



Acrylic Polymethyl Methacrylate (PMMA)

Description	
An amorphous plastic with excellent clarity, often used as a glass replacement. Acrylic components are rigid, dimensionally stable and easy to decorate. Used extensively in the sheet market.	
Applications	
Lenses, indoor and outdoor light fitting covers, car rear light clusters, dials.	
Types of grade available	
High impact modified grades General Purpose Injection Moulding	
Optical Properties	
Transmission	93%
General Processing	
Drying Time	2 to 4 hours
Drying Temperature	80C to 100C
Type of Drier	Hot Air
Purging	Raise barrel temperatures so as to remove any trace of the previous material from the cylinder walls and back flow valve.
Moisture Absorption	0.3%
Other Considerations	Avoid contamination with other polymers, even smallest trace will affect clarity.
Processing Injection Moulding	
Barrel Settings	170C to 275C
Injection speed	High for thin walled parts, slow for thick sections
Injection Pressure	Medium to High
Back Pressure	Low
Screw Speed	Low
Tool Temperature	40C to 80C
Melt Temperature	130c
Processing Stability	Residence time should not exceed 10 minutes
Gate Considerations	Edge, fan and tab produce parts with best appearance
Sprue & Runner Considerations	Size and length of sprue important to avoid premature freezing off. Full round runners preferred.
Processing Extrusion	
Barrel Settings	200C to 250C

Screw Speed	Increase for improved finish and correct sizing
Screen Packs	Fine screen
Haul-off / Cooling	Water bath chilled 10c
Calibration	Suitable for use with a vacuum calibrator or sizing plates.
Mechanical Properties	
Shrinkages	0.4% to 0.8%
Flexural Strength	81 -138 MPa
Tensile strength at Yield	55 MPa – 85 MPa
Physical Properties	
Density	1.18
Cold Bend	N/A
Cold Flex	N/A
Elongation at Yield	4-5%
Tensile Modulus	2.2 – 3.8 MPa
General Impact Strength	Good - Standard grades High – Impact Modified
Material Finish	Excellent clarity with 93% light transmittance
Thermal Properties	
Vicat Softening Temperature	100C
Heat Deflection Temperature	80-103c
Flammability	
Flammability Rating	HB
Weatherability	
Suitability for outdoor use	PMMA displays very good weathering properties
Fillers & Additives	
	Impact modifiers
Chemical Resistance	
Resistant to	Dilute acids and alkalis, hydrochloric acid, fats, oils
Not resistant to	Nitric and sulphuric acids, esters, ketones
Food Contact Status	
Colouring	
	As the natural colour of the material is clear, then a wide colour range is possible, this includes both transparent and opaque colours. Colour on the machine by dry colouring, masterbatch and liquid colouring. Universal type masterbatches are suitable for many colouring requirements.
Bonding	
	Superglue (Cyanoacrylate) or Liquid Trichloromethane

WEEE & ROHS Compliance	Grades available
Bonding	Material may be joined to itself using solvents such as chloroform or by using solutions of PMMA in methylene chloride.
Welding	Commonly welded using techniques such as ultrasonic welding, hot plate friction.

This information has been provided as a general guide and we suggest that you carry out your own specific tests to be sure that this material is suitable for your application.