Chemical Resistance Chart

This Chemical Resistance chart is to be used as a guide to assist you in determining the suitability of LLDPE Rotathene® for storing the chemical indicated.

Chemical Storage is a critical application which requires the optimum processing of the part.

Many chemicals can attack, degrade and cause swelling in LLDPE. Other agents (e.g. detergents, alcohols, oils etc) may cause cracking of the LLDPE especially when the part is under stress.

The following key has been used in this table:

•	indicates **satisfactory**, negligible attack
-	indicates **some attack or absorption** (may be considered where alternative materials are unsatisfactory)
I	indicates **unsatisfactory**, extensive attack (polyethylene should not be used for any applications where these environments are present).
o	indicates **possibility of 'environmental stress cracking'**

NOTE:

Information provided by Coerco Pty Ltd with respect to chemical resistance is to be used as a guide for application and is not to be taken as a guarantee of ultimate field performance.

Satisfactory chemical resistance does not necessarily imply freedom from environmental stress cracking or chemical oxidation.

The ultimate serviceability of a chemical tank is subject to factors outside of the control of Coerco Pty Ltd. These factors include processing conditions, design, installation, operating conditions and environment which may all compromise the supplied resin.

This data is supplied in good faith and is not the result of evaluations conducted by Coerco Pty Ltd.

Chemical Resistance Chart

Chemical	Concentration (% by weight in aqueous solution)	Temperature		Environmental cracking hazard
		20°C	60°C	
Acetaldehyde	100	-	I	o
Acetic acid	10 60 Glacial	● ● -	● ● I	 ● ●
Acetone	100	I	I	o
Alcohol, amyl		●		o
Alcohol, butyl		●		o
Alcohol, cetyl		●		o
Alcohol, ethyl	40 100	● I		o
Alcohol, furfuryl		I		o
Alcohol, methyl	6 100	● -		
Alum		●	●	
Aluminium chloride		●	●	
Aluminium fluoride		●	●	
Aluminium hydroxide		●	●	
Aluminium sulphate		●	●	
Ammonia	0.88 SG Dry Gas	●	●	
Ammonium bicarbonate		●	●	
Ammonium carbonate		●	●	
Ammonium chloride		●	●	
Ammonium hydrosulphide		●	●	
Ammonium hydroxide		●	●	
Ammonium metaphosphate		●	●	
Ammonium nitrate		●	●	
Ammonium persulphate		●	●	
Ammonium phosphate		●	●	
Ammonium sulphate		●	●	
Ammonium sulphide		●	●	
Ammonium thiocyanate		●	●	
Amyl acetate		I		o
Aniline		I		
Aniline hydrochloride		I		
Aniline sulphate		I		
Animal oils		-	I	o
Antimony pentachloride		●	●	
Antimony trichloride		●	●	
"Arcton" 6		-		o
Barium carbonate		●	●	
Barium chloride		●	●	
Barium hydroxide		●	●	
Barium sulphate		●	●	

Chemical	Concentration (% by weight in aqueous solution)	Temperature		Environmental cracking hazard
		20°C	60°C	
Barium sulphide		●	●	
Beer		●	●	
Benzaldehyde	100	I		o
Benzene		I		o
Benzene sulphonic acid		I		
Benzyl alcohol		I		
Bismuth carbonate		●	●	
Borax		●	●	
Boric acid		●	●	
Boron trifluoride		●		
Brine		●	●	
Bromine	Dry Gas	I		
Calcium bisulphite		●	●	
Calcium carbonate		●	●	
Calcium chlorate		●	●	
Calcium chloride		●	●	
Calcium hydroxide		●	●	
Calcium hypochlorite		●		
Calcium nitrate		●		
Calcium phosphate		●		
Calcium sulphate		●		
Camphor oil		I		o
Carbon dioxide		●		
Carbon disulphide		I		
Carbon monoxide		●		
Carbon tetrachloride		I		
Castor oil		I		o
Chloral hydrate		I		
Chlorine	Dry Gas Liquid	- I	I	
Chlorine water	2 Sat. Solution	● ●	● -	
Chloroform		I		o
Chlorosulphonic acid		I	I	
Chrome alum		●	●	
Chromic acid	Planting solution	●	●	
Cider		●		
Citric acid		●	●	
Copper cyanide		●	●	
Copper fluoride		●	●	
Copper nitrate		●	●	
Copper sulphate		●	●	
Creosote		I		o

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Chemical Resistance Chart

Chemical	Concentration (% by weight in aqueous solution)	Temperature		Environmental cracking hazard
		20°C	60°C	
Cresols		I		o
Cresylic acid (crude)		I		
Cupric chloride		●	●	
Cupric nitrate		●	●	
Cupric sulphate		●	●	
Cyclohexanol		I		
Cyclohexanone		I		
Detergents, synthetic (normal user conditions)		●	●	o
Developers, photographic		●	●	
Dextrose		●	●	
Dibutyl phthalate		-	I	o
Diethyl ether		I	I	o
Dioctyl phthalate		-	I	o
Disodium phosphate		●		
Emulsifiers	All conc.	●	●	
Emulsions, photographic		●		
Ether		I		o
Ethyl acetate		-	I	
Ethylene dichloride		I		o
Ethylene glycol		●		
Ferric chloride		●		
Ferric sulphate		●		
Ferrous ammonium citrate		●	●	
Ferrous sulphate		●	●	
Fixing solution, photographic		●	●	
Fluorine		-	I	
Fluorsilicic acid		●		
Formaldehyde	40	●	●	
Formic acid	3 10 25 50 100	● ● ● ● ●	● ● ● ● ●	
Fruit pulp		●		
Furfuryl alcohol		I		o
Glucose		●		
Glycerine		●	●	
Grape sugar		●	●	
Hydrobromic acid	50 100	●	●	
Hydrochloric acid	10	●	●	
Hydrochloric acid	22 Conc.	● ●	● ●	

Chemical	Concentration (% by weight in aqueous solution)			Environmental cracking hazard
		20°C	60°C	
Hydrofluoric acid	4 40 50 Conc.	● ● ● ●	● ● ● -	
Hydrogen		●	●	
Hydrogen peroxide	3 (10 vol.) 12 (40 vol.) 30 (100 vol.) 90 and above	● ● ● ●		
Hydrogen sulphide		●		
Hydroquinone		●		
Hypochlorous acid		-	I	
Lactic acid	10 100	● ●	● ●	
Lead acetate		●		
Lead arsenate		●		
Lead tetra-ethyl		●		
Linseed oil		-	I	o
Magnesium carbonate		●	●	
Magnesium chloride		●	●	
Magnesium hydroxide		●	●	
Magnesium nitrate		●	●	
Magnesium sulphate		●	●	
Maleic acid	25 50 Conc.	●	●	
Magnesium sulphate		●	●	
Mercuric chloride		●	●	
Mercuric cyanide		●	●	
Mercury		●		
Metallic soaps		●		o
Methyl acetate		I	I	
Methyl bromide		-	I	
Methyl chloride		I	I	
Methyl ethyl ketone		-	I	o
Milk		●		
Mineral oils		-	I	o
Monochlorbenzene		I	I	
Nickel chloride		●	●	
Nickel nitrate		●	●	
Nickel sulphate		●	●	
Nitric acid	5 10 25	● ● ●	● ● ●	Oxidising agent

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Chemical Resistance Chart

Chemical	Concentration (% by weight in aqueous solution)	Temperature		Environmental cracking hazard
		20°C	60°C	
Nitric Acid	50 70 95	- - I	I I I	Oxidising agent
Nitrobenzene		-	I	o
Oxalic acid		●	●	
Oxygen		●		
Paraffin		-	I	
Petrol		I	I	
Petroleum ether		I	I	
Phenol		I		o
Phosphoric acid	25 30 50	● ● ●	● ● ●	
Phosphorus oxychloride		I	I	
Phosphorus pentoxide		●	●	
Phosphorus trichloride		●		
Photographic developers		●	●	
Photographic emulsions		●		
Photographic fixing solutions		●	●	
Picric acid	1 10% x./ alcohol	● ●		
Potassium bicarbonate		●	●	
Potassium bichromate		●	●	
Potassium bisulphate		●	●	
Potassium bisulphite		●	●	
Potassium borate		●	●	
Potassium bromate		●	●	
Potassium bromide		●	●	
Potassium carbonate		●	●	
Potassium chlorate		●	●	
Potassium chloride		●	●	
Potassium chromate		●	●	
Potassium cuprocyanide		●	●	
Potassium cyanide		●	●	
Potassium dichromate		●	●	
Potassium ferricyanide		●	●	
Potassium ferrocyanide		●	●	
Potassium fluoride		●	●	
Potassium hydroxide	1 10 Conc.	● ● ●	● ● ●	o
Potassium nitrate		●	●	
Potassium perborate		●	●	

Chemical	Concentration (% by weight in aqueous solution)	Temperature		Environmental cracking hazard
		20°C	60°C	
Potassium permanganate		●	●	
Potassium persulphate		●	●	
Potassium phosphate		●	●	
Potassium sulphate		●	●	
Potassium sulphide		●	●	
Potassium thiosulphate		●	●	
Salicylic acid		●	●	
Sea water		●	●	
Silicone fluids		-		o
Silver cyanide		●	●	
Silver nitrate		●	●	
Soap solution		●	●	o
Sodium acetate		●	●	
Sodium aluminate		●	●	
Sodium benzoate		●	●	
Sodium bicarbonate		●	●	
Sodium bisulphate		●	●	
Sodium bisulphite		●	●	
Sodium borate		●	●	
Sodium bromide		●	●	
Sodium carbonate		●	●	
Sodium chlorate		●	●	
Sodium chloride		●	●	
Sodium cyanide		●	●	
Sodium ferricyanide		●	●	
Sodium ferrocyanide		●	●	
Sodium fluoride		●	●	
Sodium hydroxide	1 10 40	● ● ●	● ● ●	o
Sodium hyposulphates	Conc.	●	●	
Sodium hypochlorite	15% chlorine	●	●	
Sodium metaphosphate		●	●	
Sodium nitrate		●	●	
Sodium nitrite		●	●	
Sodium peroxide		●	●	
Sodium phosphate		●	●	
Sodium silicate		●	●	
Sodium sulphate		●	●	
Sodium sulphide	25 Conc.	●	●	
Sodium sulphite		●	●	
Sodium thiosulphate		●	●	
Soft soap		●	●	o

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Chemical Resistance Chart

Chemical	Concentration (% by weight in aqueous solution)	Temperature		Environmental cracking hazard
		20°C	60°C	
Stannic chloride		●	●	
Stannous chloride		●	●	
Starch		●	●	
Stearic acid		●	●	
Sucrose		●	●	
Sulphur	Colloidal	●		
Sulphur dioxide	Dry gas Moist	● ●		
Sulphuric acid	10 20 30 40 50 60 70 95 98 Fuming	● ● ● ● ● ● ● - - I	● ● ● ● ● ● - I I I	
Surface-active agents (Emulsifiers, synthetic detergents and wetting agents)	Normal dilutions	●	●	o
Tallow		●		
Tannic acid		●	●	
Tanning extracts	10	●	●	
Tartaric acid		●	●	
Toluene		I	I	
Transformer oil		H	I	o
Trichloroethylene		I	I	o
Tricresyl phosphate		I	I	o
Triethanolamine		-	I	o
Trisodium phosphate		●	●	
Turpentine		-	I	o
Vegetable oils		-	I	o
Vinegar		●	●	
Water		●	●	
Wetting agents	Normal dilutions	●	●	o
Whey		●		
Wines and spirits		●		o
Xylene		I	I	
Yeast		●		
Zinc chloride		●	●	
Zinc oxide		●	●	
Zinc sulphate		●	●	

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