

SUPPLY SERVICES

performance engineering products

Technical Data Sheet GEHR PMMA[®] (tubes)

PLASTICS ENGINEERED BY



I. Physical Properties¹⁾

	Test method	Unit	Value
1. Specific gravity (ρ)	ISO 1183	g/cm ³	1,19
2. Water absorption ⁹⁾	ISO 62	%	2,1
3. Humidity absorption ⁹⁾			0,4
4a. Maximum permissible service temp. ⁹⁾	UL746B	°C	70
4b. Lower permissible service temp. ⁹⁾			-

II. Mechanical Properties

	Test method	Unit	Value
1. Tensile strength at yield (σ_S)	ISO 527	MPa	72
2. Elongation at yield (ϵ_S)		%	-
3. Tensile strength at break (σ_R)		MPa	-
4. Elongation at break (ϵ_R)		%	8
5. Impact strength (a_n)	ISO 179	kJ/m ²	20
6. Notch impact strength (a_k) ⁹⁾			-
7. Ball indentation (H_k)/Rockwell hardness ⁹⁾	ISO 2039	MPa	-
8. Shore-D	ISO 868		90
9. Flexural strength ($\sigma_{B\ 3,5\ %}$) ⁹⁾	ISO 178	MPa	-
10. Modulus of elasticity (E_t)	ISO 527		3215

III. Thermal Properties⁹⁾

		Test method	Unit	Value
1. Vicat-softening point	VST/B/50	ISO 306	°C	103
	VST/A/50			-
2. Heat deflection temperature	HDT/B	ISO 75		100
	HDT/A			95
3. Coef. of linear thermal expansion (α)		ISO 11359	K ⁻¹ ·10 ⁻⁴	0,8
4. Thermal conductivity at 20 °C (λ)		ISO 22007-4	W/(m·K)	0,19
5. Glass transition temperature (T_g)		ISO 3146	°C	106
6. Melting temperature (T_m)				106

IV. Electrical Properties

	Test method	Unit	Value
1. Volume resistivity (ρ_D) ⁸⁾	IEC 60093	$\Omega \cdot \text{cm}$	$\geq 10^{13}$
2. Surface resistivity (R_o) ⁸⁾		Ω	$\geq 10^{13}$
3. Dielectric constant at 1MHz (ϵ_r) ⁹⁾	IEC 60250	-	2,8
4. Dielectric loss factor at 1 MHz ($\tan\delta$) ⁹⁾		-	0,03
5. Dielectric strength ⁹⁾	IEC 60243-1	kV/mm	30
6. Tracking resistance ⁹⁾	IEC 60112	V	CTI 600

V. Additional Data

	Test method	Unit	Value
1. Bondability	-	-	+
2. Physiological indifference ⁹⁾ according	EEC	-	-
	FDA	-	+
3. Flammability ^{8/9)}	UL 94	-	HB
4. Limiting Oxygen Index (LOI) ^{8/9)}	ASTM D2863	%	17
4. UV stabilisation ^{6/7/9)}	-	-	+

1) The physical data contained in this table are typical values and reflect the current state of our knowledge. The data are arithmetic average values which are tested by test specimens made out of rods (ø 40-60 mm). These have to be understood as guidelines, and shall not be used for specification purposes for finished parts. Missing data are completed by data of the raw materials.

5) Physiological indifferences are valid for nature coloured materials on the raw material side. Sometimes there are also approvals for our semi-finished products available or in preparation. Please check this separately with us.

6) valid for nature coloured materials. An additional UV protection can be taken over by special pigments e.g. carbon black.

7) Test results without UL registration 8) Data are only valid for natural colours 9) Data taken from raw material *Self-assessment without test certificate * Own classification without official test report

n.b. = no break + = yes o = limited - = no/no data available