

Technical Data Sheet

Polymethyl Methacrylate (PMMA) [Acrylic]

Chemical Name(s): Polyvinyl Chloride
Common Abbreviation(s): PMMA, Acrylic
Available Profiles: Sheet, Rod, Tube, Pipe

PMMA, commonly known as acrylic, is a transparent thermoplastic with excellent optical clarity, rigidity, and weather resistance. PMMA is widely used in applications requiring transparency, strength, and UV resistance, such as display panels, signage, and protective barriers. It offers superior light transmission compared to glass and is often used as a glass substitute.

Benefits:

- Exceptional optical clarity
- Excellent weather and UV resistance
- High surface hardness and scratch resistance
- Lightweight compared to glass
- Good impact strength, with higher toughness than glass
- Easy to fabricate and thermoform

Common Applications:

- Display panels and signage
- Protective barriers and shields
- Light fixtures and lenses
- Windows and skylights
- Aquariums and terrariums
- Medical and dental equipment

TYPICAL PROPERTIES of PMMA

	Property	Test Method	Value
Physical Properties	Density (g/cm ³)	ATSM D792	1.19
	Water Absorption (%)	ASTM D570	0.2
Mechanical Properties	Tensile Strength at 23°C (MPa)	ASTM D638	70
	Tensile Modulus (MPa)	ASTM D638	3300
	Tensile Elongation at Break (%)	ASTM D638	2-5
	Flexural Strength (MPa)	ASTM D790	110
	Flexural Modulus (MPa)	ASTM D790	3200
	Compressive Strength (MPa)	ASTM D695	90
	Hardness (Rockwell M)	ASTM D785	M90
	Impact Strength (kJ/m ²)	ASTM D256	10
Thermal Properties	Coefficient of Linear Thermal Expansion (mm/mm/°C)	ASTM D696	7.0 x 10 ⁻⁵
	Heat Deflection Temperature at 0.45 MPa (°C)	ASTM D648	100
	Approx. Melting Temperature (°C)	ASTM D3418	160
	Max Operating Temperature (°C)	-	85
Electrical Properties	Dielectric Strength (kV/mm)	ASTM D149	15
	Dielectric Constant at 1 MHz	ASTM D150	2.6
	Dissipation Factor at 1 kHz	ASTM D150	0.006
	Surface Resistivity (ohm/sq)	ASTM D257	>10 ¹⁴
	Arc Resistance (sec)	ASTM D495	120-150
Flammability	Flammability Rating	UL94	HB
Standards Compliance	FDA compliant for food contact ASTM D638, D790, D695, D257 compliant ISO 7823 compliant for PMMA materials		
Environmental Considerations	Recyclability: PMMA is recyclable and can be reused in various applications. Environmental Impact: PMMA is considered environmentally safe and inert under normal usage. It resists UV degradation and is often used in long-life applications.		

