Chemical Resistance Chart

This Chemical Resistance chart is to be used as a guide to assist you in determining the suitability of LLDPE for storing the chemical indicated. This chart is based on evaluations undertaken by our raw material suppliers, and are conducted in the absence of internal pressure and external mechanical stress.
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.
Bushmans industrial tanks have their physical properties evaluated and tested at the internationally accepted standard service temperature of 23^0C. If the contents within the tank are expected to exceed this maximum temperature, advise your Bushman consultant, to determine a custom designed solution for your specific use.

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).
○ indicates **possibility of 'environmental stress cracking'**

Chemical	Concentration (% by weight in aqueous solution)	Temperature		Environ-mental cracking hazard
		20°C	60°C	
Acetaldehyde	100	-	I	○
Acetic acid	10	●	●	
	60	●	●	●
	Glacial	-	I	●
Acetone	100	I	I	○
Alcohol, amyl		●		○
Alcohol, butyl		●		○
Alcohol, cetyl		●		○
Alcohol, ethyl	40	●		
	100	I		○
Alcohol, furfuryl		I		○
Alcohol, methyl	6	●		
	100	-		
Alum		●	●	
Aluminium chloride		●	●	

Chemical	Concentration (% by weight in aqueous solution)	Temperature		Environ-mental cracking hazard
		20°C	60°C	
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		●	●	

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Chemical	Concentration (% by weight in aqueous solution)	Temperature		Environ-mental cracking hazard
		20°C	60°C	
Ammonium sulphide		●	●	
Ammonium thiocyanate		●	●	
Amyl acetate		|		○
Aniline		|		
Aniline hydrochloride		|		
Aniline sulphate		|		
Animal oils		-	|	○
Antimony pentachloride		●	●	
Antimony trichloride		●	●	
"Arcton" 6		-		○
Barium carbonate		●	●	
Barium chloride		●	●	
Barium hydroxide		●	●	
Barium sulphate		●	●	
Barium sulphide		●	●	
Beer		●	●	
Benzaldehyde	100	|		○
Benzene		|		○
Benzene sulphonic acid		|		
Benzyl alcohol		|		
Bismuth carbonate		●	●	
Borax		●	●	
Boric acid		●	●	
Boron trifluoride		●		
Brine		●	●	
Bromine	Dry gas	|		
Calcium bisulphite		●	●	
Calcium carbonate		●	●	
Calcium chlorate		●	●	
Calcium chloride		●	●	
Calcium hydroxide		●	●	
Calcium hypochlorite		●		
Calcium nitrate		●		
Calcium phosphate		●		
Calcium sulphate		●		
Camphor oil		|		○
Carbon dioxide		●		
Carbon disulphide		|		
Carbon monoxide		●		
Carbon tetrachloride		|		
Castor oil		|		○

Chemical	Concentration (% by weight in aqueous solution)	Temperature		Environ-mental cracking hazard
		20°C	60°C	
Chloral hydrate		|		
Chlorine	Dry gas	-	|	
	Liquid	|		
Chlorine water	2	●	●	
	Sat. solution	●	-	
Chloroform		|		○
Chlorosulphonic acid		|	|	
Chrome alum		●	●	
Chromic acid	Plating solution	●	●	
Cider		●		
Citric acid		●	●	
Copper chloride		●	●	
Copper cyanide		●	●	
Copper fluoride		●	●	
Copper nitrate		●	●	
Copper sulphate		●	●	
Creosote		|		○
Cresols		|		○
Cresylic acid (crude)		|		
Cupric chloride		●	●	
Cupric nitrate		●	●	
Cupric sulphate		●	●	
Cyclohexanol		|		
Cyclohexanone		|		
Detergents, synthetic (normal user conditions)		●	●	○
Developers, photographic		●	●	
Dextrose		●	●	
Dibutyl phthalate		-	|	○
Diethyl ether		|	|	○
Dioctyl phthalate		-	|	○
Disodium phosphate		●		
Emulsifiers	All conc.	●	●	
Emulsions, photographic		●		
Ether		|		○
Ethyl acetate		-	|	
Ethylene dichloride		|		○
Ethylene glycol		●		
Ferric chloride		●		
Ferric sulphate		●		

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Chemical	Concentration (% by weight in aqueous solution)	Temperature 20°C	Temperature 60°C	Environmental cracking hazard
Ferrous ammonium citrate		●	●	
Ferrous sulphate		●	●	
Fixing solution, photographic		●	●	
Fluorine		-	|	
Fluorsilicic acid		●		
Formaldehyde	40	●	●	
Formic acid	3	●	●	
	10	●	●	
	25	●	●	
	50	●	●	
	100	●	●	
Fruit pulp		●		
Furfuryl alcohol		|		○
Glucose		●		
Glycerine		●	●	
Grape sugar		●	●	
Hydrobromic acid	50	●	●	
	100	●	●	
Hydrochloric acid	10	●	●	
	22	●	●	
	Conc.	●	●	
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		-	|	
Lactic acid	10	●	●	
	100	●	●	
Lead acetate		●		
Lead arsenate		●		
Lead tetra-ethyl		●		
Linseed oil		-	|	○
Magnesium carbonate		●	●	

Chemical	Concentration (% by weight in aqueous solution)	Temperature 20°C	Temperature 60°C	Environmental cracking hazard
Magnesium chloride		●	●	
Magnesium hydroxide		●	●	
Magnesium nitrate		●	●	
Magnesium sulphate		●	●	
Maleic acid	25	●	●	
	50	●	●	
	Conc.	●	●	
Magnesium sulphate		●	●	
Mercuric chloride		●	●	
Mercuric cyanide		●	●	
Mercury		●		
Metallic soaps		●		○
Methyl acetate		|	|	
Methyl bromide		-	|	
Methyl chloride		|	|	
Methyl ethyl ketone		-	|	○
Milk		●		
Mineral oils		-	|	○
Monochlorbenzene		|	|	
Nickel chloride		●	●	
Nickel nitrate		●	●	
Nickel sulphate		●	●	
Nitric acid	5	●	●	Oxidising agent
	10	●	●	
	25	●	●	" "
	50	-	|	" "
	70	-	|	" "
	95	|	|	" "
Nitrobenzene		-	|	○
Oxalic acid		●	●	
Oxygen		●		
Paraffin		-	|	
Petrol		|	|	
Petroleum ether		|	|	
Phenol		|		○
Phosphoric acid	25	●	●	
	30	●	●	
	50	●	●	
	95	-	|	
Phosphorus oxychloride		|	|	

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Chemical	Concentration (% by weight in aqueous solution)	Temperature 20°C	Temperature 60°C	Environmental cracking hazard
Phosphorus pentoxide		●	●	
Phosphorus trichloride		●		
Photographic developers		●	●	
Photographic emulsions		●		
Photographic fixing Solutions		●	●	
Picric acid	1	●		
	10% w./ 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.	●	●	○
Potassium nitrate		●	●	
Potassium perborate		●	●	
Potassium permanganate		●	●	
Potassium persulphate		●	●	
Potassium phosphate		●	●	
Potassium sulphate		●	●	
Potassium sulphide		●	●	
Potassium thiosulphate		●	●	
Salicylic acid		●	●	
Sea water		●	●	
Silicone fluids		-		○

Chemical	Concentration (% by weight in aqueous solution)	Temperature 20°C	Temperature 60°C	Environmental cracking Hazard
Silver cyanide		●	●	
Silver nitrate		●	●	
Soap solution		●	●	○
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	●	●	
	Conc.	●	●	○
Sodium hyposulphates		●	●	
Sodium hypochlorite	15% chlorine	●	●	Oxidising agent
Sodium metaphosphate		●	●	
Sodium nitrate		●	●	
Sodium nitrite		●	●	
Sodium peroxide		●	●	
Sodium phosphate		●	●	
Sodium silicate		●	●	
Sodium sulphate		●	●	
Sodium sulphide	25	●	●	
	Conc.	●	●	
Sodium sulphite		●	●	
Sodium thiosulphate		●	●	
Soft soap		●	●	○
Stannic chloride		●	●	
Stannous chloride		●	●	
Starch		●	●	
Stearic acid		●	●	

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Chemical	Concentration (% by weight in aqueous solution)	Temperature 20°C	Temperature 60°C	Environ-mental cracking hazard
Sucrose		●	●	
Sulphur	Colloidal	●		
Sulphur dioxide	Dry gas	●		
	Moist	●		
Sulphuric acid	10	●	●	
	20	●	●	
	30	●	●	
	40	●	●	
	50	●	●	
	60	●	●	
	70	●	-	
	95	-	|	
	98	-	|	
	Fuming	|	|	
Surface-active agents (Emulsifiers, synthetic detergents and wetting agents)	Normal dilutions	●	●	○
Tallow		●		
Tannic acid		●	●	
Tanning extracts		●	●	
Tartaric acid	10	●	●	

Chemical	Concentration (% by weight in aqueous solution)	Temperature 20°C	Temperature 60°C	Environ-Mental cracking Hazard
Toluene		|	|	
Transformer oil		H	|	○
Trichloroethylene		|	|	○
Tricresyl phosphate		|	|	○
Triethanolamine		-	|	○
Trisodium phosphate		●	●	
Turpentine		-	|	○
Vegetable oils		-	|	○
Vinegar		●	●	
Water		●	●	
Wetting agents	Normal dilutions	●	●	○
Whey		●		
Wines and spirits		●		
Xylene		|	|	○
Yeast		●		
Zinc chloride		●	●	
Zinc oxide		●	●	
Zinc sulphate		●	●	

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