

8. ATTACHMENTS

ATTACHMENT 2 : TABLES OF SURFACES CHEMICAL RESISTANCE

STARLIGHT-PLUS-CLASS AND LIGHTBEN- PLUS PANELS

Acetic Acid, 40% aq	1
Acetic Acid, glacial	3
Acetic Anhydride	4
Acetone	4
Aluminium Sulphate, solid	1
Ammonia, 10% aq	4
Ammonia, 0,88 SG aq	4
Ammonium Chloride, solid	1
Ammonium Persulphate, solid	1
Ammonium Sulphate, solid	2
Amyl Acetate	3
Amyl Alcohol	4
Amyl Methyl Ketone, solid	1
Barium Chloride, solid	1
Benzene, solid	4
Benzoic Acid	1
Benzyl Acetate	4
Benzyl Alcohol	4
Benzyl Benzoate	3
Butyl Acetate	4
Butyl Alcohol	1
Butyl Lactate	2
Butyl Stearate	1
Calcium Hypochloride, solid	2
Camphor, solid	1
Camphorated Oil	2
Carbon Tetrachloride	2
Castor Oil	1
Cetyl alcohol, solid	1
Chloral Hydrate, solid	4
Chlorobenzene	4
Chloroform	4
Chromic Acid, Plating Soln	4
Citric Acid	1
Citronellol	2
Cupric Sulphate, solid	1
Cyclohexane	1
Cyclohexanone	4
Cyclohexanol	2
Diacetone Alcohol	1
Di-alkyl Phthalate	1

LEGEND

1 = insensible - optimum chemical resistance.
 2 = satisfying, small distortions possible.
 3 = sufficient, decrease in the translucency possible.
 4 = insufficient, chemical attack with loss of initial characteristics.

Di-butyl Phthalate	1
Di-non Phthalate	2
Di-octyl Phthalate	1
Dimethyl Formamide	4
Dioxane	4
Dipentene	2
Di-1-phenyl Ethanol	3
Ethyl Acetate	4
Ethyl Alcohol	1
Ethyl Benzene	3
Ethyl Digol	1
Ethylene Chlorohydrin	4
Ethylene Dibromate	4
Ethylene Dichlorate	4
Eugenol	4
2-Ethoxy Ethanol	2
Ferric Nitrate, solid	1
Formaldehyde, 40% W/W aq	1
Formic Acid, 3 % aq	2
Formic Acid, 30 % aq	2
Furfuryl Alcohol	4
Geraniol	2
Glycerine	1
Glycol	1
Hydrobromic Acid, 50% aq	1
Hydrochloric Acid, 10% aq	2

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Hydrofluoric Acid, 50% aq	3	Salicylic Acid, solid	1
Hydrofluoric Acid, 50% conc	4	Sodium Bicarbonate, solid	1
Hydrogen Peroxide	1	Sodium Borate, solid	1
Hydroquinone, solid	1	Sodium Bromide, solid	1
Isopropyl Alcohol	1	Sodium Carbonate, anhydrous	1
Lanoline	1	Sodium Carbonate, 2,5% aq	1
Linalol	2	Sodium Chloride, 1% aq	1
Linseed Oil	2	Sodium Chloride, 10% aq	2
Lubricating grease	1	Sodium Cyanide, solid	1
Magnesium Chloride, aq sol.	2	Sodium Hydroxide, 1% aq	4
Maleic Acid, 25% aq	2	Sodium Hydroxide, 10% aq	4
Maleic Acid, 50% aq	2	Sodium Nitrate, solid	2
Mercuric Chloride, solid	2	Sodium Phosphate, solid	1
Mercury	1	Sodium Sulphite, solid	2
Methyl Alcohol	1	Sodium Thiosulphate, solid	1
Methyl Cyclohexanol	1	Stearic Acid, solid	2
Methyl Ethyl Ketone	4	Sulphur, solid	1
Methyl Methacrylate	3	Sulphuric Acid, 3% aq	2
Methyl Salicylate	4	Sulphuric Acid, 30% aq	2
Methylene Chloride	4	Tartaric Acid, solid	2
Mineral Oil	1	Tetrahydrofuran	4
2-Methoxy Ethanol	3	Tetralin	1
Naptha, crude	1	Toluene	2
Naptha, solvent	2	Transformer Oil	2
Nitric Acid, 10% aq	2	Trichloroethyl Phosphate	1
Oil	1	Trichloroacetic Acid	4
Olive Oil	2	Trichloroethylene	4
Oxalic Acid, solid	1	Trietholamine	4
Oxalic Acid, solution	2	Vinegar	2
n-Octane	1	Xylene	2
Paraffin (medicinal)	1	Zinc Chloride	2
Paraffin Oil	1		
Petrol	2		
Petroleum Ether	1		
Phenol	4		
Pinen	2		
Potassium Bromide, solid	1		
Potassium Chromate, solid	1		
Potassium Cyanide, solid	1		
Potassium Dichromate, solid	1		
Potassium Hydroxide, 1% aq	4		
Potassium Hydroxide, 10% aq	4		
Potassium Permanganate, sol.	3		
Propionic Acid	4		
Propyl Alcohol	1		
Propylene Glycol	1		

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STARLIGHT, STARLIGHT-EXTRA, LIGHTBEN PANELS

PRODUCT	%	REACTION	PRODUCT	%	REACTION
ACIDS					
Acetic Acid	10	LA	Lactic Acid	20	NA
Acetic Acid	100	SA	Nitric Acid	10	
Butyric Acid	Concentr.	SA	Nitric Acid	Concentr.	
Chromic Acid	10		Oxalic Acid	Saturated	NA
Chromic Acid	Saturated	SA	Paracetic Acid		SA
Citric Acid	Saturated	NA	Phosphoric Acid	10	NA
Formic Acid	10	NA	Phosphoric Acid	95	SA
Formic Acid <small>concent</small>	90	SA	Sulfuric Acid	10	NA
Hydrochloric Acid	10	NA	Sulfuric Acid	30	LA
Hydrofluoric Acid	Concentr.		Sulfuric Acid	90	SA
Hydrofluoric Acid		SA	Tartaric Acid	Saturated	NA
ALCOHOLS					
Amyl Alcohols	Pure	SA	Methyl Alcohol	10	NA
Benzyl Alcohol	Pure	SA	Methyl Alcohol	50	LA
Butyl Alcohol	Pure	SA	Methyl Alcohol	Pure	SA
Ethyl Alcohol	30	SA	Propyl Alcohol	10	LA
Ethyl Alcohol <small>Anhydrous</small>	Pure	SA	Propyl Alcohol	50	SA
Ethyl Alcohol <small>Brcontact</small>	10	NA			
BASES					
Caustic Potash	10	LA	Caustic Soda	50	SA
Caustic Potash	50	SA	Sodium Carbonate	Saturated	NA
Caustic Soda	10	LA			
GASES					
Acetylene		NA	Ozone		NA
Butane		NA	Propane		NA
Carbonic Gases		NA	Sulphur Dioxide		NA
Hydrogen		NA	Sulphuric Anhydri ^{de}		SA
Oxygen		NA			
OILS AND GREASY PRODUCTS					
Butyl Stearate			Mineral Oils		NA
Coconut Oil		LA	Parafin		NA
Lanoline		NA	Sodium Oleate		LA
Locked Oil		SA			
FOOD PRODUCTS					
Fruits Juices		NA	Vinegar		NA
Milk		NA	Wine		NA
Olive Oil		NA			

NA - No Attack
LA - Limited Attack
SA - Severe Attack

8. ATTACHMENTS

PRODUCT	%	REACTION	PRODUCT	%	REACTION
PHENOLS					
Cresol		SA	Phenol		SA
Metacresol		SA			
DISINFECTANTS AND CLEANING AGENTS					
Ammonia Sol ^{ution}	Density 0,88	NA	Hydro ^{gen} Peroxide	40 volumes	NA
Ammo ^{nium} Sol ^{ution}	Concentr.	SA	Hydro ^{gen} Peroxide	90 volumes	SA
Bleach	10° Chlorine	NA	Mercurochrome		NA
Bleach	48° Chlorine	SA	Tincture of Iodine		SA
Formaldehyde	40	NA			
MINERAL SALTS IN SOLUTION					
Alun (Sat ^{urated} Sol ^{ution})		NA	Mercuric	10	SA
Ammo ^{nium} Chloride	Saturated	NA	Pot ^{assium} Bichromate	10	NA
Ammo ^{nium} Nitrate		NA	Pot ^{assium} Chloride	Saturated	NA
Cal ^{cium} Chloride	Saturated	NA	Pot ^{assium} Iodide		NA
Cal ^{cium} Hypochloride		NA	Pot ^{assium} Per ^{manganate}	10	NA
Chlorine Water	2	LA	Sea Water		NA
Copper Sulphate		SA	Sod ^{ium} Bichromate	10	NA
Ferric Chloride	10	NA	Sod ^{ium} Bisulphate	10	NA
Iron Perchloride		SA	Sod ^{ium} Chloride		NA
Iron Sulphate		NA	Sod ^{ium} Metaphos ^{phate}		NA
SOLVENTS AND MISCELLANEOUS					
Acetal Dehyde	100	SA	Ethylene Glycol		NA
Acetic Anhydride		LA	Ethylene Sulphate		SA
Acetone		SA	Freon		SA
Aniline		SA	Gasoil		LA
Benzene		SA	Glycerine		NA
Benzaldehyde		SA	Mercury		NA
Butyl Acetate		SA	Methyl ^{ene} Chloride		SA
Butyl Phthalate		LA	Methylethylketone		SA
Carbon Disulphide		SA	Naphtalene		LA
Chloroform		SA	Nonyl Phthalate		LA
Cyclohexane		SA	Petrol Standard		LA
Dichloroethane		SA	Petrol Super 100 Oct.		SA
Diethyl Chloride		SA	Pyraline		SA
Diethylene Glycol		NA	Turpentine		NA
Diocyl Phthalate		LA	Toluene		SA
Dioxane		NA	Trichlorethane		SA
Ethylamine		SA	Trichlorethylene		SA
Ethyl Acetate		SA	Tricresyl Phosphate		SA
Ethyl Chloride		SA	Xylene		SA
Ethyl Ether		SA	White Spirit (< 3% Aromatics)		NA

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8. ATTACHMENTS

REAGENT	TIME TO SEE EXPOSURE EFFECTS
Methylene Chloride	1 min. (D, W)
Toluene	1 min. (D, W)
Solvesso 100	4 hrs. (W)
Kerosene	1 week (D, W)
Acetone	1 min. (D, W)
Oxalic Acide, solution	1 week
Hydrochloric Acid, concentrated	1 week (S, W)
Nitric Acid, concentrated	1 week (Y)
Sodium Hydroxide, saturated solution	48 hrs. (W)
Ammonium Hydroxide, concentrated	1 week

Note: Appearance of plastic after exposure: **S** = Slight, **W** = Whitening, **C** = Crazing, **Y** = Yellowing, **D** = Dissolution

chemical compatibility summary

Chemical class	Effects
Acids (Mineral)	No effect under most conditions of concentration and temperature.
Alcohols	Generally compatible.
Alkalis	Acceptable at low concentration and temperature. Higher concentrations and temperatures result in etching and attack as evidenced by decomposition.
Aliphatic Hydrocarbons	Generally compatible.
Amines	Surface crystallisation and chemical attack.
Aromatic Hydrocarbons	Solvents and severe stress-cracking agents.
Detergents and Cleaners	Mild soap solutions are compatible. Strongly alkaline ammonia materials should be avoided.
Esters	Cause severe crystallisation. Partial solvents.
Fruit Juices and Soft Drinks	Compatible at low stress levels. Some concentrates not recommended.
Gasoline	Not compatible at elevated temperatures and stress levels.
Greases and Oils	Pure petroleum types generally compatible. Many additives used with them are not, thus materials containing additives should be tested.
Halogenated Hydrocarbons	Solvents and severe stress-cracking agents.
Ketones	Cause severe crystallisation and stress-cracking. Solvents.
Silicone Oils and Greases	Generally compatible up to 80°C.

Chemical Resistance Tests

Chemicals	Uncoated PC
Toluene	W/S
Acetone	S
Methylethylketone	S
Dichloromethane	W/S
Sulphuric acid (95-97%)	ok
Hydrochloric acid (32%)	ok
Ammonia (25%)	ok
Thinner (Sikkens 1-2-3)	W/S
Super Gasoline (Esso)	W/S
Diesel Fuel (Esso)	ok
Fuel C	ok
Hairspray	ok

W = surface whitening

S = surface dissolution