Technical Properties Polycarbonate

Typical property values
(at 20° C and 50% relative humidity)

MECHANICAL PROPERTIES	NORM[1]	UNIT	POLYCARBONATE
Specific weight	DIN 53479	gr/cm³	1,19
Impact strength (Charpy)	DIN 53453	kJ/m²	65
Notched impact strength a_{iN} (Izod))	DIN 53453	kJ/m²	4,5
Tensile strenght δ_M a) –40° C b) 20° C c) 70° C	D638	Mpa	 - 50 -
Elongation at break	DIN 53455	%	-
Nominal elongation at break	DIN 53455	%	15
Flexural strength (st. test specimen 80x10x4 mm³)	D790	Mpa	85
Compressive yield stress	-	MPa	-
Max safety stress $^{\delta}$max (up to 40° C)	-	Mpa	5 ... 10
modulus of elasticity ^{E}t (short-term value)	D790	MPa	2200
Indentation hardness $H_{961/30}$	DIN 53456	MPa	130
Abrasion resistantce in Taber abrader test (100 rev.; 5,4 N; CS-10F)	-	% Haze	30 ... 40
Coefficient of friction µ a) plastic/plastic b) b) plastic/steel c) c) stell/plaric	-	-	 - - -
Poisson's ratio µ (dilatation spees of 5%/min; up to 2% dilatation; at 20°C)	-	-	-
Resistance to puck impact from thickness (FMPA Stuttgart – Gerrmany)	similar to DIN 18032	-	-
Sound velocity	-	m/s	-
Weight sounded reduction index R_w at thickness 4 mm. 6 mm. 10 mm.	-	dB	 - - -

[1] The norms indicated in this table are taken from: a) DIN: German Society for Standardisation; b) D (or ASTM): American Society for Testing Materials

OPTICAL PROPERTIES			
Transmittance τ_{D65}	DIN 5036	%	~ 88
UV transmission	-	-	no
Reflection loss the visible range (each surface)	-	%	4
Adsorption in the visible range	-	%	-
Refractive index n_D^{20}	-	-	-
ELECTRICAL PROPERTIES			
Volume resistivity ρ_D	DIN VDE 0303	ohm . cm	$>10^{14}$
Dielectric strength E_d (1 mm specimen thickness)	DIN VDE 0303	kV/mm	-
Dielectric constant at 50 MHz at 0,1 MHz	DIN 53483	-	-
Dielectric loss factor at 50 MHz at 0,1 MHz	DIN 53483	-	-
THERMAL PROPERTIES			
Coefficient of linear thermal expansion	DIN 53752	mm/m °C	0,8
Possible expansion to heat and moisture	-	mm/m	6
Thermal conductivity at 20°C	DIN 52612	W/(mK)	-
U-value for thickness: 1 mm. 3 mm. 5 mm. 10 mm.	DIN 4701	W/m^2K	 - - - -
Specific Heat c	-	J/gK	-
Forming temperature	-	°C	140 ...150
Max. surface temperature (IR radiator)	-	°C	-
Max. service temperature (without mech. stress)	-	°C	115
Ignition temperature	DIN 51794	°C	-
Fire rating (material thickness > 2 mm.)	DIN 4102	-	B2, normally flammable
Heat deflection temperature under load (HDT) a) deflection 1,8 MPa b) deflection 0,45 MPa	-	°C	-
BEHAVIOR TOWARDS WATER			
Water absorption (24 h. 20° C) from dry state; specimen 60 x 60 x 2 mm^3	DIN 53495	mg	45
Max weight gain during immersion	DIN 53495	%	2,1

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