

CHEMICAL RESISTANCE

Polyethylene resin

The chart below is based on information provided by the polyethylene industry and is believed to be accurate. Several factors, such as temperature, pressure, concentration, and exposure duration, among others, influence the degree of chemical attack. Therefore, this document must only be considered a general guide for use at the customer's discretion and risk.

Definitions, symbols and abbreviations

Type of resistance

(R) RESISTANT

Excellent, little or no swelling or softening or surface deterioration (< 10% swelling, < 15% loss of tensile strength, little or no chemical attack).

(L) LIMITED

Limited chemical resistance, moderate chemical attack. Conditional service (< 20% swelling, < 50% loss of tensile strength, moderate chemical attack).

(N) NOT RECOMMENDED

Severe attack, swelling or softening. Not recommended. (> 20% swelling, > 50% loss of tensile strength, material is attacked).

Concentration

DIL. SOL

Dilute aqueous solution at a concentration equal to or less than 10%.

SOL

Aqueous solution at a concentration higher than 10%, but not saturated.

SAT. SOL

Saturated aqueous solution, prepared at 20°C.

Chemical or product	Concentration	Resistance at	
		(20°C)	(60°C)
A			
ACETIC ACID	50%	R	L
ACETIC ACID	10%	R	R
ACETIC ACID	96% (GLACIAL)	R	L
ACETIC ANHYDRIDE	100%	R	L
ACETONE	100%	L	L
ADIPIC ACID	SAT. SOL.	R	R
ALLYL ALCOHOL	100%	R	-
ALUMINIUM CHLORIDE	SAT. SOL.	R	R
ALUMINIUM FLUORIDE	SAT. SOL.	R	R
ALUMINIUM SALTS	-	R	R
ALUMINIUM SULFATE	SAT. SOL.	R	R
ALUMS	SOL.	R	R
AMMONIA, AQUEOUS	DIL. SOL.	R	R
AMMONIA, DRY GAS	100%	R	R

Chemical or product	Concentration	Resistance at	
		(20°C)	(60°C)
AMMONIA, LIQUID	100%	R	R
AMMONIUM CHLORIDE	SAT. SOL.	R	R
AMMONIUM FLUORIDE	SOL.	R	R
AMMONIUM NITRATE	SAT. SOL.	R	R
AMMONIUM SULFATE	SAT. SOL.	R	R
AMMONIUM SULFIDE	SOL.	R	R
AMYL ACETATE	100%	L	N
AMYL ALCOHOL	100%	R	L
ANILINE	100%	R	L
ANILINE CHLOROHYDRATE	-	L	N
ANILINE DYES	-	N	-
ANILINE HYDROCHLORIDE, AQ	ALL	L	N
ANTIMONY TRICHLORIDE	90%	R	R
AQUA REGIA	HCl-HNO ₃ /1	N	N
ARSENIC ACID	SAT. SOL	R	R

Chemical or product	Concentration	Resistance at	
		(20°C)	(60°C)
B			
BARIUM CARBONATE	SAT. SOL.	R	R
BARIUM CHLORIDE	SAT. SOL.	R	R
BARIUM HYDROXIDE	SAT. SOL.	R	R
BARIUM SULFATE	SAT. SOL.	R	R
BARIUM SULFIDE	SAT. SOL.	R	R
BENZALDEHYDE	100%	R	L
BENZENE	100%	L	N
BENZENE SULFONIC ACID	10%	L	N
BORAX (SODIUM TETRABORATE)	SAT. SOL.	R	R
BORIC ACID (AQUEOUS)	SAT. SOL.	R	R
BROMINE (DRY GAS)	100%	N	N
BROMINE (LIQUID)	100%	N	N
BUTANE, GAS	100%	R	R
BUTANOL	100%	R	R
BUTYRIC ACID (AQUEOUS)	100%	R	L
C			
CALCIUM CARBONATE	SAT. SOL.	R	R
CALCIUM CHLORATE	SAT. SOL.	R	R
CALCIUM CHLORIDE	SAT. SOL.	R	R
CALCIUM HYDROXIDE	SAT. SOL.	R	R
CALCIUM NITRATE	SAT. SOL.	R	R
CALCIUM SULFATE	SAT. SOL.	R	R
CALCIUM SULFIDE	DIL. SOL.	L	L
CARBON DIOXIDE (WET / DRY)	100%	R	R
CARBON DISULFIDE	100%	N	N
CARBON MONOXIDE	100%	R	R
CARBON TETRACHLORIDE	100%	L	N
CHLORIC ACID	20%	R	N
CHLORINE, GASEOUS, DRY	SAT. SOL.	N	N
CHLORINE, GASEOUS, MOIST	-	N	N
CHLORINE, LIQUID	-	N	N
CHLORINE, WATER	-	L	N
CHLOROFORM PURE	PURE	N	N
CHROMIC ACID	20%	R	L
CITRIC ACID, AQUEOUS	SAT. SOL.	R	R
COPPER CHLORIDE, AQEOUS	SAT. SOL.	R	R
COPPER NITRATE, AQUEOUS	SAT. SOL.	R	R
COPPER SULFATE, AQUEOUS	SAT. SOL.	R	R
CORN OIL	-	R	R
CREOSOTE	-	R	R
CRESYLIC ACID	SAT. SOL.	L	-

Chemical or product	Concentration	Resistance at	
		(20°C)	(60°C)
CYCLOHEXANOL	100%	L	N
CYCLOHEXANONE	100%	L	N
D			
DECAHYDRONAPHTHALENE	100%	R	L
DEXTRIN	SOL.	R	R
DIESEL FUEL	-	R	L
DIETHYL ETHER	100%	L	-
DIOXANE	100%	R	R
E			
ETHANEDIOL	100%	R	R
ETHANOL	40%	R	L
ETHYL ACETATE	100%	R	N
ETHYLENE TRICHLORIDE	100%	N	N
F			
FERRIC CHLORIDE	SAT. SOL.	R	R
FERRIC NITRATE	SOL.	R	R
FERRIC SULFATE	SAT. SOL.	R	R
FERROUS CHLORIDE	SAT. SOL.	R	R
FERROUS SULFATE	SAT. SOL.	R	R
FLUORINE, GASEOUS	100%	N	N
FLUOROSILIC ACID	40%	R	R
FORMALDEHYDE	40%	R	R
FORMIC ACID, AQUEOUS	10-50%	R	R
FORMIC ACID, AQUEOUS	85-100%	R	R
FURFURYL ALCOHOL	100%	R	L
G			
GASOLINE	-	L	N
GLACIAL ACETIC ACID	96%	R	L
GLUCOSE	SAT. SOL.	R	R
GLYCERINE	100%	R	R
GLYCO	SOL.	R	R
H			
HEPTANE	100%	R	N
HEXANE	-	R	L
HYDROBROMIC ACID	100%	R	R
HYDROGEN	100%	R	R
HYDROGEN PEROXIDE, AQUEO	30%	R	L
HYDROGEN PEROXIDE, AQUEO	90%	R	N
ISOPROPANOL	PURE	R	N
J			
JAM, JELLIES	-	R	R
JET FUELS, JJP-4 & JP-5	-	L	N

Chemical or product	Concentration	Resistance at	
		(20°C)	(60°C)
K			
KEROSENE	-	L	N
KETONES	-	L	N
L			
LACTIC ACID	100%	R	R
LEAD ACETATE	SAT. SOL.	R	R
M			
MAGNESIUM CARBONATE	SAT. SOL.	R	R
MAGNESIUM CHLORIDE	SAT. SOL.	R	R
MAGNESIUM NITRATE	SAT. SOL.	R	R
MALEIC ACID	SAT. SOL.	R	R
MERCURIC CHLORIDE	SAT. SOL.	R	R
MERCURIC CYANIDE	SAT. SOL.	R	R
MERCUROUS NITRATE	SOL.	R	R
MERCURY	100%	R	R
METHANOL	100%	R	R
METHYLENE CHLORIDE	100%	L	N
MILK	-	R	R
MINERAL OIL	-	L	N
N			
NICKEL CHLORIDE	100%	L	N
NICKEL NITRATE	SAT. SOL.	R	R
NICKEL SULFATE	SAT. SOL.	R	R
NICOTINIC ACID	DIL. SOL.	R	R
NITRIC ACID	60%	N	N
NITRIC ACID	>30-50%	L	N
NITRIC ACID	0-30%	R	R
NITRIC ACID	75%	N	N
O			
OILS AND FATS	-	R	L
OILS AND GREASE	-	R	L
OILS, VEGETABLES	-	L	N
OLEIC ACID	100%	L	N
ORTHOPHOSPHORIC ACID	85%	R	L
ORTHOPHOSPHORIC ACID	50%	R	R
OXALIC ACID, AQUEOUS	SAT. SOL.	R	L
OXYGEN, GAS	100%	R	L
OZONE, GAS	100%	L	L
P			
PETROLEUM (CRUDE OIL)	-	L	N
PHENOL	-	R	R
PHOSPHORUS TRIICHLORIDE	100%	R	L

Chemical or product	Concentration	Resistance at	
		(20°C)	(60°C)
PICRIC ACID, AQUEOUS	SAT. SOL.	R	N
POTASSIUM BICARBONATE	SAT. SOL.	R	R
POTASSIUM BISULFIDE	SOL.	R	R
POTASSIUM BROMATE	SAT. SOL.	R	R
POTASSIUM BROMIDE	SAT. SOL.	R	R
POTASSIUM CARBONATE, AQU	SAT. SOL.	R	R
POTASSIUM CHLORATE, AQUE	SAT. SOL.	R	R
POTASSIUM CHROMATE	SAT. SOL.	R	R
POTASSIUM CYANIDE, AQUEOU	SAT. SOL.	R	R
POTASSIUM DICHROMATE, AQ	SAT. SOL.	R	R
POTASSIUM FERRICYANIDE, A	SAT. SOL.	R	R
POTASSIUM FERROCYANIDE, A	SAT. SOL.	R	R
POTASSIUM FLUORIDE, AQUEO	SOL.	R	R
POTASSIUM HYDROGEN SULFI	SOL.	R	R
POTASSIUM HYDROXIDE, AQUE	SAT. SOL.	R	R
POTASSIUM HYPOCHLORITE	SOL.	R	R
POTASSIUM NITRATE	SAT. SOL.	R	R
POTASSIUM ORTHOPHOSPHAT	SAT. SOL.	R	R
POTASSIUM PERCHLORATE	SAT. SOL.	R	R
POTASSIUM PERMANGANATE	20%	R	R
POTASSIUM PERSULFATE, AQU	SAT. SOL.	R	R
POTASSIUM SULFATE	SAT. SOL.	R	R
POTASSIUM SULFIDE	SOL.	R	R
PROPIONIC ACID	100%	R	L
PROPIONIC ACID	50%	R	L
PYRIDINE	100%	R	L
Q			
QUINOL (HYDROQUINONE)	SAT. SOL.	R	R
S			
SALICYLIC ACID	SAT. SOL.	R	R
SEA WATER	-	R	R
SILVER ACETATE	SAT. SOL.	R	R
SILVER CYANIDE	SAT. SOL.	R	R
SILVER NITRATE	SAT. SOL.	R	R
SODIUM BENZOATE	SAT. SOL.	R	R
SODIUM BICARBONATE	SAT. SOL.	R	R
SODIUM BIPHOSPHATE	SAT. SOL.	R	R
SODIUM BISULFITE	SAT. SOL.	R	R
SODIUM BROMIDE	SAT. SOL.	R	R
SODIUM CARBONATE, AQUEOU	ALL	R	R
SODIUM CHLORATE	SAT. SOL.	R	R
SODIUM CHLORIDE	SAT. SOL.	R	R

Chemical or product	Concentration	Resistance at		Chemical or product	Concentration	Resistance at	
		(20°C)	(60°C)			(20°C)	(60°C)
SODIUM CYANIDE	SAT. SOL.	R	R	U			
SODIUM FERRICYANIDE	SAT. SOL.	R	R	UREA	SOL.	R	R
SODIUM FERROCYANIDE	SAT. SOL.	R	R	URINE	-	R	R
SODIUM FLUORIDE	SAT. SOL.	R	R	V			
SODIUM HYDROXIDE	SOL.	R	R	VASELINE	-	R	L
SODIUM HYPOCHLORITE	15%	R	R	VEGETABLE OILS	-	R	R
SODIUM NITRATE, AQUEOUS	SAT. SOL.	R	R	VINEGAR	-	R	R
SODIUM NITRITE	SAT. SOL.	R	R	W			
SODIUM ORTHOPHOSPHATE	SAT. SOL.	R	R	WATER	-	R	R
SODIUM SULFATE	SAT. SOL.	R	R	WINE	-	R	R
SULPHUR DIOXIDE, DRY	100%	R	R	X			
SULPHUR TRIOXIDE	100%	N	N	XYLENE	100%	L	N
SULPHURIC ACID	FUMING	N	N	Y			
SULPHURIC ACID	>90%	L	N	YEAST	SOL.	R	R
SULPHURIC ACID	50%	R	R	Z			
SULPHURIC ACID	50-90%	R	L	ZINC (II) CHLORIDE	SAT. SOL.	R	R
T				ZINC (IV) CHLORIDE	SAT. SOL.	R	R
TANNIC ACID	SOL.	R	R	ZINC CARBONATE	SAT. SOL.	R	R
TARTARIC ACID	SAT. SOL.	R	R	ZINC CHLORIDE	SAT. SOL.	R	R
THIONYL CHLORIDE	100%	L	N	ZINC OXIDE	SAT. SOL.	R	R
TOLUENE	100%	L	N	ZINC SULFATE	SAT. SOL.	R	R
TRANSFORMER OIL	-	L	N				
TRIETHYLAMINE	SOL.	R	L				

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