

Chemical resistance of pipes and pipework components

General information on the chemical resistance capability of polypropylene pipework systems

Piping systems are exposed to a variety of influences in their application. These include mechanical loads, physical loads due to temperature and internal pressure, as well as chemical loads due to flow and ambient media. In addition, the manufacturing conditions, design features and joining techniques also have an effect on the resistance of a pipework system. The multitude and complexity of these influencing factors cannot be replicated in laboratory tests and cannot be depicted in a simple set of tables.

This document can therefore only provide a **non-binding recommendation** on the resistance of our products to possible flow or ambient media, but is not universally applicable to all applications and operating conditions. The information does not constitute a guarantee of specific properties and does not constitute a legal claim. We assume neither warranty nor liability for the correctness in individual cases. Our information does not release you from the obligation to carry out your own checks. We reserve the right to make changes based on new findings and assessments.

Classification of chemical resistance

Various processes can occur when flow materials come into contact with the pipe wall material, which can cause changes in the properties of the pipe components. These include the absorption of liquid (swelling), the extraction of soluble components, and chemical reactions (e.g. oxidation, hydrolysis).

The pipe wall material is divided into three categories based on how rapidly and to what degree it loses its mechanical properties when in contact with the specified temperature medium:

- **Resistant**
The pipe wall material is generally rated as suitable.
- ◐ **Limited resistance**
The suitability of the pipe wall material must be checked for the respective application.
If necessary, further tests must be carried out.
- **Not resistant**
The pipe wall material is generally rated as unsuitable.
- Information on chemical resistance is not available.

The table is based on the information in the technical report ISO/TR 10358:2021, as well as information from the literature, raw material manufacturers, and practical experience.

In addition, processes are known that are not covered by the chemical resistance specification, but can still limit the functionality of the pipework. These include, for example, stress corrosion cracking or permeation.

Further information on chemical resistance

The information in the table refers to the basic material of our pipework systems, polypropylene (PP). In many applications, other materials are also used, such as seals made of elastomer materials and threaded inserts or ball valves made of brass. These must also be taken into account when assessing the chemical resistance for a specific application.

In order to minimise contact between the flow medium and brass, we therefore recommend the use of flanges with flanged bushings and/or coupling screw connections, especially in industrial applications of aquatherm green and aquatherm blue. Ball valves are available in all-plastic design. Threaded inserts are also available in stainless steel on request.

For detailed information on the resistance of our pipework systems, please contact our technical sales department:

Tel: +49 2722 950 0

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Notes on using the table

The following designations are used for the composition of the flow materials:

- Sat.** Saturated (at 20°C) aqueous solution.
- Sol.** Aqueous solution whose mass fraction is greater than 10%.
- T** Flow material is at least technically pure.
- W** Working solution
- Susp.** Solid suspension in a saturated (at 20°C), aqueous solution.

The chemical resistance of pipes and pipe components is generally not reduced at lower mass fractions and temperatures than those specified in the table.



Chemical resistance of pipes and pipework components

Fluid	CAS No.	Concentration ¹⁾	Resistance at	
			20°C	60°C
A				
Acetaldehyde	75-07-0	40 % T	● ● (liquid)	● ● (gaseous) ³⁾
Acetamide	60-35-5	5 %	●	●
Acetic acid	64-19-7	<10 %	●	●
		10 - 50 %	●	●
		60%	●	●
		80%	●	○
		>96 % [glacial]	●	●
Acetic anhydride	108-24-7	T	●	●
Acetone	67-64-1	<10 % T	● ● (liquid)	● ● (gaseous) ³⁾
Acetophenone	98-86-2	T	●	●
Acetyl chloride	75-36-5	T	● (liquid)	– (gaseous) ³⁾
Acetylene	74-86-2	T ³⁾	●	●
Acrylonitrile	107-13-1	T	●	●
Adipic acid	124-04-9	Sat. [1,4 %]	●	●
Air		³⁾	●	●
Allyl alcohol	107-18-6	T	●	●
Allyl chloride	107-05-1	Sat.	●	○
Almond oil		T	●	●
Aluminium chloride	7446-70-0	Sat.	●	●
Aluminium chloride oxide	13596-11-7	Susp.	●	●
Aluminium fluoride	7748-18-1	Susp.	●	●
Aluminium hydroxide	21645-51-2	Susp.	●	●
Aluminium nitrate	13473-90-0	Sat.	●	●
Aluminium potassium sulphate	10043-67-1	Sat.	●	●
Aluminium sulphate	10043-01-3	Sat.	●	●
Ammonia	1336-21-6	Sat. (aqueous)	●	●
	7664-41-7	Gas, dry ³⁾ Gas, wet ³⁾	● ●	● ●
Ammonium acetate	631-61-8	Sat.	●	●
Ammonium bifluoride	1341-49-7	Sat.	●	●
Ammonium carbonate	506-87-6	Sat.	●	●
Ammonium chloride	12125-02-9	Sat.	●	●
Ammonium fluoride	12125-01-8	Sat.	●	●
Ammonium hydrogen carbonate	1066-33-7	Sat.	●	●
Ammonium metaphosphate	13446-46-3	Sat.	●	●
Ammonium molybdate	13106-76-8	Sat.	●	●
Ammonium nitrate	6484-52-2	Sat.	●	●
Ammonium persulphate	7727-54-0	Sat.	●	●
Ammonium phosphate	7722-76-1	Sat.	●	●
Ammonium sulphate	7783-20-2	Sat.	●	●
Ammonium sulphide	12135-76-1	Sat.	●	●
Ammonium thiocyanate	1762-95-4	Sat.	●	●
Amyl acetate	628-63-7	T	●	○

1) Legend / Key

Sat.	saturated solution
Sol.	aqueous solution > 10% (w/w)
T	technical grade
W	working solution
Susp.	Suspension of solid
●	resistant
○	limited resistance
○	non-resistant
–	no data available

2)

Fluid is not included in ISO/TR 10358

3)

The transportation of gaseous media in aquatherm's products is not supported if they are under pressure. The applicable safety regulations must be observed.

Chemical resistance of pipes and pipework components

Fluid	CAS No.	Concentration ¹⁾	Resistance at	
			20°C	60°C
Amyl alcohol	71-41-0	T	●	●
Amyl chloride	543-59-9	T	○	○
Aniline	62-53-3	Sat. T	● ●	● ●
Aniline hydrochloride	142-04-1	Sat.	●	●
Anisole	100-66-3	T	●	○
Anthraquinone sulphonic acid	153277-35-1	Susp.	●	●
Antimony(III) chloride	10025-91-9	Sat.	●	●
Apple juice		W	●	●
Aqua regia (HCl/HNO ₃ , 3:1)	8007-56-5		○	○
Arsenic acid	7778-39-4	Sat.	●	●
Arsenic trioxide	1327-53-3	Sol.	●	●
B				
Barium bromide	10553-31-8	Sat.	●	●
Barium carbonate	513-77-9	Susp.	●	●
Barium chloride	10361-37-2	Sat.	●	●
Barium hydroxide	17194-00-2	Sat.	●	●
Barium sulphate	7727-43-7	Susp.	●	●
Barium sulphide	21109-95-5	Sat.	●	●
Beer		W	●	●
Benzaldehyde	100-52-7	0,10% T	● ●	● ●
Benzene	71-43-2	T	●	○
Benzene diazonium chloride	100-34-5	W	●	–
Benzoic acid	65-85-0	Sat.	●	●
Benzoyl chloride	98-88-4	T	●	–
Benzyl alcohol	100-51-6	T	●	●
Benzyl chloride	100-44-7	T	●	○
Bismuth carbonate	18400-34-5	Sat.	●	●
Borax	1303-96-4	Sol.	●	●
Boric acid	10043-35-3	Sat.	●	●
Boron trifluoride	7637-07-2	Sat.	●	●
Bromic acid	7789-31-3	10% 50%	● ○	● ○
Bromine	7726-95-6	T	○ (liquid)	○ (gaseous) ³⁾
		Sat.	●	○
Bromoethane	74-96-4	T	○ (liquid)	○ (gaseous) ³⁾
Bromo methane	74-83-9	T ³⁾	○	○
Butadiene	106-99-0	T ³⁾	●	○
Butane	106-97-8	T ³⁾	●	●
Butanediol	107-88-0	10% T	● ●	● ●
Butanol	71-36-3	T	●	●
Butanone	78-93-3	T	●	●
Butyl acetate	123-86-4	T	●	●

1) Legend / Key

Sat.	saturated solution
Sol.	aqueous solution > 10% (w/w)
T	technical grade
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Susp.	Suspension of solid
●	resistant
●	limited resistance
○	non-resistant
–	no data available

2) Fluid is not included in ISO/TR 10358

3) The transportation of gaseous media in aquatherm's products is not supported if they are under pressure. The applicable safety regulations must be observed.

Chemical resistance of pipes and pipework components

Fluid	CAS No.	Concentration ¹⁾	Resistance at	
			20°C	60°C
Butyl glycol	111-76-2	T	●	●
Butylphenol	a.o. 98-54-4	Sat.	●	●
Butyl phthalate	84-74-2	T	●	●
Butyric acid	107-92-6	20% T	● ●	● ●
Butyryl chloride	141-75-2	T	●	●
C				
Calcium bisulphite	13780-03-5	Sat.	●	●
Calcium bromide	7789-41-5	Sat.	●	●
Calcium carbonate	471-34-1	Susp.	●	●
Calcium chlorate	10137-74-3	Sat.	●	●
Calcium chloride	10043-52-4	Sat.	●	●
Calcium hydrogen sulphide	9046-53-1	Sol.	●	●
Calcium hydroxide	1305-62-0	Sat.	●	●
Calcium hypochlorite	7778-54-3	10%	●	○
Calcium nitrate	10124-37-5	Sat.	●	●
Calcium sulphate	7778-18-9	Susp.	●	●
Calcium sulphide	20548-54-3	Sol.	●	●
Camphor oil		T	○	○
Carbon dioxide CO ₂	124-38-9	Sat.	●	●
		Gas, dry ³⁾	●	●
		Gas, wet ³⁾	●	●
Carbon disulphide	75-15-0	T	● (liquid)	○ (gaseous) ³⁾
Carbon monoxide	630-08-0	T ³⁾	●	●
Carbon tetrachloride	56-23-5	T	○	○
Castor oil	8001-79-4	T	●	●
Caustic soda	1310-73-2	1 - 5 %	●	●
		10 - 60 %	●	●
		Sat.	●	●
Chloral ²⁾	75-87-6	T	●	●
Chlorine	7782-50-5	Sat.	●	○
		Gas, dry ³⁾	○	○
		Gas, wet ³⁾	○	○
Chloroacetic acid	79-11-8	Sat.	●	●
Chlorobenzene	108-90-7	T	●	○
Chlorobromomethane	74-97-5	T	●	○
Chlorodifluoromethane	75-45-6	T ³⁾	●	○
Chloroethanol (2-)	107-07-3	T	●	●
Chloroform	67-66-3	T	●	○
Chloromethane	74-87-3	T ³⁾	●	○
Chloropropanes	a.o. 26446-76-4	T	○ (liquid)	- (gaseous) ³⁾
Chlorosulphonic acid	7790-94-5	50 %	○	○
Chrome alum	10141-00-1	Sat.	●	●
Chromic acid	7738-94-5	Sat.	●	○
		10 - 25 %	●	●
		30 - 50 %	●	○
Chromic/sulfuric acid ²⁾	65272-71-1	W	○	○

1) Legend / Key

Sat.	saturated solution
Sol.	aqueous solution > 10% (w/w)
T	technical grade
W	working solution
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●	resistant
●	limited resistance
○	non-resistant
-	no data available

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Chemical resistance of pipes and pipework components

Fluid	CAS No.	Concentration ¹⁾	Resistance at	
			20°C	60°C
Chromium potassium sulphate	10141-00-1	Sat.	●	●
Chromosulfuric acid ²⁾	65272-71-1	W	○	○
Citric acid	77-92-9	Sat.	●	●
Coconut oil		W	●	●
Cod liver oil		W	●	–
Copper (III) chloride	7447-39-4	Sat.	●	●
Copper (II) cyanide	544-92-3	Sat.	●	●
Copper (II) fluoride	7789-19-7	Sat.	●	●
Copper (II) nitrate	3251-23-8	Sat.	●	●
Copper (II) sulphate	7758-98-7	Sat.	●	●
Corn oil		W	●	●
Cottonseed oil		W	●	–
Cresols	a.o. 1319-77-3	T	●	●
Cresylic acid		Sat. 50 % (T)	○ ○	○ ○
Crotonaldehyde	a.o. 4170-30-3	Sat. (18 %) T	● ●	● ○
Crude oil (free from aromatics)		T	●	○
Cyclohexane	110-82-7	T	●	○
Cyclohexanol	108-93-0	Sat.	●	●
Cyclohexanone	108-94-1	T	●	○
Cyclohexylamine	108-91-8	T	●	○

D

Decalin	a.o. 91-17-8	T	○	○
Dextrin	9004-53-9	S	●	●
Dextrose	50-99-7	S	●	●
Diacetone alcohol	123-42-2	T	●	●
Diazonium chloride	100-34-5	W	●	–
Dibutyl ether ²⁾	142-96-1	T	●	○
Dichloroacetic acid	79-43-6	50% T	● ●	● ○
Dichlorobenzene	a.o. 25321-22-6	T	●	○
Dichlorodifluoromethane	75-71-8 ³⁾	W	●	○
Dichloroethylene	a.o. 540-59-0	T	○	○ (possibly gaseous, depending on isomer) ³⁾
Dichloromethane ²⁾	75-09-2	T	○ (liquid)	○ (gaseous) ³⁾
Diesel fuel		W	●	●
Diethanolamine	111-42-2	T	●	●
Diethylamine	109-89-7	T	● (liquid)	○ (gaseous) ³⁾
Diethylene glycol	111-46-6	T	●	●
Diethyl ether	60-29-7	T	● (liquid)	○ (gaseous) ³⁾
Diglycolic acid	110-99-6	Sat. 18%	● ●	● ●

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●	resistant
●	limited resistance
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Chemical resistance of pipes and pipework components

Fluid	CAS No.	Concentration ¹⁾	Resistance at	
			20°C	60°C
Diethyl phthalate ²⁾	84-75-3	T	●	●
Diisobutyl ketone ²⁾	108-83-8	T	●	○
Diisooctyl phthalate	27554-26-3	T	●	●
Dimethylamine	124-40-3	30% T ³⁾	●	—
Dimethylformamide	68-12-2	T	●	●
Diethyl phthalate	117-81-7	T	●	●
	117-84-0	T	●	●
Dioxane	123-91-1	T	●	●
Diphenylamine	122-39-4	W	●	○

E

Ethanol	64-17-5	T 40%	●	●
Ethanolamine	141-43-5	T	●	●
Ethyl acetate	141-78-6	T	●	○
Ethyl acrylate	140-88-5	T	●	○
Ethyl benzene ²⁾	100-41-4	T	●	○
Ethyl chloride	75-00-3	T ³⁾	○	○
Ethylene bromide	106-93-4	T	●	○
Ethylene chlorohydrin	107-07-3	T	●	●
Ethylenediamine ²⁾	107-15-3	T	●	●
Ethylene dichloride [1,1-]	75-34-3	T	● (liquid)	● (gaseous) ³⁾
Ethylene dichloride [1,2-]	107-06-2	T	●	○
Ethylene glycol	107-21-1	T	●	●
Ethylene oxide	75-21-8	T ³⁾	●	○
Ethyl ether	60-29-7	T	● (liquid)	○ (gaseous) ³⁾
Ethyl glycol	110-80-5	T	●	○

F

Ferric chloride	7705-08-0	Sat.	●	●
Ferric nitrate	10421-48-4	Sat.	●	●
Ferric sulphate	10028-22-5	Sat.	●	●
Ferrous chloride	7758-94-3	Sat.	●	●
Ferrous sulphate	7720-78-7	Sat.	●	●
Fluoboric acid	16872-11-0	Sat.	●	●
Fluorine	7782-41-4	Gas, dry ³⁾ Gas, wet ³⁾	○ ○	○ ○
Fluosilicic acid	16961-83-4	Sat. 25 - 32 % 40 - 50 %	● ● ●	● ● ●
Formaldehyde	50-00-0	30 - 50 %	●	○
Formic acid	64-18-6	10% 40 - 50 % >85%	● ● ●	● ● ○
Freon-12	75-71-8	W ³⁾	●	○

1) Legend / Key

- Sat. saturated solution
- Sol. aqueous solution > 10% (w/w)
- T technical grade
- W working solution
- Susp. Suspension of solid
- resistant
- limited resistance
- non-resistant
- no data available

2)
Fluid is not included in ISO/TR 10358

3)
The transportation of gaseous media in aquatherm's products is not supported if they are under pressure. The applicable safety regulations must be observed.

Chemical resistance of pipes and pipework components

Fluid	CAS No.	Concentration ¹⁾	Resistance at	
			20°C	60°C
Freon-22	75-45-6	T ³⁾	●	○
Fructose	57-48-7	Sol.	●	●
Fruit juice		W	●	●
Furfuryl alcohol		T	●	●
G				
Gas, manufactured		T ³⁾	●	–
Gas, natural		T, dry ³⁾	●	●
		T, wet ³⁾	●	–
Gasoline (fuel) (free from aromatics)		W	●	○
Gelatine		Sol.	●	●
Ginger Ale		W	●	●
Glucose	50-99-7	Sol.	●	●
Glycerine	56-81-5	T	●	●
Glycolic acid	79-14-1	30 - 65 %	●	●
H				
Heptane	142-82-5	T	●	○
Hexadecanol	36653-82-4	W	●	–
Hexafluorosilicic acid	16961-83-4	Sat.	●	●
		25 - 32 %	●	●
		40 - 50 %	●	●
Hexane	110-54-3	T	●	●
Hexanol	111-27-3	T	●	●
Honey		W	●	●
Horseradish		W	●	●
Hydrazine hydrate ²⁾	302-01-2	T	●	–
Hydrogen bromide (for aqueous solution see → Hydrobromic acid)	10035-10-6	T ³⁾	●	●
Hydrobromic acid	10035-10-6	<20 %	●	●
		20 - 50 %	●	●
		66%	●	○
Hydrochloric acid	7647-01-0	<25 %	●	●
		30-37,5 %	●	●
Hydrocyanic acid	74-90-8	10% Sat.	●	○
Hydrofluoric acid	7664-39-3	<40 %	●	●
		48 - 70 %	●	○
Hydrogen	1333-74-0	T ³⁾	●	●
Hydrogen chloride (for aqueous solution see → Hydrochloric acid)	7647-01-0	Gas, dry ³⁾	●	○
		Gas, wet ³⁾	●	○
Hydrogen cyanide (for aqueous solution see → Hydrocyanic acid)	74-90-8	T	● (liquid)	○ (gaseous) ³⁾
Hydrogen fluoride (for aqueous solution see: → Hydrofluoric acid)	7664-39-3	T ³⁾	○	○

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Fluid	CAS No.	Concentration ¹⁾	Resistance at	
			20°C	60°C
Hydrogen peroxide	7722-84-1	<10 %	●	●
		30-50 %	●	●
		70%	●	○
Hydrogen sulphide	7783-06-4	Sat.	●	●
		Gas, wet ³⁾	●	●
		Gas, dry ³⁾	●	●
Hydroquinone	123-31-9	Sat.	●	●
Hydroxylammonium sulphate ²⁾	10039-54-0	12%	●	●
Hypochlorous acid	7790-92-3	Sat.	●	○
		70%	●	○

I

Iodine (in potassium iodine)	12298-68-9	Sat.	○	○
Iodine (in alcohol)		W	●	●
Iron(II) chloride	7758-94-3	Sat.	●	●
Iron(III) chloride	7705-08-0	Sat.	●	●
Iron(III) nitrate	10421-48-4	Sat.	●	●
Iron(II) sulphate	7720-78-7	Sat.	●	●
Iron(III) sulphate	10028-22-5	Sat.	●	●
Isobutyl alcohol	78-83-1	T	●	●
Isobutyronitrile	78-82-0	T	●	○
Isooctane	26635-64-3	T	●	●
Isopropyl acetate	108-21-4	T	●	●
Isopropyl alcohol	67-63-0	T	●	●
Isopropyl ether	108-20-3	T	●	○

K

Kerosene	8008-20-6	W	●	●
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L

Lactic acid	50-21-5	10-90 %	●	●
		T	●	●
Lanolin	8006-54-0	W	●	●
Lauryl chloride	112-52-7	Sat.	●	○
Lead acetate	6080-56-4	Sol.	●	●
Lead tetraethyl	78-00-2	T	●	-
Ligroin	8032-32-4	W	●	●
Linseed oil		W	●	●

M

Machine oil ²⁾		T	●	●
Magnesium carbonate	546-93-0	Susp.	●	●
Magnesium carbonate hydroxide ²⁾	12125-28-9	Sat.	●	●
Magnesium chloride	7786-30-3	Sat.	●	●
Magnesium hydroxide	1309-42-8	Sat.	●	●
Magnesium nitrate	13446-18-9	Sat.	●	●
Magnesium sulphate	7487-88-9	Sat.	●	●

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Fluid	CAS No.	Concentration ¹⁾	Resistance at	
			20°C	60°C
Maleic acid	110-16-7	Sat.	●	●
Malic acid	6915-15-7	Sat.	●	●
Margarine		W	●	●
Mayonnaise		W	●	●
Mercuric chloride	7487-94-7	Sat.	●	●
Mercuric cyanide	592-04-1	Sat.	●	●
Mercurous nitrate	14836-60-3	Sat.	●	●
Mercury	7439-97-6	T	●	●
Mercury(III) chloride	7487-94-7	Sat.	●	●
Mercury(III) cyanide	592-04-1	Sat.	●	●
Mesityl oxide	141-79-7	W	○	○
Methane	74-82-8	T ³⁾	●	●
Methanol	67-56-1	5% T	●	●
Methyl acetate	79-20-9	T	● (liquid)	● (gaseous) ³⁾
Methyl alcohol	67-56-1	5% T	●	●
Methyl bromide	74-83-9	T ³⁾	○	○
Methyl butyl ketone	591-78-6	T	●	●
Methyl cyclohexanones	a.o. 583-59-5	T	●	●
Methyl dichloroacetate ²⁾	116-54-1	T	●	●
Methyl ethyl ketone	78-93-3	T	●	●
Methyl glycol	109-86-4	W	●	●
Methyl methacrylate	80-62-6	T	●	●
Methyl sulphate	77-78-1	W	○	–
Methyl sulphonic acid	75-75-2	T	○	○
Methylamine	74-89-5	<32 % ³⁾	●	○
Methylene chloride ²⁾	75-09-2	T	○ (liquid)	○ (gaseous) ³⁾
Milk		W	●	●
Mineral oils (free from aromatics)		W	●	●
Molasses		W	●	●
Mustard		W	●	–
N				
Naphta		W	○	○
Naphthalene	91-20-3	W	○	○
n-Butanol	71-36-3	T	●	●
Nickel acetate	373-02-4	Sat.	●	●
Nickel chloride	7718-54-9	Sat.	●	●
Nickel nitrate	7718-45-9	Sat.	●	●
Nickel sulphate	7786-81-4	Sat.	●	●
Nicotin acid	59-67-6	Susp.	●	–

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W	working solution
Susp.	Suspension of solid
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○	limited resistance
○	non-resistant
–	no data available

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Chemical resistance of pipes and pipework components

Fluid	CAS No.	Concentration ¹⁾	Resistance at	
			20°C	60°C
Nitric acid	7697-37-2	5% 10 – 30 % >35%	● ● ○	● ○ ○
Nitrobenzene	98-95-3	T	●	●
Nitromethane	75-52-5	T	●	●
O				
Oleic acid	112-80-1	T	●	●
Oleum (H ₂ SO ₄ + SO ₃)	8014-95-7		○	○
Olive oil		W	●	●
Oxalic acid	144-62-7	50% Sat.	● ●	● ●
Oxygen	7782-44-7	T ³⁾	●	●
Ozone	10028-15-6	Sat. T ³⁾	○ ○	○ ○
P				
Paraffin		T	●	●
Paraffin oil	8012-95-1	T	●	●
Peanut oil		W	●	●
Pentane	109-66-0	W	○	○
Peppermint oil		W	●	●
Perchloric acid	7601-90-3	10% 20 - 70 %	○ ○	○ ○
Perchloroethylene	127-18-4	W	○	○
Petrol (aliphatic hydrocarbon/benzene) (80/20)			○	○
Petroleum ether	8032-32-4	W	○	○
Phenol	108-95-2	5% 50% 90% T	● ● ● ●	● - ● ●
Phenylhydrazine	100-63-0	T	○	○
Phenylhydrazine hydrochloride	59-88-1	97%	●	○
Phosgene ²⁾	75-44-5	T ³⁾	○	○
Phosphine	7803-51-2	T ³⁾	○	○
Phosphoric acid	7664-38-2	up to 98%	●	●
Phosphorus(III) chloride	10026-13-8	T	○	-
Phosphorus oxychloride	10025-87-3	T	○	○
Phthalic acid	88-99-3	Susp.	●	●
Picric acid	88-89-1	10% Sat.	● ●	- ○
Potassium bicarbonate	298-14-6	Sat.	●	●
Potassium bichromate	7778-50-9	Sat. 40%	● ●	○ ●
Potassium bisulphate	7646-93-7	Sat.	●	●
Potassium borate	12712-38-8	Sat.	●	●
Potassium bromate	7758-01-2	Sat.	●	●

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- limited resistance
- non-resistant
- no data available

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Chemical resistance of pipes and pipework components

Fluid	CAS No.	Concentration ¹⁾	Resistance at	
			20°C	60°C
Potassium bromide	7758-02-3	Sat.	●	●
Potassium carbonate	584-08-7	Sat.	●	●
Potassium chlorate	3811-04-9	Sat.	●	○
Potassium chloride	7447-40-7	Sat.	●	●
Potassium chlorite	14314-27-3	Sat.	●	●
Potassium chromate	7789-00-6	Sat.	●	○
Potassium cuprocyanide	13682-73-0	Sat.	●	●
Potassium cyanide	151-50-8	Sol.	●	●
Potassium dichromate	7778-50-9	Sat. 40%	● ●	○ ●
Potassium dihydrogen-orthophosphate	7778-77-0	Sat.	●	●
Potassium ferricyanide	13746-66-2	Sat.	●	●
Potassium ferrocyanide	14459-95-1	Sat.	●	●
Potassium fluoride	7789-23-3	Sat.	●	●
Potassium hexacyanoferrate (III)	13746-66-2	Sat.	●	●
Potassium hexacyanoferrate (II)	14459-95-1	Sat.	●	●
Potassium hydrogen carbonate	298-14-6	Sat.	●	●
Potassium hydrogen sulphate	7646-93-7	Sat.	●	●
Potassium hydrogen sulphite	7773-03-7	Sat.	●	●
Potassium hydroxide	26288-25-5	<20 % 20 - 50 %	● ○	● ○
Potassium hypochlorite	7778-66-7	Sol.	○	○
Potassium iodide	7681-11-0	Sat.	●	●
Potassium nitrate	7757-79-1	Sat. 50%	● ●	○ ●
Potassium perborate	13769-41-0	Sat.	●	●
Potassium perchlorate	7778-74-7	Sat. 10%	○ ●	○ ○
Potassium permanganate	7722-64-7	Sat. 10% 20 - 25 %	○ ● ○	○ - -
Potassium persulphate	7727-21-1	Sat.	●	●
Potassium sulphate	7778-80-5	Sat.	●	●
Potassium sulphide	1312-73-8	Sat.	●	●
Potassium sulphite	10117-38-1	Sat.	●	●
Potassium thiosulphate	10294-66-3	Sat.	●	●
Propane	74-98-6	T ³⁾	●	○
Propionic acid	79-09-4	50% T	● ○	○ ○
Propyl alcohol	71-23-8	T	●	●
Propylene glycol ²⁾	a.o. 57-55-6	T	●	●
Pyridine	110-86-1	T	○	○
R				
R-12	75-71-8	W ³⁾	○	○
R-22	75-45-6	T ³⁾	○	○

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Chemical resistance of pipes and pipework components

Fluid	CAS No.	Concentration ¹⁾	Resistance at	
			20°C	60°C
S				
Salicylic acid	69-72-7	Sat.	●	●
Selenic acid	7783-08-6	Sat.	●	●
Silicic acid	7699-41-4	Susp.	●	●
Silicone emulsion ²⁾		W	●	●
Silicone oil		T	●	●
Silver acetate	563-63-3	Sat.	●	●
Silver cyanide	506-64-9	Sat.	●	●
Silver nitrate	7761-88-8	Sat.	●	●
Sodium acetate	127-09-3	Sat.	●	●
Sodium antimonate	15432-85-6	Sat.	●	●
Sodium arsenite	7784-46-5	Sat.	●	●
Sodium benzoate	532-32-1	Sat. 35 – 50 %	● ●	◐ ◐
Sodium bicarbonate	144-55-8	Sat.	●	●
Sodium bisulphate	7681-38-1	Sat.	●	●
Sodium bisulphite	7631-90-5	Sat.	●	●
Sodium bromide	7647-15-6	Sat.	●	●
Sodium carbonate	497-19-8	Sat.	●	●
Sodium chlorate	7775-09-9	Sat.	●	◐
Sodium chloride	7647-14-5	Sat.	●	●
Sodium chlorite	7758-19-2	2 - 20 %	●	◐
Sodium chromate	7775-11-3	Sol.	●	●
Sodium cyanide	143-33-9	Sat.	●	●
Sodium dichromate	7789-12-0	Sat.	●	◐
Sodium ferricyanide	14217-21-1	Sat.	●	●
Sodium ferrocyanide	13601-19-9	Sat.	●	●
Sodium fluoride	7681-49-4	Sat.	●	●
Sodium hydrogen carbonate	144-55-8	Sat.	●	●
Sodium hydrogen sulphate	7681-38-1	Sat.	●	●
Sodium hydrogen sulphite	7631-90-5	Sat.	●	●
Sodium hydroxide	1310-73-2	1 - 5 % 10 - 60 % Sat.	● ● ●	● ◐ ◐
Sodium hypochlorite	7681-52-9	2 – 12,5 % free chlorine	◐	○
Sodium hyposulphite	7772-98-7	Sat.	●	●
Sodium metaphosphate	10124-56-8	Sol.	●	●
Sodium nitrate	7631-99-4	Sat.	●	◐
Sodium nitrite	7632-00-0	Sat.	●	●
Sodium orthophosphate	7601-54-9	Sat.	●	●
Sodium perborate	15120-21-5	Sat.	●	●
Sodium phosphate	7601-54-9	Sat.	●	●
Sodium silicate	a.o. 1344-09-8	Sat.	●	●
Sodium sulphate	7757-82-6	Sat.	●	●
Sodium sulphide	1313-82-2	Sat.	●	●
Sodium sulphite	7757-83-7	Sat.	●	●

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Chemical resistance of pipes and pipework components

Fluid	CAS No.	Concentration ¹⁾	Resistance at	
			20°C	60°C
Sodium thiosulphate	7772-98-7	Sat.	●	●
Soybean oil		W	●	●
Starch ²⁾	9005-25-8	Sol.	●	●
Stearic acid	57-11-4	W	●	●
Stearin	555-43-1	W	●	●
Styrene	100-42-5	Sat.	○	○
Sugar		Sol.	●	●
Sulphur dioxide	7446-09-5	Gas, dry ³⁾	●	●
		Gas, wet ³⁾	●	●
Sulphur ether		W	○	○
Sulphuric acid	7664-93-9	10 - 30 %	●	●
		50 - 70 %	●	●
		80 - 90 %	○	○
		>95 % fuming	○	○
Sulphurous acid	7782-99-2	Sat.	●	●
Sulphuryl chloride ²⁾	7791-25-5	T	○	○

T

Tannic acid	1401-55-4	Sat.	●	●
Tartaric acid	133-37-9	Sat.	●	●
Tetrachlorethylene Tetrachloroethene	127-18-4	W	○	○
Tetrahydrofuran	109-99-9	T	○	○
Tetralin	119-64-2	T	○	○
Tetrasodium hexacyanoferrate(II)	13601-19-9	Sat.	●	●
Thioether		W	○	○
Thionyl chloride	7719-09-7	T	○	○
Thiophene	110-02-1	T	○	○
Tin(II) chloride	7772-99-8	Sat.	●	●
Tin(IV) chloride	7646-78-8	Sol.	●	●
Toluene	108-88-3	T	○	○
Tributylphosphate	126-73-8	Sat.	●	●
Trichloro acetaldehyde ²⁾	75-87-6	T	●	●
Trichloro acetic acid	76-03-9	<50 %	●	●
Trichlorobenzene	a.o. 12002-48-1	W	○	○
Trichloroethylene	79-01-6	T	○	○
Tricresyl phosphates ²⁾	a.o. 1330-78-5	T	●	●
Triethanolamine	102-71-6	T	●	●
		Sol.	●	●
Triethylene glycol	112-27-6	Sol.	●	●
Trimethylolpropane	77-99-6	<10 %	●	●
Trisodium hexacyanoferrate(III)	14217-21-1	Sat.	●	●
Trioctyl phosphate ²⁾	78-42-2	T	●	-
Turpentine		T	○	○

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Chemical resistance of pipes and pipework components

Fluid	CAS No.	Concentration ¹⁾	Resistance at	
			20°C	60°C
U				
Urea	57-13-6	Sat.	●	●
Uric acid	69-93-2	W	●	●
Urine		W	●	●
V				
Vegetable oils		T	●	◐
Vinegar		W	●	●
Vinyl acetate	108-05-4	T	●	◐
W				
Water		W	●	●
Water, brackish		W	●	●
Water, distilled		W	●	●
Water, fresh		W	●	●
Water, mineral		W	●	●
Water, potable		W	●	●
Water, sea		W	●	●
Whiskey		W	●	◐
Wine		W	●	●
X				
Xylene	a.o. 1330-20-7	T	◐	○
Y				
Yeast		Susp.	●	–
Z				
Zinc carbonate	3486-35-9	Sat.	●	●
Zinc chloride	7646-85-7	Sat.	●	●
Zinc chromate	13530-65-9	Sat.	◐	◐
Zinc cyanide	557-21-1	Sat.	●	●
Zinc nitrate	7779-88-6	Sat.	◐	◐
Zinc oxide	1314-13-2	Susp.	●	●
Zinc stearate	557-05-1	Susp.	●	●
Zinc sulphate	7733-02-0	Sat.	●	●
2				
2-Hexanone	591-78-6	T	●	◐

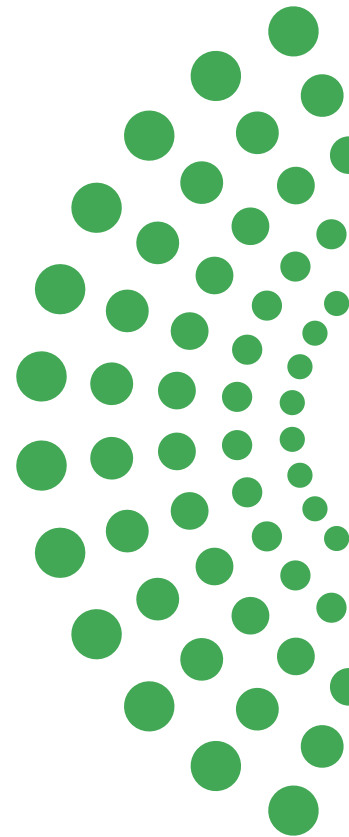
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Chemical resistance of pipes and pipework components ____



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