

CHEMICAL RESISTANCE

PIPES & PIPING COMPONENTS MADE OF POLYPROPYLEN



CHEMICAL RESISTANCE PIPES & PIPING COMPONENTS MADE OF POLYPROPYLENE

This overview in tabular form applies to polypropylene pipes and pipe components intended for the transport of the flow materials listed in the tables. It must be taken into account that each application involves a wide variety of variables in the operating conditions. For this reason, this chart is only a guide to the chemical resistance of our polypropylene piping systems and pipe components. This table is based, among other things, on the data in the "Technical Report ISO/TR 7471", literature data and data from practical experience.

Polypropylene (PP) pipes; chemical resistance of pipes and pipe components.

The resistance of pipes and pipe components to flow-through substances depends on the one hand on the type of plastic, the shape of the pipe component and the manufacturing conditions, on the other hand on the type and nature of the flow-through substance. In particular, the duration of exposure, the simultaneously acting temperatures and mechanical loads, as well as additional influences of a different nature, are co-determining factors. These influences and their effects on the system determine the suitability for an application. Furthermore, depending on the application, special requirements for the pipe or pipe component (e.g. dimensional accuracy or mechanical strength) must be taken into account.

An assessment of the suitability of pipes and pipe components for a flow substance, defined as chemical suitability (for term see DIN 53 756), can only be made on an individual basis.

The chemical resistance indicates the gradual behavior of the pipe wall material against the action of the flow substance. It depends in each case on the type of interacting substances, their composition, the temperature and the duration of exposure. In the case of application, the chemical resistance can be influenced by further other stresses (e.g. mechanical).

Note: The chemical resistance does not correspond to the term "chemical resistance" used in general linguistic usage, because this already includes an evaluation for the respective application.

Chemical resistance specifications

Various processes can occur when flow-through substances come into contact with the pipe wall material, such as absorption of the liquid (swelling), extraction of soluble material components (shrinkage) and chemical reactions (hydrolysis, oxidation, etc.), which under certain circumstances can cause changes in the properties of the pipes and pipe components.

The behavior of pipes and pipe components to the flow substances is divided into the following groups:



resistant

The pipe wall material is generally rated as suitable.



conditionally resistant

The suitability of the pipe wall material must be checked for the particular application; if necessary, further tests must be carried out.



not resistant

The pipe wall material is generally rated as unsuitable.



Information on the chemical resistance are not available.



¹ For the composition of the flow substances the following designations are used:

(a) If "(vol.)" is not indicated after the (Vol.)" is not indicated after the information for the proportion, it is the Mass fraction in % (previously wt.%).

VL: aqueous solution whose mass fraction is $\leq 10\%$.

L: aqueous solution whose mass fraction is greater than 10%.

GL: saturated (at 20 °C), aqueous solution.

TR: flow-through substance is at least technically pure.

H: commercial composition.

b) Volume fraction in % (previously vol. %); this is specially marked specially marked by "(vol.)". At lower mass or volume fraction and temperatures than specified in the table, the chemical and temperatures lower than those specified in the table, the chemical resistance of pipes and piping components is generally not is generally not reduced.

² These flow materials or information on chemical resistance are not included in ISO/TR 7471.

³ Chemical resistance is rated one group less favorably in ISO/TR 7471. one group less favorable.

⁴ Chemical resistance is rated one group more favorably in ISO/TR 7471. group more favorably..

For further information on the resistance of our piping systems can be obtained from our hotline
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For inquiries on resistance, information on the flow substance and operating operating conditions (operating pressure and operating temperature) are required.

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Flow substance	Share ¹⁾ %	Behavior at 20°C	Behavior at 60°C
Exhaust gases ²⁾ or air-gas mixtures			
containing hydrogen fluoride (hydrogen fluoride)	traces	●	●
containing carbon dioxide	each	●	●
containing carbon monoxide	each	●	●
containing nitrous oxide	traces	●	●
containing hydrochloric acid	each	●	●
containing sulfur dioxide	each	●	●
containing sulfuric acid	each	●	●
containing sulfur trioxide (oleum)	traces	○	○
acetaldehyde ²⁾	TR	◐	—
Acetaldehyde, aqueous ²⁾	40 %	●	●
Acetaldehyde (acetic anhydride)	TR	●	—
Acetone	TR	●	●
Acetone phenone	TR	●	◐
Acrylonitrile	TR	●	● ²⁾
Adipic acid ²⁾	GL	●	●
Malic acid	L	●	●
Eth- see Eth- (e.g. ethanol now ethanol)			
Caustic soda see Sodium hydroxide solution	up to 60 %	●	●
Accusic acid ²⁾	H	●	●
Alum (Me(I)-Me(III) sulfates) ²⁾	GL	●	●
Allyl alcohol (propene-(2)-ol-(1)), aqueous ²⁾	96 %	●	●
Aluminum chloride ²⁾	GL	●	●
Aluminum sulfate ²⁾	GL	●	●
Formic acid, aqueous	10 %	●	●
Formic acid, aqueous	85 %	●	◐ ³⁾
2-Aminoethanol (ethanolamine)	TR	●	—
Ammonia, liquid	TR	●	—
Ammonia, gaseous	TR	●	● ²⁾
Ammonia water (ammonia solution)	GL	●	● ²⁾
Ammonium acetate	GL	●	●
Ammonium carbonate ²⁾ and hydrogen carbonate	GL	●	●
Ammonium chloride	GL	●	● ²⁾
Ammonium fluoride	L	●	●
Ammonium nitrate	GL	●	●
Ammonium phosphate ²⁾	GL	●	●
Ammonium sulfate	GL	●	●
Ammonium sulfide ²⁾	GL	●	●
Amyl acetate (acetic acid isoamyl ester)	TR	◐	—
Amyl alcohol (fermentation amyl alcohol)	TR	●	●
Aniline	TR	◐ ⁴⁾	◐ ⁴⁾
Anilinium chloride (aniline chlorohydrate)	GL	●	●
Anisole ²⁾	TR	◐	◐
Anone see cyclohexanone	TR	◐	○
Antimony(III) chloride, aqueous ²⁾	90 %	●	●
Apple juice	H	●	● ²⁾

Flow substance	Share ¹⁾ %	Behavior at 20 °C	Behavior at 60 °C
Malic acid (malic acid)	L	●	●
Cider ²⁾	H	●	●
Arsenic acid, ortho, aqueous ²⁾	10 %	●	●
Arsenic acid, ortho, aqueous ²⁾	80 %	●	●
Barium hydroxide	GL	●	●
Barium salts ²⁾	GL	●	●
Cottonseed oil	TR	●	●
Benzaldehyde ²⁾	GL/L	● / ●	● / —
Gasoline (aliphatic hydrocarbons)	H	◐ ³⁾	○
Gasoline-benzene mixture ²⁾	80 %/20 % (Vol.)	◐	○
Benzoic acid	GL	●	● ²⁾
Benzene	TR	◐	○
Benzoyl chloride ²⁾	TR	◐	—
Benzyl alcohol	TR	●	◐
Succinic acid	GL	●	●
Beeswax ²⁾	H	●	◐
Beer ²⁾	H	●	●
Beer couleur (sugar couleur) ²⁾	VL	●	●
Hydrogen cyanide ²⁾	TR	●	●
Lead acetate ²⁾	GL	●	●
Bleaching lye (sodium hypochlorite)	20 %	◐ ⁴⁾	◐
Lead tetraethyl ²⁾ (tetraethyl lead)	TR	●	—
Borax (sodium tetraborate)	L	●	●
Boric acid	GL	●	● ²⁾
Spirits of all kinds ²⁾	H	●	●
Bromine (bromine water) ²⁾	GL	◐	○
Bromine, vaporous	each	◐	○
Bromine, liquid	TR	○	○
Bromomethyl see methyl bromide	TR	○	○
Hydrobromic acid, aqueous	48 %	●	◐ ²⁾
Butane, gaseous	TR	●	● ²⁾
Butadiene, gaseous ²⁾	TR	◐	○
Butanols (butyl alcohols)	TR	●	◐
Butanetriol-(1, 2, 4) ²⁾	TR	●	●
Butene-(2)-diol-(1, 4) ²⁾	TR	●	●
Butyne-(2)-diol-(1, 4) ²⁾	TR	●	—
Butyric acid, aqueous	20 %	●	—
Butyl acetate (acetic acid butyl ester)	TR	◐	○
Butylenes, liquid ²⁾ (Butenes)	TR	◐	—
Butylene glycols (butanediols), aqueous ²⁾	10 % (Vol.)	●	◐
Butylene glycols (butanediols) ²⁾	TR	●	●
Butyl glycol (ethylene glycol monobutyl ether)	TR	●	—
Butylphenols	GL	●	—
Butylphenone ²⁾	TR	○	—

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Flow substance	Share ¹⁾ %	Behavior at 20°C	Behavior at 60°C
Butyl phthalate (dibutyl phthalate)		●	◐
Calcium carbonate	GL	●	●
Calcium chloride	GL	●	●
Calcium hydroxide	GL	●	●
Calcium hypochlorite	L	●	—
Calcium nitrate	GL	●	●
Camphor oil	TR	○	○
Carbolineum ²⁾	H	●	—
Chlorine, gaseous, dry	TR	○	○
Chlorine, gaseous, moist ²⁾	0,5 %	◐	—
Chlorine, gaseous, moist ²⁾	1 %	○	○
Chlorine, liquid	TR	○	○
Chloral ²⁾ (trichloroacetaldehyde)	TR	●	●
Chloral hydrate ²⁾	TR	◐	○
Chloramine ²⁾	L	●	—
Chlorobenzene ²⁾	TR	◐	—
Chloroacetic acid, -mono, aqueous	L	●	● ²⁾
Chloroacetic acid, -mono, aqueous	85 % ²⁾	●	●
Chloroethane (ethyl chloride)	TR	○	○
2-Chloroethanol (ethylene chlorohydrin)	TR	●	● ²⁾
Chlorinated lime slurry in water ²⁾	each	●	●
Chloroform (trichloromethane)	TR	◐	○
Chloric acid, aqueous ²⁾	1 %	●	◐
Chloric acid, aqueous ²⁾	10 %	●	◐
Chloric acid, aqueous	20 %	●	○
Chlorosulfonic acid (chlorosulfuric acid)	TR	○	○
Hydrochloric st. (HCl), dry gas	TR	●	●
Hydrochloric st. (HCl), wet gas ²⁾ (Hydrochloric acid)	TR	●	●
Chromic alum (alum)	GL	●	●
Chromic acid, aqueous	40 %	◐ ⁴⁾	◐
Chromic acid/sulfuric acid/water ²⁾	15/35/50 %	○	○
Citric acid	VL	●	●
Crotonaldehyde ²⁾ (2-bütenal)	TR	●	—
Cyanide (potassium cyanide)	L	●	● ²⁾
Cyclohexane	TR	●	—
Cyclohexanol	TR	●	◐
Cyclohexanone	TR	◐	○
Decalin (decahydronaphthalene)	TR	◐ ³⁾	○
Dextrin (starch gum)	L	●	●
Dextrose (glucose)	20 %	●	●
1,2-Diaminoethane (ethylenediamine) ²⁾	TR	●	●
Di-n-butyl ether ²⁾	TR	◐	○

Flow substance	Share ¹⁾ %	Behavior at 20 °C	Behavior at 60 °C
Dibutyl phthalate (phthalic acid dibutyl ester)	TR	●	◐
Dichloroethylene (1,1- and 1,2-)	TR	◐	—
Dichlorobenzenes ²⁾	TR	◐	—
Dichloroacetic acid	TR	◐	—
Dichloroacetic acid, aqueous ²⁾	50 %	●	●
Dichloroacetic acid methyl ester ²⁾	TR	●	●
Diesel fuel ²⁾	H	●	◐
Diethanolamine	TR	●	—
Diethyl ether (ether)	TR	●	◐
Diglycolic acid	GL	●	● ²⁾
Dihexyl phthalate ²⁾	TR	●	◐
Diisobutyl ketone ²⁾ (2,6-dimethylheptanone-4)	TR	●	○
Diisopropyl ether	TR	◐	○ ²⁾
Diisooctyl phthalate	TR	●	◐
Dimethylamine, gaseous	100 %	●	—
N,N-dimethylformamide	TR	●	●
Dinonyl phthalate ²⁾ (DNP)	TR	●	◐
Diocetyl phthalate (DOP)	TR	● ³⁾	◐
1,4-Dioxane (diethylene dioxide)	TR	◐	◐
Fertilizer salts ²⁾	GL	●	●
Iron(II) and (III) chloride ²⁾	GL	●	●
Natural gas	TR	●	—
Peanut oil	TR	●	●
Vinegar (wine vinegar)	H	●	●
Acetic acid, aqueous (glacial acetic acid)	TR	●	◐
Acetic acid, aqueous and vinegar essence	50 %	●	●
Acetic acid, aqueous	up to 40 %	●	●
Acetic anhydride	TR	●	—
Acetic acid ethyl ester (ethyl acetate)	TR	● ³⁾	◐ ³⁾
Acetic acid methyl ester (methyl acetate)	TR	●	●
Ethanol (ethyl alcohol)	TR	●	●
Ethanol, denatured with 2 % toluene ²⁾	96 % (Vol.)	●	—
Ethylbenzene ²⁾	TR	◐	○
Ethyl chloride, gaseous (chloroethane)	TR	○	○
Ethylene chlorohydrin (chloroethanol)	TR	●	● ²⁾
Ethylenediamine (1,2-diaminoethane)	TR	●	●
Ethylene glycol	TR	●	●
Ethylene oxide, liquid ²⁾ (Oxirane)	TR	○	—
Fatty acid (from C4) ^m ²⁾	TR	●	◐
Spruce needle oil ²⁾	H	●	◐
Fluorine, dry ²⁾	TR	◐	—
Fluorosilicic acid ²⁾ , aqueous	32 %	●	●
Hydrofluoric acid (hydrofluoric acid), aqueous ²⁾	40 %	●	●
Hydrofluoric acid (hydrofluoric acid), aqueous ²⁾	70 %	●	◐

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Flow substance	Share ¹⁾ %	Behavior at 20°C	Behavior at 60°C
Formaldehyde, aqueous	40 %	●	● ²⁾
Photo emulsions ²⁾	H	●	●
Photo-developer baths ²⁾	H	●	●
Photo fixing baths ²⁾	H	●	●
Antifreeze (automotive) ²⁾	H	●	●
Fruit drinks and fruit juices	H	●	●
Fructose (fruit sugar)	L	●	●
Furfuryl alcohol ²⁾	TR	●	◐
Fermentation mash ²⁾	H	●	●
Gelatine	L	●	●
Tanning extracts, vegetable ²⁾	H	●	○
Tannic acid (tannin), aqueous ²⁾	10 %	●	○
Glucose, aqueous	20 %	●	●
Glycerin	TR	●	●
Glycolic acid, aqueous	30 %	●	◐ ²⁾
Urea	GL	●	● ²⁾
Yeast ²⁾	each	●	—
Fuel oil ²⁾	H	●	◐
Heptanes	TR	● ³⁾	◐ ³⁾
Hexanes	TR	●	◐
Hexanetriol-(1,2,6) ²⁾	TR	●	●
Hydrazine hydrate ²⁾	TR	●	—
Hydroquinone ²⁾	L	●	—
Hydroxylammonium sulfate ²⁾	12 %	●	●
Isoctane	TR	● ³⁾	◐ ³⁾
Isopropanol (propanol-(2))	TR	●	●
Iodine tincture	H	●	◐ ²⁾
Potash lye, aqueous (potassium hydroxide)	50 %	●	●
Potassium bromate, aqueous	10 %	●	●
Potassium bromide	GL	●	●
Potassium carbonate (potash)	GL	●	● ²⁾
Potassium chlorate	GL	●	●
Potassium chloride	GL	●	● ²⁾
Potassium chromate	GL	●	●
Potassium cyanide (cyanide potassium)	L	●	● ²⁾
Potassium dichromate ²⁾	GL	●	●
Potassium fluoride	GL	●	●
Potassium hexacyanoferrate-(II) & (-III) ²⁾	GL	●	●
Potassium hydrogen carbonate	GL	●	●
Potassium iodide	GL	●	● ²⁾
Potassium nitrate	GL	●	●
Potassium perchlorate, aqueous	10 %	●	●

Flow substance	Share ¹⁾ %	Behavior at 20 °C	Behavior at 60 °C
Potassium permanganate	GL	●	○ ²⁾
Potassium peroxodisulfate (potassium persulfate)	GL	●	● ²⁾
Potassium sulfate	GL	●	● ²⁾
Silicofluoric acid (fluorosilicic acid)	32 %	●	●
Silicic acid, aqueous ²⁾	each	●	●
Common salt (sodium chloride)	VL	●	●
Aqua regia (HCl/HNO ₃)	75 %/25 %	○	○
Carbon dioxide, gaseous	each	●	●
Carbon dioxide (carbonic acid), aqueous ²⁾	each	●	●
Coconut fatty alcohol ²⁾	TR	●	◐
Coconut oil (coconut fat, copra)	TR	●	—
Cresols	90 % ²⁾	●	●
Cresols	> 90 %	●	—
Copper(II) chloride	GL	●	●
Copper(I) cyanide ²⁾	GL	●	●
Copper(II) nitrate, aqueous	30 %	●	●
Copper(II) sulfate	GL	●	●
Lanolin (wool grease)	H	●	◐
Linseed oil	H	●	●
Fluorescent gas ²⁾	H	●	—
Air	TR	●	●
Magnesium chloride	GL	●	●
Magnesium hydroxide carbonate	GL	●	●
Magnesium salts ²⁾	GL	●	●
Magnesium sulfate	GL	●	●
Corn oil	TR	●	◐
Machine oil ²⁾	TR	●	◐
Sea water (seawater)	H	●	●
Molasses ²⁾	H	●	●
Menthol ²⁾	TR	●	◐
Methanol (methyl alcohol)	TR	●	●
Methanol (methyl alcohol)	5 %	●	● ³⁾
Methanesulfonic acid, aqueous ²⁾ (Methyl sulfuric acid)	50 %	◐	◐
Methanesulfonic acid, aqueous ²⁾ (Methylsulfuric acid)	50 to 100 %	◐	○
Methoxybutanol ²⁾	TR	●	◐
Methyl acetate see (methyl acetate)	TR	●	●
Methylamine, aqueous	32 %	●	—
Methyl bromide (bromomethyl)	TR	○	○
Methyl chloride, gaseous ²⁾ (Chloromethyl)	TR	○	○
Methylene chloride (dichloromethane)	TR	◐	○
Methyl ethyl ketone ²⁾	TR	●	◐
Milk	H	●	●
Lactic acid	90 %	●	●
Mineral water	H	●	●

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Engine lubricating oils ²⁾	TR	●	◐
Naphtha	H	●	○
Sodium acetate	GL	●	●
Sodium benzoate, aqueous	35 %	●	● ²⁾
Sodium borate hydrogen peroxide (sodium perborate)	GL	●	—
Sodium carbonate, aqueous	50 %	●	●
Sodium chlorate	GL	●	● ²⁾
Sodium chloride	VL	●	●
Sodium chlorite, aqueous	2 to 20 %	●	◐
Sodium dichromate	GL	●	●
Sodium hexametaphosphate	L	●	● ²⁾
Sodium hydrogen carbonate	GL	●	●
Sodium hydrogen sulfate	GL	●	●
Sodium hydrogen sulfite	L	●	—
Sodium hypochlorite, aqueous	10 %	●	—
Sodium hypochlorite, aqueous	20 %	◐ ⁴⁾	◐
Sodium nitrate	GL	●	●
Sodium nitrite ²⁾	G	●	●
Sodium phosphate, tri-	GL	●	●
Sodium silicate (water glass)	L	●	●
Sodium sulfate	GL	●	●
Sodium sulfide	GL	●	● ²⁾
Sodium sulfite, aqueous	40 %	●	●
Sodium tetraborate	L	●	●
Sodium thiosulfate	GL	●	● ²⁾
Caustic soda, aqueous (sodium hydroxide)	up to 60 %	●	●
Nickel salts ²⁾	GL	●	●
Nitrobenzene	TR	●	◐
2-Nitrotoluene ²⁾	TR	●	◐
Fruit pulp ²⁾	H	●	—
Octylcresol ²⁾	TR	◐	○
Oils and fats (animal and vegetable)	TR	●	◐
Oleic acid	TR	●	◐
Oleum (H ₂ SO ₄ + SO ₃)	TR	○	○
Olive oil	TR	●	●
Oxalic acid	GL	●	● ³⁾
Ozone ²⁾	0,5 ppm	●	◐
Kerosene emulsions ²⁾	H	●	●
Kerosene oil	TR	●	◐
Perchloroethylene (tetrachloroethylene) ²⁾	TR	◐	◐
Perchloric acid, aqueous	20 %	●	● ²⁾
Petroleum ether	TR	● ³⁾	◐
Petroleum	TR	●	◐

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Flow substance	Share ¹⁾ %	Behavior at 20 °C	Behavior at 60 °C
Peppermint oil	TR	●	—
Phenol, aqueous	5 %	●	●
Phenol, aqueous	90 %	●	—
Phenylhydrazine ²⁾	TR	◐	◐
Phenylhydrazinium chloride ²⁾	TR	●	◐
Phosgene, gaseous ²⁾ (carbon chloride)	TR	◐	◐
Phosphates ²⁾ (inorganic)	GL	●	●
Phosphorus(III) chloride ²⁾	TR	◐	—
Phosphorus oxychloride	TR	◐	—
Phosphoric acid, ortho-	85 %	●	●
Photo- see photo-			
Phthalic acid ²⁾	GL	●	●
Picric acid (2,4,6-trinitrophenol)	GL	●	—
Propane, gaseous	TR	●	—
Propanol-(1) 2) (Propyl alcohol)	TR	●	●
Propargyl alcohol, aqueous ²⁾	7 %	●	●
Propionic acid, aqueous	> 50 %	●	● ²⁾
Propylene glycols ²⁾	TR	●	●
Pyridine	TR	◐	◐ ²⁾
Mercury	TR	●	●
Mercury salts ²⁾	GL	●	●
Castor oil	TR	●	●
Ammonia solution (ammonia water)	GL	●	● ²⁾
Nitric acid, aqueous	10 %	●	◐ ³⁾
Nitric acid, aqueous	10 to 50 %	◐	○ ²⁾
Nitric acid, aqueous	> 50 %	○	○
Hydrochloric acid, aqueous	up to 20 %	●	●
Hydrochloric acid, aqueous	> 20 to 36 %	●	◐ ²⁾
Oxygen	TR	●	—
Lubricating oils ²⁾	H	◐	—
Sulfur dioxide, gaseous	TR	●	● ²⁾
Sulfur dioxide, aqueous (sulfurous acid)	jeder	●	● ²⁾
Carbon disulfide	TR	○	○
Sulfuric acid, aqueous	10 %	●	●
Sulfuric acid, aqueous	> 10 to 80 %	●	●
Sulfuric acid, aqueous	> 80 to TR	◐	○
Sulfuric acid, fuming (oleum)		○	○
Hydrogen sulfide (hydrogen sulfide), gaseous	TR	●	●
Sea water (seawater)	H	●	●
Silver nitrate	GL	●	●
Silver salts ²⁾	GL	●	●
Silicone oil	TR	●	●
Silicone emulsion ²⁾	H	●	●
Soda (sodium carbonate)	50 %	●	●

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Flow substance	Share ¹⁾ %	Behavior at 20°C	Behavior at 60°C
Soybean oil	TR	●	◐
Spindle oil ²⁾	TR	●	◐
Starch	each	●	●
Starch gum (dextrin)	L	●	●
Starch syrup ²⁾	each	●	●
Sulfuryl chloride ²⁾	TR	○	○
Turpentine oil	TR	○	○
White spirit ²⁾	TR	●	◐
Tetrachloroethane ²⁾	TR	◐	○
Tetrachloroethylene (perchloroethylene)	TR	◐	◐
Carbon tetrachloride (tetrachloromethane)	TR	○	○
Tetrahydrofuran	TR	◐	○
Tetrahydronaphthalene (tetralin)	TR	○	○
Thionyl chloride ²⁾	TR	◐	○
Thiophene	TR	●	◐
Toluene	TR	◐	○
Transformer oil (insulating oil) ²⁾	TR	◐	○
Dextrose (glucose)	20 %	●	●
Triethanolamine	L	●	—
Trichloroethylene	TR	○	○
Trichloroacetic acid, aqueous	50 %	●	●
Tricresyl phosphate ²⁾ (phosphoric acid tritolyl ester)	TR	●	◐
Drinking water, chlorine-containing ²⁾	TR	●	●
Trioctyl phosphate ²⁾	TR	●	—
Vaseline oil ²⁾	TR	●	◐
Vinyl acetate ²⁾	TR	●	◐
Vinylidene chloride (1,1-dichloroethylene)	TR	◐	—
Detergent ²⁾	VL	●	●
Water, pure	H	●	●
Hydrogen	TR	●	● ²⁾
Hydrogen peroxide, aqueous	30 %	●	◐
Wines	H	●	● ²⁾
Wine vinegar, table vinegar	H	●	●
Tartaric acid, aqueous	10 %	●	●
Xylene (all isomers)	TR	◐	○
Zinc salts ²⁾	GL	●	●
Tin(II) chloride	GL	●	●
Tin(IV) chloride	GL	●	●
Citric acid see Citric acid	VL	●	●
Sugar syrup ²⁾	H	●	●

Request for chemical resistance of POLYMELT Piping Systems & Fittings.

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Executing company

Company : _____
 Operator: _____
 Street: _____
 Zip Code/City: _____
 Phone: _____
 Fax: _____
 E-mail: _____

Range of application

Flow medium: _____
 Chemical designation: _____
 Operating temperature (°C): _____
 Operating pressure (bar): _____
 Operating time (h/d): _____
 Concentration (%): _____

Object/Application Description:

Ambient medium

:
 Ambient temperature (°C): _____
 Ambient pressure (bar): _____

Data sheets	attached	not attached
Flow medium	<input type="checkbox"/>	<input type="checkbox"/>
Ambient medium	<input type="checkbox"/>	<input type="checkbox"/>

Address of the place of use

:
 Company: _____
 Street: _____
 Zip Code/City: _____

 Place/Date/Signature