Lexan* Polycarbonate Sheet Chemical Compatibility Overview

Introduction:

This overview shows the chemical resistancy of Lexan polycarbonate sheet. Chemical compatibility of thermoplastics e.g. Lexan 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 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 0 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 -
- Phenoxyacetic acid +
- Phthalic anhydride +
- Salycilate 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 -

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 +

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

- **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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