



1. CHEMICAL RESISTANCE IN GENERAL USE

PLASTICS
 ® plexiglas gs
 ® plexiglas xt

INERT GAS TECHNOLOGY

	Resistant	Limited resistance	Not resistant		Resistant	Limited resistance	Not resistant		Resistant	Limited resistance	Not resistant
Paints, etc.				Cyclohexane	x			Potassium hydroxide	x		
Acrylic paints and lacquers		x		Diacetone alcohol		x		Potassium nitrate	x		
Non-aromatic hydro carbons	x			Diamyl phthalate		x		Potassium permanganate	x		
Nitrocellulose			x	Dibutyl phthalate			x	Silicon tetrachloride			x
Oil paints, pure	x			Diethylene glycol	x			Silver nitrate		x	
Thinners, general			x	Dioxan			x	Soap solution	x		
				Ether			x	Sode	x		
Antistatics				Ethyl acetate			x	Sodium bisulphite	x		
® PLEXIKLAR	x			Ethyl alcohol, concentrated			x	Sodium carbonate	x		
				Ethyl alcohol, up to 30%			x	Sodium chlorate	x		
Technical baths				Ethyl bromide			x	Sodium chloride	x		
Electroplating baths	x			Ethyl butyrate			x	Sodium hydroxide	x		
Photochemical baths	x			Ethylene bromide			x	Sodium hypochlorite	x		
				Ferric chloride	x			Sodium sulphate	x		
Building materials and protectives				Ferrous chloride	x			Sodium sulphide	x		
Bitumen emulsion			x	Ferrous sulphate	x			Stannous chloride	x		
Cement	x			Formic acid, up to 2%	x			Stearic acid	x		
Gypsum	x			Formic acid, up to 40%		x		Sulphur	x		
Hot bitumen		x		Glycerol	x			Sulphur dioxide, liquid			x
Mortar	x			Glycol	x			Sulphuric acid, up to 30%	x		
Red lead	x			Heptane	x			Sulphurous acid, conc.		x	
				Hexane	x			Sulphurous acid, up to 5%	x		
Chemicals, solvents, etc.				Hydrochloric acid	x			Sulphuryl chloride	x		
a.) General				Hydrogen peroxide, over 40%		x		Tartaric acid, up to 50%	x		
Acetic acid, glacial			x	Hydrogen peroxide, up to 40%	x			Thionyl chloride			x
Acetic acid, up to 25%		x		Iodine	x			Toluene			x
Acetone		x		Isopropyl alcohol, up to 50%		x		Triethylamine	x		
Alum	x			Lactic acid, up to 80%		x		Trichloroacetic acid			x
Aluminium chloride	x			Magnesium chloride	x			Tricresyl phosphate	x		
Aluminium oxalate	x			Magnesium sulphate	x			Turpentine		x	
Aluminium sulphate	x			Manganese sulphate	x			Turpentine substitute		x	
Ammonia, aqueous solution	x			Mercury	x			Urea, up to 20%	x		
Ammonium sulphate	x			Methanol, concentrated			x	Xylene			x
Amyl acetate			x	Methanol, up to 30%			x	Zinc sulphate, aqueous	x		
Aniline			x	Methyl ethyl ketone			x	Zinc sulphate, solid	x		
Arsenic	x			Methylated spirits			x				
Arsenic acid	x			Milk of lime	x			b.) Branded products			
Battery acid	x			Monobromonaphtalene	x			® CLOPHEN T55, A60		x	
Benzaldehyde			x	Motor fuel mixture, without benzene	x			® DEKALIN			x
Benzene			x	Motor fuel mixture, with benzene			x	® FRIGEN A12 (CF ² Cl ²)		x	
Bromine			x	Nickel sulphate	x			® GLYBAL A			x
Butanol		x		Nitric acid, up to 20%	x			® PALATINOL K	x		
Butyl lactate			x	Nitric acid, 20-70%			x	® PALATINOL O, BB neu		x	
Butyric acid, up to 5%	x			Nitric acid, over 70%			x	® SANGAJOL	x		
Calcium chloride	x			Oxalic acid	x			® TERAPIN	x		
Calzium hypochlorite	x			Paraffin			x	® TETRALIN			x
Carbon disulphide			x	Perchloroethylene			x	Disinfectants			
Carbon tetrachloride			x	Petroleum ether	x			a.) General			
Chlorinated hydrocarbons			x	Phenols			x	Carbolic acid			x
Chlorine, liquid			x	Phosphoric acid, up to 10%	x			Chlor. lime paste	x		
Chlorine water	x			Phosphorus trichloride			x	Hydrogen peroxide, up to 40%	x		
Chloroethyl acetate			x	Phosphorus, yellow			x	Hydrogen peroxide, over 40%		x	
Chlorophenol			x	Picric acid, 1% in water	x			Iodine tincture 5%			x
Chromatic acid		x		Potassium bichromate	x			Lugol solution		x	
Citric acid, up to 20%	x			Potassium carbonate	x			Methylated spirits	x		
Copper sulfate	x			Potassium chloride	x			Sublimate			x
Cresol			x	Potassium cyanide	x						

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Copper sulfate	x			Potassium chloride	x			Sublimate			x
Cresol			x	Potassium cyanide	x						

(Test temperature 23°C, cf. note hereafter)

® = registered trademark

The stated behavior was established for the grades PLEXIGLAS GS 200,201,215,218,222,233,240 and 245 as well as PLEXIGLAS XT 20070 and 20080. The extruded materials are attacked more easily by solvents. For greater chemical resistance, grades PLEXIGLAS GS 209 and PLEXIDUR T are recommended.

Tested for this purpose were parts with minimum internal stress at an experimental temperature of 23°C. Their practical behavior depends mainly on the temperature in use. In doubtful cases we advise you to consult our technical service.

2. PHYSICAL PROPERTIES

		PLEXIGLAS GS233,222,209	Units	Testing method
Mechanical properties				
Density ρ		1,18	g/cm ³	DIN 53479
Impact strength a_n	a.) Standard rod b.) Standard small rod c.) Dynstat specimen,3mm	20 12 5	cmkp/m ²	DIN 53453
Notched bar impact strength a_k (standard rod & standard small rod)		2	cmkp/m ²	DIN 53453
Tensile strength σ_B	a.) -40°C b.) 23°C c.) 70°C	1100 800 400	kp/cm ²	DIN 53455
Elongation ε	a.) at fracture b.) after fracture	5,5 <0,1	%	DIN53455
Bending strength σ_{bB}	a.) Standard rod b.) Standard small rod c.) Dynstat specimen,3mm	1350 1450 1350	kp/cm ²	DIN 53452
Compressive strength σ_{dF}		1400	kp/cm ²	DIN 53454
Long-time rupture strength σ_{Bt} in tension test over 6000h	a.) Unnotched rod b.) Notched rod (pointed notch	350 120	kp/cm ²	DIN 53444
Reversed bending strength σ_b approx. 10 ⁶ reversed	a.) Unnotched rod b.) Notched rod	400 200	kp/cm ²	-
Modulus of elasticity E in tension test		33 000	kp/cm ²	DIN 53457
Modulus of torsion G	at approx. 10 c/s	17 000	kp/cm ²	DIN 53445
Ball thrust hardness H_D	10 sec 60 sec	2000 1900 -	kp/cm ²	DIN 53456
Sclerometric hardness H_R Martens method		2,5	p	-
Abrasion strength (ϕ -Value),	with 1600g abrasive agent	89	%	Similar to ASTM D 67344
Coefficient of Friction μ	a.) Plastic / Plastic b.) Plastic / Steel c.) Steel / Plastic	0,8 0,5 0,45	-	-

	PLEXIGLAS GS233,222,209	Units	Testing method
Optical properties			
Light transmission values for material 3mm thick	a.) visible range (380-780nm) b.) UV range (280-380nm)	≈ 92 <50	% -
Reflection losses in visible range (for each interface)	4	%	-
Absorption, in the visible range, for 3mm thickness	<0,05	%	-
Refractive index n_D^{20}	1,492	-	DIN 53491
Thermal properties			
Coefficient of linear expansion for 0...50°C	$70 \cdot 10^{-6}$	1/K	VDE 0304
Thermal conductivity λ	0,16	W/mK	VDE 0304/1
Heat transfer Index k	for 1mm thickness for 3mm thickness for 5mm thickness for 10mm thickness	5,0 4,7 4,5 3,9	kcal/m ² °C DIN 4701
Specific heat c	0,35	cal/g °C	-
Forming temperature	≈ 150	°C	-
Thermal relaxation	•	°C	-
Glow resistance	1...2	stage	DIN 573 02
Vicat softening temperature (measured in air)	120	°C	Din 53460
Dimensional stability under heat (Martens method)	105	°C	DIN 53458
Heat distortion temp.	a.) Bending stress 18,5kp/cm ² b.) Bending stress 4,6kp/cm ²	105 110	°C DIN 53461
Electrical Properties			
Specific volume resistivity ρ_D	>10 ¹⁵	Ohm · cm	DIN 53482
Surface resistivity R_0	>10 ¹⁵	Ohm	DIN 53482
Dielectric strength E_d (specimen 1mm thick)	≈ 30	kV/mm	DIN 53481
Dielectric constant ϵ	at 50 c/s at 0,1 mc/s	3,6 2,7	- DIN 53483
Dissipation factor $\tan \delta$	at 50 c/s at 0,1mc/s	0,06 0,02	- DIN 53483
Leakage current resistance	A3c	stage	DIN 53480
Influence of water			
Water absorption (compared to dry state) after 4 days, specimen 50/50/4mm	45	mg	DIN 53472

- The temperature of thermal relaxation differs somewhat for three types of plexiglas for plexiglas 233 it is > 75°C, for plexiglas 222>80°C and for plexiglas 209>90°C