GAMMACRIL®

(Properties valid either for the cast acrylic rods GAMMACRIL® or of the extruded acrylic tubes ESACRIL®)

Chemical properties:

In general terms it can be said that our products are resistant at room temperature to most anorganic chemicals, aliphatic hydrocarbons, cycloaliphatic compounds, fats and oils, and at temperatures up to 60 °C they are also resistant to diluted acids as well as diluted and concentrated solutions of most alkalis.
Our products may be damaged from the action of chlorinated aliphatic hydrocarbons, ketones, alcohols, ethers, esters and aromatics.
However their resistance to the weather conditions is excellent: as proven in a great number of successful outdoor applications, they resist very well to atmospheric agents, such as long term exposure to the sunlight or U.V. rays, wind and rain or sea water.

Acoustical properties:

The sound-wawes deadening is higher then the glass one, but, unlike this one, it is practically uniform to all the frequencies.

Physical properties of the cast acrylic round rods "GAMMACRIL®"

Mechanical properties		Unit	Standard
density	1,18	g/cm³	DIN 53479
impact strength (standard small test specimen)	12	kJ/m²	DIN 53453
notched impact strength (standard small test specimen)	2	kJ/m²	DIN 53453
tensile strength (1/1 test specimen 3; V= 5 mm./min)	80	N/mm²	DIN 53455
elongation at break (1/1 test specimen 3; V= 5 mm./min)	5,5	%	DIN 53455
flexure strength (test specimen 80x10x4 mm.)	115	N/mm.²	DIN 53452
compressive yeald stress	110	N/mm²	DIN 53454
modulus of elasticity	3300	N/mm²	DIN 53457
dynamic shear modulus at c. 10 Hz	1700	N/mm.²	DIN 53445
indentation hardness brinell $H_{961/30}$	200	N/mm²	DIN 53456
Optical properties			
transmittance of 3mm. thick material in the visible range	≈ 92	%	DIN 5036
refractive index n_D^{20}	1,491		DIN 53491
Thermal properties			
coefficient of linear thermal expansion (0...50 °C)	$70\text{-}10^{-6}$	1/°C	VDE 0304/1
thermal conductivity	0,19	W/m °C	DIN 52612
U-Value at thickness of 3 mm. at thickness of 5 mm. at thickness of 10 mm.	5,6 5,3 4,4	W/m² °C	DIN 4701
forming temperature (oven temperature)	≈ 160	°C	
demoulding temperature	> 80	°C	
Maximum continuos service temperature	78	°C	
Vicat softening temperature method B	115	°C	DIN 53460
heat distortion temperature ISO 75, deflection 1,80 N/mm²	105	°C	DIN 53461
dimensional stability under heat acc. to Martens method	95	°C	DIN 53458
Electrical properties			
volume resistivity	$> 10^{15}$	OHM-cm	DIN 53482
surface resistance	$5\text{-}10^{13}$	OHM	DIN 53482
dielectric strength (test specimen thick 1 mm)	≈ 30	kV/mm	DIN 53481
dielectric constant at 50 Hz at 0,1 MHz	3,6 2,7		DIN 53483
dissipation factor at 50 Hz at 0,1 MHz	0,06 0,02		DIN 53483
tracking resistance	KC>600		DIN 53480
Behaviour towards water			
water absorption in weight gain after 24 hrs immersion	0,3	%	DIN 53495