R to 212	R to 140	R to 140	R to 140	R to 212	---	---	---	---
CAS# 7757-82-6	0.10%	---	---	---	---	---	---	R to 140	---	---	---	---
Na_2SO_4												
Sodium Sulfide	30%	---	---	---	---	---	---	---	---	---	R to 165	---
CAS# 1313-82-2	Saturated	R to 160	R to 180	R to 212	R to 140	R to 140	R to 140	---	R to 140	L to 104	---	---
Na_2S												
Sodium Sulfite	Saturated	R to 160	R to 180	R to 212	R to 140	R to 140	R to 140	R to 212	R to 140	---	---	---
CAS# 7757-83-7												
Na_2SO_3												
Sodium Thiosulfate	--	---	R to 180	R to 180	R to 140	R to 140	R to 140	---	R to 140	---	---	---
CAS# 7772-98-7	50%	---	---	---	---	---	---	R to 248	---	---	---	---
$\text{Na}_2\text{S}_2\text{O}_3\cdot 5\text{H}_2\text{O}$												
Soybean Oil	--	---	L to 180	R to 73	---	R to 140	---	---	R to 140	---	---	---
CAS# 8001-22-7												
Stannic Chloride	Saturated	---	R to 180	R to 140	R to 140	R to 140	R to 140	---	R to 140	---	---	---
CAS# 7646-78-8												
SnCl_4												
Stannous Chloride	15%	R to 120	R to 180	R to 140	R to 140	R to 140	R to 140	---	R to 140	---	---	---
CAS# 7772-99-8	Saturated	---	---	---	---	R to 140	---	---	R to 140	---	---	---
SnCl_2												
Starch	--	---	R to 180	R to 140	R to 140	R to 140	---	---	R to 140	---	---	---
CAS# 9005-25-8												
Soluble Starch	Saturated	---	R to 180	---	---	R to 140	---	---	R to 140	---	---	---
CAS# 9005-84-9												
$(\text{C}_6\text{H}_{10}\text{O}_5)_n$												

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Chemical Formula	Concentration	ABS	CPVC	PP (PP-R, PP- RCT)	PVC	PE (MDPE, HDPE, PE-RT)	PB	PVDF	PEX	PA (PA11, PA12)	PSU	PPSU
Stearic Acid CAS# 57-11-4 CH ₃ (CH ₂) ₁₆ COOH	--	---	R to 73	R to 73	R to 140	R to 120	R to 150	---	R to 120	L to 194	---	---
Stoddard's Solvent CAS# 8052-41-3	--	---	N	---	N	R to 73	R to 140	---	R to 73	---	---	---
Styrene CAS# 100-42-5 C ₆ H ₅ CH=CH ₂	--	---	N	R to 73	---	L to 73	---	---	L to 73	R to 104	---	---
Succinic Acid CAS# 110-15-6 COOH(CH ₂) ₂ COOH	--	---	R to 180	R to 140	R to 140	R to 140	---	---	R to 140	---	---	---
Sugar CAS# 50-99-7 C ₆ H ₁₂ O ₆	Aq.	---	R to 180	---	R to 140	R to 140	---	---	R to 140	---	---	---
Sulfamic Acid CAS# 5329-14-6 HSO ₃ NH ₂	20%	--	N	R to 180	N	---	---	---	---	---	---	---
Sulfur CAS# 7404-34-9 S	--	---	R to 180	R to 212	R to 140	R to 140	R to 140	---	---	R to 104	---	---
Sulfur Chloride CAS# 10025-67-9 S ₂ Cl ₂	--	---	---	L to 73	---	---	---	---	---	---	---	---
Sulfur Dioxide CAS# 7446-09-5 SO ₂	Gas Dry Gas Wet	N N	R to 73 N	R to 140 R to 140	R to 140 R to 73	R to 140 R to 120	--- R to 73	--- N	R to 140 R to 120	--- ---	--- ---	--- ---
Sulfur Trioxide CAS# 7446-11-9 SO ₃	Gas Dry Gas	--- ---	--- N	--- ---	R to 140 R to 73	N N	--- ---	N N	N ---	L to 68 ---	--- ---	--- ---

*****May not be fully applicable to pressurized applications*****

Chemical Formula	Concentration	ABS	CPVC	PP (PP-R, PP- RCT)	PVC	PE (MDPE, HDPE, PE-RT)	PB	PVDF	PEX	PA (PA11, PA12)	PSU	PPSU
Sulfuric Acid	30%	R to 120	R to 180	R to 180	R to 140	R to 140	R to 140	R to 248	R to 140	---	---	---
CAS# 7664-93-9	50%	R to 73	R to 180	R to 140	R to 140	R to 120	L to 73		R to 140	---	---	R to 212
H ₂ SO ₄	60%	L to 73	R to 180	R to 73	R to 140	R to 120	L to 73	R to 248	---	---	---	---
	70%	L to 73	R to 180	R to 73	R to 140	R to 120	L to 73	---	---	---	---	---
	80%	L to 73	R to 180	R to 73	R to 140	R to 120	N	L to 248	---	---	---	---
	90%	L to 73	R to 150	R to 73	R to 73	R to 120	N	R to 212	---	---	---	---
	93%	N	R to 140	L to 73	R to 73	L to 73	N	---	---	---	---	---
	94% - 98%	N	R to 130	L to 73	N	L to 73	N	L to 212	N	---	R to 140	R to 140
	100%	N	N	N	N	N	N	---	N	L to 194	---	---
Sulfurous Acid												
CAS# 7782-99-2	--	---	R to 73	R to 140	R to 140	R to 140	R to 140	R to 212	R to 140	---	---	---
H ₂ SO ₃												
Tall Oil												
CAS# 8002-26-4	--	---	L to 180	R to 180	R to 140	R to 120	---	---	R to 120	---	---	---
Tannic Acid	10%	N	R to 180	R to 73	R to 140	R to 140	R to 140	R to 212	R to 140	---	---	---
CAS# 1401-55-4	Saturated	---	---	---	---	---	---	R to 212	---	---	---	---
C ₇₆ H ₅₂ O ₄₆												
Tartaric Acid	--	R to 160	R to 180	R to 140	R to 140	R to 140	R to 140	R to 248	R to 140	---	---	---
CAS# 526-83-0	Saturated	---	---	---	---	---	---	R to 248	---	R to 194	---	---
HOOC(CHOH) ₂ COOH												
Terpineol												
CAS# 8000-41-7	--	---	---	---	L to 140	---	---	---	---	---	---	---
C ₁₀ H ₁₇ OH												
Tetrachloroethane												
CAS# 79-34-5	--	---	N	L to 73	L to 140	L to 120	---	---	L to 120	---	---	---
CHCl ₂ CHCl ₂												
Tetrachloroethylene												
CAS# 127-18-4	--	N	N	L to 73	L to 140	L to 120	---	L to 212	L to 120	L to 68	---	---
Cl ₂ C=CCl ₂												

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Chemical Formula	Concentration	ABS	CPVC	PP (PP-R, PP- RCT)	PVC	PE (MDPE, HDPE, PE-RT)	PB	PVDF	PEX	PA (PA11, PA12)	PSU	PPSU
Tetraethyl Lead CAS# 78-00-2 Pb(C ₂ H ₅) ₄	--	---	R to 73	R to 73	R to 73	---	---	---	---	R to 68	---	---
Tetrahydrofuran CAS# 109-99-9 C ₄ H ₈ O	--	N	N	L to 73	N	L to 73	L to 73	L to 68	N	---	---	---
Tetralin CAS# 119-64-2 C ₁₀ H ₁₂	--	---	N	N	N	N	---	---	N	---	---	---
Tetra Sodium Pyrophosphate CAS# 7722-88-5 Na ₄ P ₂ O ₇ ·10H ₂ O	--	---	R to 180	---	R to 140	---	---	---	---	---	---	---
Thionyl Chloride CAS# 7719-09-7 SOCl ₂	--	---	N	N	N	N	R to 140	N	N	---	---	---
Tin (II) Chloride CAS# 7772-99-8 SnCl ₂	--	---	R to 180	---	---	---	---	R to 212	---	---	---	---
Tin (IV) Chloride CAS# 7646-78-8 SnCl ₄	--	---	R to 180	---	---	---	---	R to 212	---	---	---	---
Titanium Tetrachloride CAS# 7550-45-0 TiCl ₄	--	---	---	R to 140	L to 73	R to 120	---	---	R to 120	---	---	---
Toluene (Toluol) CAS# 108-88-3 CH ₃ C ₆ H ₅	--	N	N	L to 73	N	L to 120	N	---	L to 120	R to 140	N	N
Tomato Juice	--	---	R to 180	R to 212	R to 140	R to 140	---	---	R to 140	---	---	---

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Chemical Formula	Concentration	ABS	CPVC	PP (PP-R, PP- RCT)	PVC	PE (MDPE, HDPE, PE-RT)	PB	PVDF	PEX	PA (PA11, PA12)	PSU	PPSU
Tributyl Citrate CAS# 77-94-1 C ₁₈ H ₃₂ O ₇	--	---	N	L to 73	R to 73	L to 120	---	---	L to 120	---	---	---
Tributyl Phosphate CAS# 126-73-8 (C ₄ H ₉) ₃ PO ₄	--	---	N	L to 140	N	R to 73	---	---	R to 73	R to 194	---	---
Trichloroacetic Acid CAS# 76-03-9 CCl ₃ COOH	50% 10%	---	N N	R to 140 ---	R to 140 ---	R to 140 R to 140	---	R to 104 ---	R to 140 R to 140	---	---	---
Trichlorobenzene CAS# 12002-48-1 C ₆ H ₃ Cl ₃	--	---	N	---	---	---	---	R to 140	---	---	---	---
Trichloroethane CAS# 71-55-6 C ₂ H ₃ Cl ₃	--	---	N	---	---	---	---	---	---	---	N	---
Trichloroethylene CAS# 79-01-6 CHCl=CCl ₂	--	N	N	N	N	L to 120	N	R to 176	L to 68	L to 68	N	---
Triethanolamine CAS# 102-71-6 (HOCH ₂ CH ₂) ₃ N	--	L to 73	N	R to 140	R to 73	R to 73	R to 73	L to 104	R to 73	---	---	---
Triethylamine CAS# 121-44-8 (C ₂ H ₅) ₃ N	--	---	N	N	R to 140	R to 73	---	---	R to 73	---	---	---
Trimethylolpropane CAS# 77-99-6 (CH ₂ OH) ₃ C ₃ H ₅	--	---	R to 73	R to 140	R to 73	L to 120	---	---	L to 120	---	---	---
Trisodium Phosphate CAS# 10101-89-0 Na ₃ PO ₄ • 12H ₂ O	--	R to 73	R to 180	R to 140	R to 140	R to 140	R to 140	---	R to 140	---	---	---

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Chemical Formula	Concentration	ABS	CPVC	PP (PP-R, PP- RCT)	PVC	PE (MDPE, HDPE, PE-RT)	PB	PVDF	PEX	PA (PA11, PA12)	PSU	PPSU
Turpentine CAS# 8006-64-2	--	N	N	N	R to 140	L to 120	L to 73	---	L to 120	R to 140	---	---
Urea CAS# 57-13-6	--	---	N	R to 180	R to 140	R to 140	R to 140	---	R to 140	---	---	---
CO(NH₂)₂	10% Saturated	---	---	---	---	---	---	R to 212 R to 176	---	---	---	---
Urine	--	R to 160	R to 180	R to 180	R to 140	R to 140	R to 140	---	R to 140	---	---	---
Vaseline (Petroleum Jelly) CAS# 8009-03-8	--	---	N	R to 140	N	R to 120	---	---	R to 120	---	---	---
Vegetable Oil	--	---	L to 180	R to 140	R to 140	R to 140	---	R to 248	R to 140	---	---	---
Vinegar CAS# 64-19-7	--	R to 73	R to 180	R to 140	R to 140	R to 140	R to 140	---	R to 140	R to 194	---	---
Vinyl Acetate CAS# 108-05-4 CH ₃ COOCH=CH ₂	--	---	N	R to 73	N	R to 140	---	L to 68	R to 140	---	---	---
Water, Acid Mine H ₂ O	--	R to 160	R to 200	R to 140	R to 140	R to 140	R to 180	---	R to 180	---	---	---
Water, Deionized H ₂ O	--	R to 160	R to 200	R to 140	R to 140	R to 140	R to 180	---	R to 180	R to 194	---	---
Water, Distilled H ₂ O	--	R to 160	R to 200	R to 212	R to 140	R to 140	R to 180	R to 248	R to 180	R to 194	---	---
Water, Potable H ₂ O	--	R to 160	R to 200	R to 212	R to 140	R to 140	R to 180	R to 248	R to 180	R to 194	---	---
Water, Salt H ₂ O	--	R to 160	R to 200	R to 212	R to 140	R to 140	R to 180	---	R to 180	R to 194	---	---
Water, Sea H ₂ O	--	R to 160	R to 200	R to 212	R to 140	R to 140	R to 180	R to 248	R to 180	R to 194	---	---
Water, Soft H ₂ O	--	R to 160	R to 200	R to 212	R to 140	R to 140	R to 180	---	R to 180	R to 194	---	---

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Chemical Formula	Concentration	ABS	CPVC	PP (PP-R, PP- RCT)	PVC	PE (MDPE, HDPE, PE-RT)	PB	PVDF	PEX	PA (PA11, PA12)	PSU	PPSU
Water, Residential Waste												
H ₂ O	--	R to 73	R to 200	R to 212	R to 140	R to 140	R to 180	---	R to 180	R to 194	---	---
Whiskey	--	---	R to 180	R to 140	R to 140	R to 140	R to 140	R to 212	R to 140	---	---	---
White Liquor	--	R to 73	R to 180	---	R to 140	---	---	---	---	---	---	---
Wine	--	R to 73	R to 180	R to 140	R to 140	R to 140	R to 140	R to 212	R to 140	---	---	---
Xylene (Xylo)												
CAS# 1330-20-7	--	N	N	N	N	N	N	L to 140	N	L to 194	---	---
C ₆ H ₄ (CH ₃) ₂												
Zinc Acetate												
CAS# 557-34-6	--	---	R to 180	---	---	---	---	---	---	---	---	---
Zn(CH ₃ COO) ₂ ·2H ₂ O												
Zinc Carbonate												
CAS# 3486-35-9	--	---	R to 180	R to 140	---	R to 140	---	R to 212	R to 140	---	---	---
ZnCO ₃												
Zinc Chloride	--	R to 120	R to 180	R to 180	R to 140	R to 140	---	---	R to 140	---	---	---
CAS# 76-46-85-7	50%	---	---	---	---	---	---	---	---	L to 73	---	---
ZnCl ₂	Saturated	---	---	---	---	---	---	R to 212	---	---	---	---
Zinc Nitrate	Saturated	R to 160	R to 180	R to 180	R to 140	R to 140	R to 140	R to 212	R to 140	---	---	---
CAS# 7779-88-6	20%	---	---	---	---	---	---	---	---	---	R to 210	---
Zn(NO ₃) ₂ ·6H ₂ O												
Zinc Oxide												
CAS# 1314-13-2	--	---	R to 180	---	---	---	---	R to 212	---	---	---	---
ZnO												
Zinc Stearate												
CAS# 557-05-1	--	---	---	---	---	---	---	R to 122	---	---	---	---
(CH ₃ (CH ₂) ₁₆ COO) ₂ Zn												
Zinc Sulfate	Saturated	R to 160	R to 180	R to 212	R to 140	R to 140	R to 140	R to 212	R to 140	---	---	---
CAS# 7733-02-0	20%	---	---	---	---	---	---	---	---	---	R to 212	---
ZnSO ₄ ·7H ₂ O												