

CHEMICAL RESISTANCE

Perspex® has very good resistance to attack by water, alkalis, aqueous inorganic salt solutions and most common dilute acids. It is difficult to generalise about the effects of organic materials on Perspex, some liquids have no effect at all, some cause swelling, crazing or weakening and some dissolve it completely.

The below table gives an indication of the chemical resistance of Perspex® cast clear as judged by the visual appearance of samples of dimensions approximately 100 x 12 x 6 mm immersed in typical solutions or liquids at 20°C.

The following symbols have been used in the table:-

S = Satisfactory (no apparent effect apart from possible staining)

A = Some attack evident (swelling or slight crazing)

U = Unsatisfactory (the sample has dissolved, swollen, decomposed, etc.).

CHEMICAL	CONCENTRATION	RESISTANCE	EXPOSURE TIME	NOTES
Acetic acid	10%	S	5 years	
	100%	U	1 day	Badly swollen
	Glacial	U	3 days	Dissolved
Acetone	100%	U	1 day	Dissolved
Alcohols, n-butyl		U	1 year	Crazing and disintegration
	Ethyl	10%	A	Slight attack
		50%	A	Slight attack
	100%	U	1 year	Slight swelling and softening
Isopropyl	10%	A	1 year	Crazing
	50%	A	1 year	Crazing
	100%	A	1 year	Attacked
Methyl	10%	A	1 year	Slight attack
	50%	A	168 days	Swollen
	100%	U	168 days	Swollen: weight increase
Ammonia	0.880 sol.	S	1 year	
Amyl acetate		U	28 days	Dissolved
Aniline		U	7 days	Dissolved
Aviation fuel	100-octane	A	168 days	Slight crazing
Benzaldehyde		U	7 days	Dissolved
Benzene		U	10 days	Dissolved
Calcium chloride	Saturated sol.	S	3 days	Slight attack
Carbon tetrachloride		U	84 days	Dissolving
Chloroform		U	1 day	Dissolved
Chlorine	2% in water	A	5 years	Surface crazing and attack
Chromic acid	10%	S	5 years	Stained
	Saturated sol.	U	1 year	Dissolving
Citric acid	Saturated sol.	S	5 years	
Dibutyl phthalate		A	2 years	Surface crazed
Dioctyl phthalate		A	2 years	Slight attack
Dibutyl sebacate		A	2 years	Slight attack
Diethyl ether		U	168 days	Swollen & Soft
Ethylene glycol		S	5 years	
Ethylene dichloride		U	1 day	Dissolved
Ethyl acetate		U	3 days	Dissolved
Epichlorhydrin		U	1 day	Dissolved

Chemical Resistance

CHEMICAL	CONCENTRATION	RESISTANCE	EXPOSURE TIME	NOTES
Formaldehyde	40%	S	5 years	
Formic acid	10%	S	5 years	
	90%	U	7 days	
Glycerol (glycerine)		S	5 years	
Hexane		S	168 days	Slight crazing
Hydrochloric acid	10% Conc.	S	168 days	Slight crazing
		S	168 days	Slight crazing
Hydrocyanic acid		U	1 day	Dissolved
Hydrofluoric acid	Conc.	U	1 day	Swollen & Soft
Hydrogen peroxide	10 vol.	S	1 year	
	90%	U		
Mercury		S	2 years	
Methylene chloride (dichloromethane)		U	1 day	Dissolved
Methyl salicylate		U	7 days	Dissolved
Nitric acid	10% Conc.	S	1 year	
		U	1 day	Swollen
Oils - transformer		S	5 years	Staining
- diesel		S	1 year	Hazing
- olive		S	5 years	Slight crazing
-paraffin (medicinal)		S	5 years	
- silicones		A	1 year	Swollen
Oxalic acid	Saturated sol.	S	5 years	Severe crazing
Perchloroethylene		U	5 years	Severe crazing
Phenol	Saturated sol.	U	7 days	Dissolved
Phosphoric acid	10% Conc.	S	5 years	
		U	7 days	Severe crazing
Potassium dichromate	10%	S	5 years	Slight staining
Potassium hydrozide	Saturated sol.	S	168 days	
Potassium permanganate	N/10 sol.	S	5 years	Severe staining
Sodium carbonate	Saturated sol.	S	5 years	
Sodium chlorate	Saturated sol.	S	5 years	
Sodium hydroxide	Saturated sol.	S	5 years	
Sodium hypochlorite	10% chlorine sol.	S	5 years	
Sulphoric acid	10%	S	5 years	
	30%	S	1 year	Slight edge attack
	Conc.	U	1 day	Swollen
Tartaric acid	Saturated sol.	S	5 years	
Toluene		U	7 days	Dissolved
Trichloroethane		U	1 day	Dissolved
Trichlorethylene		U	1 day	Dissolved
Tricresyl phosphate		U	2 years	Attacked/crazed
Water		S	5 years	
White Spirit		S	5 years	Slight crazing
Xylene		U	7 days	Dissolved

NOTE:

Chemical resistance tests are difficult to interpret accurately because plastics materials generally may be attacked in several ways. The table must therefore be used with discretion and should be supplemented by component tests under actual service conditions.

TALK TO US

Tel: +44 (0)1254 874 000

info@lucitesolutions.com

www.lucitesolutions.com

Lucite International UK Ltd

PO Box 34, Darwen

Lancs BB3 1QB

England

Fax: +44 (0)1254 873 300

MJL/October 2005

This table has been extracted from PX 232 – Workshop Handbook

No part of this document, either text or graphics, may be reproduced in any form without written permission from Lucite International.

Values quoted for properties of Perspex® from Lucite® are results of tests on representative samples and do not constitute a specification.

*Users of Perspex® are recommended to consult the appropriate Lucite International **MSDS** which is obtainable from your supplier. Users of other materials mentioned in this publication but not produced by Lucite International are advised to obtain Health and Safety information from the suppliers.*

Information contained in this publication or as otherwise supplied to users is believed to be accurate and is given in good faith, but it is for the users to satisfy themselves of the suitability of the product for their own particular purpose. Lucite International gives no warranty as to the fitness of the product for any particular purpose and any implied warranty or condition (statutory or otherwise) is excluded except to the extent that exclusion is prevented by law. Lucite International accepts no liability for loss or damage (other than that arising from death or personal injury caused by defective product, if proved), resulting from reliance on this information. Freedom under Patent, Copyright and registered Designs cannot be assumed.

Perspex®, Lucite® and Tenso® are Trade Marks of Lucite International.

Our general selling conditions apply.

© Lucite International UK LTD 2005.