

Appendix A

Chemical resistance

The current state of knowledge about chemical resistance of plastics is based on long-lasting laboratory tests and practical experience. The following evaluation can be an initial indicator of the possibilities of Akatherm dBlue application for fluid transportation including transport at elevated temperatures. dBlue pipes and fittings and rubber gaskets are meant for transporting waste water ranging from acids (pH 2) to alkalis (pH 12) present in households. In case of industrial waste water, its chemical composition and concentration should be analyzed. The table covers a set of chemicals and determination of Akatherm dBlue chemical resistance. The following evaluation criteria were adopted:

Used symbols:

- + Resistant: in general Akatherm dBlue is a suitable material for this application
- / Limited resistance: further research necessary
- No resistance

Empty field No data available

Abbreviations:

- Sat. sol Saturated aqueous solution: prepared at 20°C
- Sol Aqueous solution at a concentration higher than 10% but not saturated

Component	Concentration	Temperature		
		20°C	60°C	100°C
Acetic acid	Up to 40%	+	+	
Acetic acid	50%	+	+	/
Acetic acid, glacial	>96%	+	/	-
Acetic anhydride	100%	+		
Acetone	100%	+	+	
Acrylonitrile	100%	+		
Allyl alcohol	100%	+	+	
Ammonia, aqueous	Sat. sol	+	+	
Ammonia, dry gas	100%	+		
Ammonia, liquid	100%	+		
Ammonium acetate	Sat. sol	+	+	
Ammonium chloride	Sat. sol	+	+	
Ammonium nitrate	Sat. sol	+	+	+
Ammonium sulphate	Sat. sol	+	+	+
Aniline	100%	+	+	
Beer		+	+	
Benzene	100%	/	-	-
Benzoic acid	Sat. sol	+	+	
Borax	Sol	+	+	
Boric acid	Sat. sol	+		
Bromine, liquid	100%	-	-	-
Butane, gas	100%	+		
Butanol	100%	+	/	/
Butyl acetate	100%	/	-	-
Calcium carbonate	Sat. sol	+	+	+
Calcium nitrate	Sat. sol	+	+	
Carbon dioxide, dry gas		+	+	
Chlorine, dry gas	100%	-	-	-
Chlorine, liquid	100%	-	-	-
Chloroform	100%	/	-	-
Chlorosulphonic acid	100%	-	-	-
Chromic acid	Up to 40%	+	/	-
Citric acid	Sat. sol	+	+	+
Copper (II) chloride	Sat. sol	+	+	
Cyclohexanone	100%	/	-	-

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Component	Concentration	Temperature		
		20°C	60°C	100°C
Dextrin	Sol	+	+	
Dichloroethylene (A and B)	100%	/		
Dichloromethane	100%	/	-	
Ethanolamine	100%	+		
Ethyl alcohol	Up to 95%	+	+	+
Ethyl ether	100%	+	/	
Ethylene glycol	100%	+	+	+
Formaldehyde	40%	+		
Formic acid	10%	+	+	/
Gasoline, petrol (aliphatic hydrocarbons)		-	-	-
Glycerine	100%	+	+	+
Glycolic acid	30%	+		
Hexane	100%	+	/	
Hydrochloric acid	Up to 20%	+	+	+
Hydrochloric acid	30%	+	/	/
Hydrogen peroxide	Up to 30%	+	/	
Hydrogen sulphide, dry gas	100%	+	+	
Lactic acid	Up to 90%	+	+	
Magnesium chloride	Sat. sol	+	+	
Magnesium sulphate	Sat. sol	+	+	
Milk		+	+	+
Monochloroacetic acid	>85%	+	+	
Nitric acid	Up to 30%	+	-	-
Nitric acid	From 40 to 50%	/	-	-
Oleic acid	100%	+	/	
Oleum (sulphuric acid with 60% of +o3)		+	/	
Oxalic acid	Sat. sol	+	/	-
Oxygen, gas		+		
Phenol	90%	+		
Potassium bromate	Up to 10%	+	+	
Potassium chlorate	Sat. sol	+	+	
Potassium chromate	Sat. sol	+	+	
Potassium cyanide	Sol	+		
Potassium dichromate	Sat. sol	+	+	+
Potassium ferricyanide	Sat. sol	+	+	
Potassium hydroxide	Up to 50%	+	+	+
Potassium nitrate	Sat. sol	+	+	
Potassium permanganate	(2 N) 30%	+		
Propane, gas	100%	+		
Pyridine	100%	/		
Seawater		+	+	+
Sodium chlorate	Sat. sol	+	+	
Sodium hydroxide	From 10 to 60%	+	+	+
Sodium hypochlorite	From 10 to 15%	+		
Sodium sulphite	40%	+	+	+
Sulphuric acid	Up to 10%	+	+	+
Sulphuric dioxide, dry or wet	100%	+	+	
Tartaric acid	Sat. sol	+	+	
Tin (IV) chloride	Sol	+	+	
Tin (II) chloride	Sat. sol	+	+	
Toluene	100%	/	-	-
Trichloroethylene	100%	-	-	-
Urea	Sat. sol	+	+	
Vinegar		+	+	
Wines		+	+	
Xylene	100%	-	-	-