



GEVACRIL®

Technical Properties

2011

GEVACRIL SRL

Strada Vic. Paolina 1
20066 Melzo
Italy

T +39.02.95737351

F +39.02.95737357

E info@gevacril.com

GEVACRIL ACRYLICS

Rischerstr. 10
69123 Heidelberg
Germany

T +49.6221.752652

F +49.6221.752653

E info@gevacril.com

Technical Properties

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

Mechanical Properties	NORM ¹	Unit	Cast	Extruded	Polycarbonate
Specific weight	DIN 53479	gr/cm ³	1,19	1,19	1,20
Impact strength (Charpy)	DIN 53453	kJ/m ²	15	15	65
Notched impact strength a _{iN} (Izod)	DIN 53453	kJ/m ²	1,6	1,6	4,5
Tensile strength σ_M	D638	Mpa			
-40° C			110	100	-
20° C			80	70	50
70° C			40	35	-
Elongation at break	DIN 53455	%	5,5	4,5	-
Flexural strength (st. test specimen 80 x 10 x 4 mm ³)	D790	Mpa	115	105	100
Compressive yield stress	-	MPa	110	103	-
Max. safety stress σ_{max} (up to 40° C)	-	Mpa	5 ... 10	5 ... 10	5 ... 10
Modulus of elasticity E _t (short-term value)	D790	MPa	3300	3300	2300
Indentation hardness H _{961/30}	DIN 53456	MPa	175	175	110
Abrasion resistance in Taber abrader test (100 rev.; 5,4 N; CS-10F)	-	% Haze	20 ... 30	20 ... 30	30 ... 40
Coefficient of friction μ	-	-			
a) plastic/plastic			0,8	0,8	-
b) plastic/steel			0,5	0,5	-
c) steel/plastic			0,45	0,45	-
Poisson's ratio μ (dilatation speed of 5%/min; up to 2% dilatation; at 20°C)	-	-	0,37	0,37	-
Resistance to puck impact from thickness (FMPA Stuttgart – Germany)	similar to DIN 18032	-	12 mm	8 mm	-
Sound velocity	-	m/s	2700 ... 2800	2700 ... 2800	-
Weighted sound reduction index R _w at thickness	-	dB			
4 mm			26	26	-
6 mm			30	30	-
10 mm			32	32	-

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	NORM²	Unit	Cast	Extruded	Polycarbonate
Transmittance τ_{D65}	DIN 5036	%	~ 92	~ 92	~ 88
UV transmission	-	-	no	yes	yes
Reflection loss the visible range (each surface)	-	%	4	4	4
Adsorption in the visible range	-	%	<0,05	<0,05	-
Refractive index n_D^{20}	-	-	1,491	1,491	-

ELECTRICAL PROPERTIES	NORM³	Unit	Cast	Extruded	Polycarbonate
Volume resistivity ρ_D	DIN VDE 0303	ohm . cm	$>10^{15}$	$>10^{15}$	$>10^{13}$
Dielectric strength E_d (1 mm specimen thickness)	DIN VDE 0303	kV/mm	~ 30	~ 30	-
Dielectric constant at 50 Hz	DIN 53483	-	3.6	3.7	-
at 0,1 MHz			2.7	2.8	
Dielectric loss factor at 50 Hz	DIN 53483	-	0.06	0.06	-
at 0,1 MHz			0.02	0.03	

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THERMAL PROPERTIES	NORM⁴	Unit	Cast	Extruded	Polycarbonate
Coefficient of linear thermal expansion	DIN 53752	mm/m °C	0,07	0,07	0,065
Possible expansion to heat and moisture	-	mm/m	5	5	6
Thermal conductivity at 20°C	DIN 52612	W/(mK)	0,19	0,19	-
U-value for thickness:	DIN 4701	W/m ² K			
1 mm			5,8	5,8	-
3 mm			5,6	5,6	-
5 mm			5,3	5,3	-
10 mm			4,4	4,4	-
Specific Heat c	-	J/g K	1,47	1,47	-
Forming temperature	-	°C	160... 175	150... 160	160... 180
Max. surface temperature (IR radiator)	-	°C	200	180	-
Max. service temperature (without mech. stress)	-	°C	80	70	120
Ignition temperature	DIN 51794	°C	425	430	-
Fire rating (material thickness > 2 mm)	DIN 4102	-	B2, normally flammable	B2, normally flammable	B2, normally flammable
Heat deflection temperature under load (HDT)	-	°C			-
deflection 1,8 MPa			105	90	
deflection 0,45 MPa			113	95	

Behavior Towards Water	NORM⁵	Unit	Cast	Extruded	Polycarbonate
Water absorption (24 h., 20° C) from dry state; specimen 60 x 60 x 2 mm ³	DIN 53495	mg	41	38	45
Max. weight gain during immersion	DIN 53495	%	2,1	2,1	2,1

Our technical advices for the use of our materials are typical values supplied in accordance with our tests and with the regular commercially acceptable standards. They are given without any obligation. The buyer is responsible for the application and processing of our products and is also liable for observing any third party rights.

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