Technical data sheet for Solid Polycarbonate sheets from 2mm – 12mm

Indicator	Indicator values					
Sheet thickness, mm	2	4	6	8	10	12
Deviation from sheet rectangularity, mm	<5	<5	<5	<5	<5	<5
Flatness, мм	<20	<20	<10	<5	<5	<5
Change of linear dimensions after heat exposure , %	<5	<5	<5	<5	<5	<5
UV layer thickness (double-sided application), μm, not less than	50	50	50	70	70	70
Light transmission,%, not less than: transparent: colored:	89 30-35	88 27-35	87 27-30	86 25-28	85 25-28	84 25-28
Charpy impact viscosity for type 2 V-notch specimens according to ISO 179-1:2010, кJ/m², not less than	90	90	90	91	91	91
Charpy impact resistance for type 2 V-notch specimens according to ISO 179-1:2010	Not a single sample from the series of 5 pieces is broken					
Minimum bending radius , mm	300	600	900	1200	1500	1800
Relative elongation at break from stretching, %, not less than	65					
Water resistance,%, not lower than 4/98 class	3/98	3/98	3/98	3/98	3/98	3/98
Residual stresses , nm*cm^{-1}	According to technical documentation					
Ultimate tensile strength, N/m²	57x10^6	61x10^6	65x10^6	68x10^6	72x10^6	76x10^6
Vicat softening temperature,°C	145	145	145	145	145	145
Ultimate compressive strength, N/m²	80x10^6	81x10^6	82x10^6	83x10^6	84x10^6	85x10^6
Ultimate flexural strength, N/m²	90 - 110 x 10 ^{6}					
Bending modulus, N/m²	2,4 -100 x 10 ^{9}					
Frost resistance. Visible changes to the samples are not allowed.	-40 +120	-40 +120	-40 +120	-40 +120	-40 +120	-40 +120
Thermal conductivity, W/(m K)	0,17 – 0,22					
Coefficient of linear thermal expansion, 1/°C	60 x 10 $^{-6}$					
Sound insulation, dBA	18 -35					
Weather resistance. Visible changes to the samples (cracks, color changes) are not allowed.	-40 +120	-40 +120	-40 +120	-40 +120	-40 +120	-40 +120

Resistance of solid polycarbonate sheets to interaction with chemicals

Chemical supstance	+ resistant	- non-resistant
Concentrated hydrochloric acid		-
Hydrochloric acid, 20%	+	
Tetrachloroethane		-
Toluene		-
Acetic acid	+	
Formalin	+	
Hydrogen fluoride 25%	+	
Hydrogen chloride 20%	+	
Chlorobenzene		-
Carbon tetrachloride		-
Alkaline solutions		-
Ethylene chloride		-
Ethanol	+	

Chemical supstance	+ resistant	- non-resistant
Ammonia (weak solution)		-
Acetone		-
Petrol		-
Benzene		-
Boric acid	+	
Hexane	+	
Glycerin	+	
Isopropyl alcohol	+	
Methylene chloride		-
Methyl alcohol		-
Oil	+	
Hydrogen peroxide, 30%	+	
Potassium permanganate, 10%	+	
Sulfuric acid, 50%	+	

Comparative properties of plastic sheets

Properties	PMMA	PVC	PET-G	PS		HIPS	PC
Weight, kg/m²	4.77	5.5	5.08	4.2		4.2	4.8
Minimum bending radius R, m *	1.32	1.0	0.6	-		-	0.6
Heat transfer coefficient, W/m² x°C	5.45	-	5.3	-		-	5.3
Vicat softening temperature, °C	90-105	70-75	82	98		94-97	145
Coefficient of linear thermal expansion K-1•10-5	7	7-9	6,8	8		8-10	6.5
Sound insulation, dB	26	-	-	-		-	27
Gardner impact resistance (J)	0.5	-	-	-		<15	>400
Charpy impact viscosity for no notch specimens, кJ/m²	10-12	Does not break	Does not break	5-6		60	Does not break
Charpy impact viscosity for no notched specimens , кJ/m²	2	2	10	2		8-10	> 35-40
Light transmission, %	92	87-88	88-90	90		90	91

* *The values given are for 4 mm thick boards*

* *PMMA - polymethyl methacrylate; PVC - polyvinyl chloride; PET-G - polyethylene terephthalate glycol; PS - polystyrene; HIPS – high impact polystyrene; PC - polycarbonate.*