Lexan® Polycarbonate 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 GE-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 -
- Ethyl glycol 100% -
- Ethyl glycol 60% +
- Furfuryl alcohol -
- Glycerine +
- Hepthyl alcohol -
- Isobutanol 0
- Nonyl alcohol -
- Octyl alcohol +
- Oxydiethanol 2.2 +
- Phenethyl alcohol -
- Polyalkylene glycol -
- Polyethylene glycol +
- Propylene glycol -
- Sorbitol +
- Thiodiglycol 5% -
- Triethylene glycol +
- Tripropylene glycol -

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 -
- Diisononyl phthalate +
- Dioctyl phthalate -
- Dioctyl sebacate -
- Ditridecyl carbonate -
- Ditridecyl phthalate -
- Ethyl bromoacetate +
- Ethyl butyrate -
- Ethyl cellusolve 5% -
- Ethyl chloracetate -
- Ethyl cyanoacetate -
- Ethyl lactate -
- Ethyl salicylate -
- Isopropyl myristrate -
- Methyl acetate +
- Methyl salicylate -
- Methylbenzoate -
- Triacetine -
- 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

- Methyl ethyl ketone -

Metal & Metal Oxide

- Aluminium oxide +
- Arsenic trioxide -
- Calcium oxide paste -
- Cuprous oxide +
- Mercury metallic -

Phenol

- Allyl 4methoxyphenol -
- Cresol -
- P-Phenylphenol -
- Pentachlorophenol -

- Phenol sulfonic acid -
- Phenol 5% -
- Magnesium chloride +
- Magnesium nitrate +
- Sodium carbonate solvent -
- 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	+	**Salt, Organic**	
- Cesium bromide	+	- Potassium sulfate	+		
- Copper (II) chloride 5%	+	- Silver chloride saturated	-	- Aluminium acetate	+
- Iron (II) chloride	-	- Silver nitrate	+	- Ammonium acetate	-
- Iron (III) ammonium sulfate	+	- Sodium bicarbonate saturated	0	- Ammonium oxalate	+
- Iron (III) chloride saturated	+	- Sodium bicarbonate 13%	-	- Aniline sulfate	+
- Iron (III) nitrate	-	- Sodium bisulfate	+	- Potassium acetate 30%	-
- Iron (III) sulfate	+	- Sodium bromate	+	- Quinine sulfate	-
- Lithium bromide	+	- Sodium bromide	+	- Sodium acetate 30%	-
- Lithium hydride powder	+	- Sodium carbonate	+	- Valine bromide dl	+
- Magnesium bromide	+				

- **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 GE-test method.**

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