POLYMELT

Made in Germany

POLYMELT PP-R pipe systems

# CHEMICAL RESISTANCE
# PIPES & PIPING COMPONENTS MADE OF POLYPROPYLENE

# 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. application; if necessary, further further tests must be carried out.

**not resistant**
The pipe wall material is generally rated as unsuitable.

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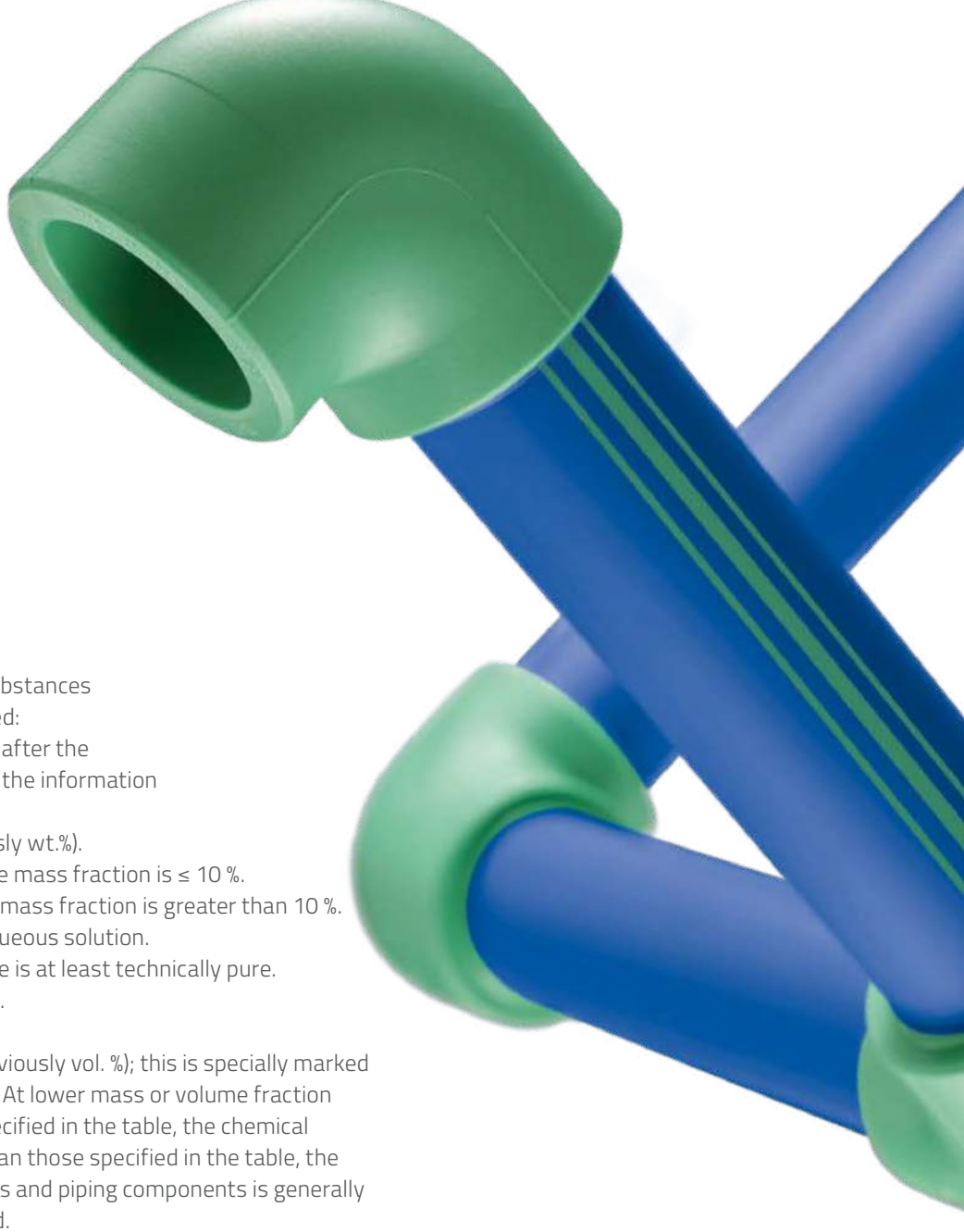
Information on the chemical resistance are not available.



[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 ≤ 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..

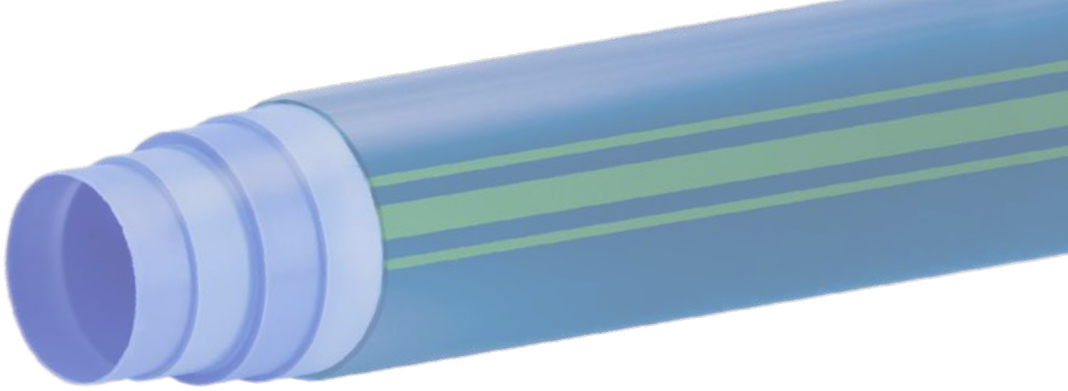
## For further information on the resistance of our piping systems can be obtained from our hotline +49 8342 7006 0

For inquiries on resistance, information on the flow substance and operating operating conditions (operating pressure and operating temperature) are required.

# CHEMICAL RESISTANCE
# PIPES & PIPING COMPONENTS MADE OF POLYPROPYLENE

| 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] |

The chemical suitability of pipes and pipe components can only be determined on an individual basis. Therefore, all information is without guarantee.



| 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 % | ● | ◐ |
| 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 | ○ | — |

# CHEMICAL RESISTANCE
# PIPES & PIPING COMPONENTS MADE OF POLYPROPYLENE

| 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 | ◐ | ○ |

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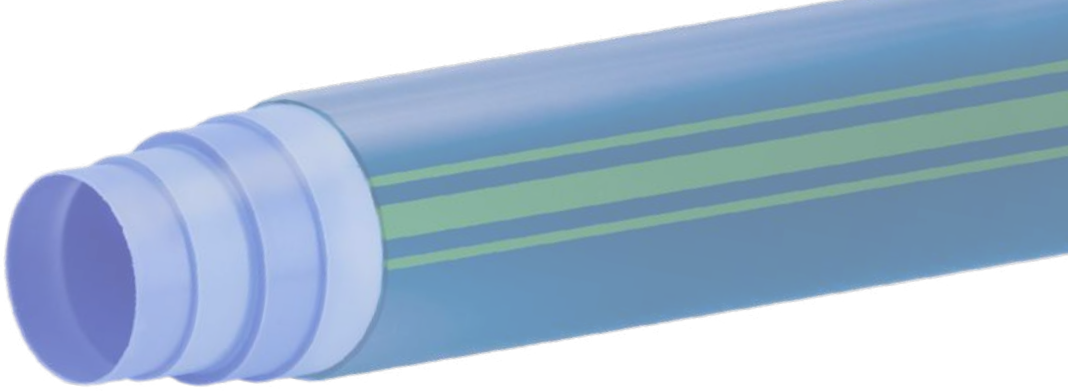

| Flow substance | Share [1] % | Behavior at 20°C | Behavior at 60°C |
|---|---|---|---|
| Dibutyl phthalate (phthalic acid dibutyl ester) | TR | ● | ◐ |
| Dichloroethylene (1,1- and 1,2-) | TR | ◐ | — |
| Dichlorobenzenes [2] | TR | ◐ | — |
| Dichloroacetic acid | TR | ◐ | — |
| Dichloroacetic acid, 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 | ● | ◐ |
| Dioctyl 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)" [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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# CHEMICAL RESISTANCE
# PIPES & PIPING COMPONENTS MADE OF POLYPROPYLENE

| 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 % | ● | ● |

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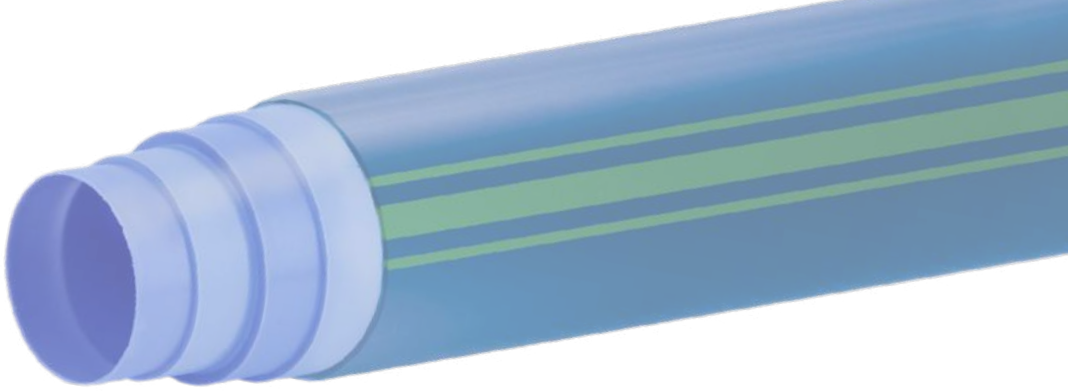


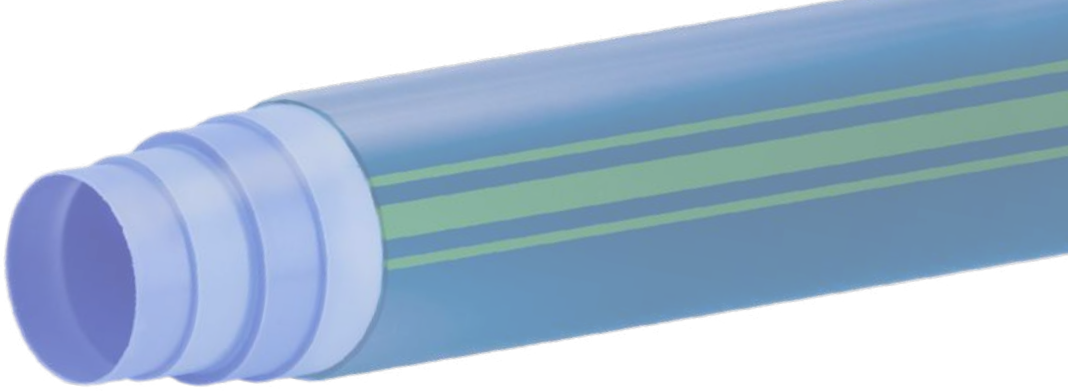
| Flow substance | Share [1] % | Behavior at 20°C | Behavior at 60°C |
|---|---|---|---|
| Potassium permanganate | GL | ● | ○ [2] |
| Potassium peroxodisulfate (potassium persulfate) | GL | ● | ● [2] |
| Potassium sulfate | GL | ● | ● [2] |
| Silicofluoric acid (fluorosilicic acid) | 32 % | ● | ● |
| Silicic acid, aqueous [2] | each | ● | ● |
| Common salt (sodium chloride) | VL | ● | ● |
| Aqua regia (HCl/HNO3) | 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 | ● | ● |

The chemical suitability of pipes and pipe components can only be determined on an individual basis. Therefore, all information is without guarantee.

# CHEMICAL RESISTANCE
# PIPES & PIPING COMPONENTS MADE OF POLYPROPYLENE

| Flow substance | Share [1] % | Behavior at 20°C | Behavior at 60°C |
|---|---|---|---|
| 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 ($H_2SO_4$ + $SO_3$) | 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 | ● | ◐ |

The chemical suitability of pipes and pipe components can only be determined on an individual basis. Therefore, all information is without guarantee.



| 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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# CHEMICAL RESISTANCE
# PIPES & PIPING COMPONENTS MADE OF POLYPROPYLENE

| 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 | ● | ● |

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**Request for chemical resistance of POLYMELT Piping Systems & Fittings.**

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Germany

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F. +49 8342 7006 66
E. mail@polymelt.com

**Executing company**

Company : _____

Operator: _____

Street: _____

Zip Code/City: _____

Phone: _____

Fax: _____

E-mail: _____

**Object/Application Description:**

_____

_____

_____

_____

**Address of the place of use**
:
Companty: _____

Street: _____

Zip Code/City: _____

_____
Place/Date/Signature

**Range of application**

Flow medium: _____

Chemical designation: _____

Operating temperature (°C): _____

Operating pressure (bar): _____

Operating time (h/d):_____

Concentration (%): _____

**Ambient medium**
:
Ambient temperature (°C): _____

Ambient pressure (bar): _____

| Data sheets | attached | not attached |
|---|---|---|
| Flow medium | | |
| Ambient medium | | |

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POLYMELT

Made in Germany