

LEXAN™ Polycarbonate Sheet Chemical Compatibility Overview

Introduction:

This overview shows the chemical resistancy of LEXAN™ polycarbonate sheet. Chemical compatibility of thermoplastics e.g. LEXAN™ sheet is dependent on contact time, temperature and stress (external stress to which the application is subjected). Chemical exposure can result in discoloration, softening, swelling, crazing, cracking or loss of properties of the thermoplastic. The chemicals listed have been evaluated for LEXAN™ sheet according a very stringent SABIC-test method. This test incorporates exposure to the chemical under defined conditions including temperature (20 and 80 C) and stress (0.5 and 1% strain) for a time period of seven days. The results are listed in the overview using symbols (+ or -) which are explained below.

This information should be used as indicative only. The true chemical compatibility can only be determined under conditions as in the final application. Please contact your local representative in case additional information is required.

Acid, Mineral

- Borax acid	+
- Hydrogen chloride 20%	+
- Hydrogen chloride 25%	-
- Hydrogen fluoride 25%	+
- Nitric acid 70%	-
- Perchloric acid	-
- Phosphorus pentoxide dry	+
- Phosphoric acid 1%	+
- Phosphoric acid 10%	-
- Phosphorus pentachloride	+
- Sulfuric acid 50%	+
- Sulfuric acid 70%	-
- Sulfurous acid 5%	-

Acid, Organic

- Acetic anhydride	-
- Formic acid concentrate	-
- Gallic acid	+
- Maleic acid	+
- Mercapto acetic acid	-
- Muristic acid 20%	+
- Muristic acid 25%	-
- Oleic acid	+
- Palmitic acid	+
- Phenol sulfonic acid	-
- Phenoxycetic acid	+
- Phthalic anhydride	+
- Salicylate acid	+
- Tannic acid	+
- Tannic acid 20%	-
- Thiodiacetic acid	+
- Trichlor acetic acid 10%	-
- 5% Sulfamine acid	0

Alcohol

- Allyl alcohol	-
- Amyl alcohol	-
- Butoxyethanol	-
- Chlorethanol 2	-
- Decyl alcohol	-
- Dodecyl alcohol	-
- Ethanol	-

Aldehyde

- Acetaldehyde	-
- Butyraldehyde	-
- Formaldehyde solvent 37%	+
- Formalin	+
- Propionaldehyde	-

Amide

- Dimethylformamide	-
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Amine

- Aniline	-
- Diphenylamine	-
- Methylaniline N	-
- Methylene dianiline	-
- Phenylhydrazine	-
- Pyridine	-
- Triethanolamine	+
- Hydroxylamine	+

Base

- Aluminium hydroxide powder	+
- Ammonia concentrate	-
- Ammonium hydroxide 0.13%	-
- Calcium hydroxide	-
- Potassium hydroxide 10%	-
- Sodium hydroxide dry	+
- Sodium hydroxide 10%	-
- Sodium thotalamate	+

Ester

- Benzyl benzoate	-
- Butyl cellosolve acetate	-
- Butyl stearate	-
- Cello acetobutyrate	-
- Cellulose acetate	-
- Cellulose propionate	-
- Dibutyl phthalate	-
- Didecyl carbonate	-
- Diisodecyl phthalate	-

- Tributoxyethyl phosphate	-
- Tributyl cello phosphate	-
- 2 Dodecyl phenyl carbonate	+

Ether

- Ether	-
- Ethyl cellosolve 5%	-
- Methyl cellosolve	-
- Polyalkylene glycol	-
- Polyethylene glycol	+
- Polyethylene sulfide	-
- Propylene oxide	-

Gaseous

- Ammonia concentrate	-
- Bromine	-
- Chloracetophenon	-
- Chlorine	-
- Iodine	-
- Isobutane	-
- Methane	-
- Oxygen	+
- Ozone 2%	-
- Propylene	+
- Sulfur dioxide	-
- Sulphur hexafluoride	-

Halogenated HC

- Acethylene dibromo	-
- Acethylene tetrabromide	-
- Bromochloromethane	-
- Carbon tetrachloride	-
- Chlorethanol 2	-
- Chlorobenzene	-
- Chlorobutane	-
- Chloroform	-
- Dibromomethane	-
- Dichloroethane	-
- Dichlorohydroxybenzene	+
- Dichloromethane	-
- Ethyl bromoacetate	+

- Ethyl glycol 100%	-	- Diisononyl phthalate	+	Ketone	
- Ethyl glycol 60%	+	- Dioctyl phthalate	-	- Methyl ethyl ketone	-
- Furfuryl alcohol	-	- Dioctyl sebacate	-	Metal & Metal Oxide	
- Glycerine	+	- Ditridecyl carbonate	-	- Aluminium oxide	+
- Heptyl alcohol	-	- Ditridecyl phthalate	-	- Arsenic trioxide	-
- Isobutanol	0	- Ethyl bromoacetate	+	- Calcium oxide paste	-
- Nonyl alcohol	-	- Ethyl butyrate	-	- Cuprous oxide	+
- Octyl alcohol	+	- Ethyl cellusolve 5%	-	- Mercury metallic	-
- Oxydiethanol 2.2	+	- Ethyl chloracetate	-	Phenol	
- Phenethyl alcohol	-	- Ethyl cyanoacetate	-	- Allyl 4methoxyphenol	-
- Polyalkylene glycol	-	- Ethyl lactate	-	- Cresol	-
- Polyethylene glycol	+	- Ethyl salicylate	-	- P-Phenylphenol	-
- Propylene glycol	-	- Isopropyl myristate	-	- Pentachlorophenol	-
- Sorbitol	+	- Methyl acetate	+	- Sodium ferriyocyanide	-
- Thiodiglycol 5%	-	- Methyl salicylate	-	- Sodium carbonate solvent	-
- Triethylene glycol	+	- Methylbenzoate	-	- Sodium chlorate	+
- Tripropylene glycol	-	- Triacetine	-	- Sodium nitrate 10%	-
- Phenoxacetic	-	- Magnesium sulfate	-	- Sodium perborate	+
- Phenol sulfonic acid	-	- Magnesium chloride	+	- Sodium phosphate	+
- Phenol 5%	-	- Magnesium nitrate	+	- Sodium silicate	+
- Aluminium ammonium sulfate	-	- Natriumetherlaurylsulfate	0	- Sodium sulfide	-
- Aluminium chloride	-	- Nickel nitrate	+	- Sodiumsulfite	+
- Aluminium fluoride	+	- Potassium bicarbonate dry	+	- Strontium bromide	+
- Aluminium potassium sulfate	-	- Potassium bisulfate	+	- Tin (II) chloride	+
- Aluminium sodium sulfate	+	- Potassium bromate	+	- Tin (IV) chloride	+
- Ammonium bicarbonate	+	- Potassium bromide	+	- Titanium tetrachloride	+
- Ammonium bromide	+	- Potassium carbonate	+	- Trisodium phosphate 5%	-
- Ammonium carbonate	-	- Potassium chlorate	+	- Zinc bromide	+
- Ammonium dichromate	+	- Potassium chloride	+	- Zinc carbonate	+
- Ammonium persulfate	+	- Potassium chloride saturated	-	- Zinc chloride	-
- Arsenic trioxide	-	- Potassium chloride 15%	+	- Zinc oxide	-
- Barium carbonate	+	- Potassium chromium sulfate	-	- Zinc sulfate	+
- Barium chloride	+	- Potassium cyanide powder	+	Salt, Organic	
- Barium sulfate	+	- Potassium dichromate	+	- Aluminium acetate	+
- Calcium carbonate paste	-	- Potassium iodide	+	- Ammonium acetate	-
- Calcium chloride	+	- Potassium nitrate	+	- Ammonium oxalate	+
- Calcium sulfate	+	- Potassium permanganate	-	- Aniline sulfate	+
- Cesium bromide	+	- Potassium persulfate	+	- Potassium acetate 30%	-
- Copper (II) chloride 5%	+	- Potassium sulfate	+	- Quinine sulfate	-
- Iron (II) chloride	-	- Silver chloride saturated	-	- Sodium acetate 30%	-
- Iron (III) ammonium sulfate	+	- Silver nitrate	+	- Valine bromide dl	+
- Iron (III) chloride saturated	+	- Sodium bicarbonate	0		
- Iron (III) nitrate	-	- Sodium bicarbonate 13%	-		
- Iron (III) sulfate	+	- Sodium bisulfate	+		
- Lithium bromide	+	- Sodium bromate	+		
- Lithium hydride powder	+	- Sodium bromide	+		
- Magnesium bromide	+	- Sodium carbonate	+		

- **Poor**; Not recommended-will result in failure or severe degradation.

0 **Fair**; Found marginal-only for short exposures at lower temperatures or when loss of properties is not critical.

+ **Good**; Found unaffected in its performance when exposed with regards to time, temperature and stress according the SABIC-test method.

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