



HIGHEST RATED FILAMENT ON AMAZON
60-DAY MONEY BACK GUARANTEE

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Description:

PMMA, or polymethyl methacrylate is a hard, scratch and shatter resistant, lightweight thermoplastic. Commonly known as acrylic, it's well known for clarity and shatter resistance. Not as strong as Polycarbonate, but significantly better impact resistance than glass, PMMA filament is ideal when you require something easy to print yet with excellent translucency and scratch resistance.

Applications:

Headlight lenses, aquariums, submersible viewports, light-pipes, lenses (glasses), and ice-rink protective glass are common uses for PMMA.

Recommended Print Settings:

Printing Temps 1.75mm	245-250°C
Printing Temps 2.85mm	250-255°C
Heated Bed Temp	100°C
Cooling Fans	Off
Ideal Build Volume	Doors and covers closed/in place. Heated to 90°C
Extrusion Multiplier	x1.0 (100%)
Retraction (direct drive)	Try 1.2mm as a starting point at 20-30mm/s.
Retraction (bowden feed)	Varies per printer, as above, but try 3mm as a starting point.
Print Speed Advisory	None
Print Surface Advisory	PEI can struggle to retain PMMA unaided, especially if the build volume is not enclosed. If this is the case, use a bed adhesive treatment such as 'ABS Slurry', PVA adhesive, or Glue-sticks, 3DLAC, etc., to improve bed adhesion. Remove all traces of grease from bed surface with a suitable solvent.

Print Layer Advisory	Printing thinner layers will reduce warping stresses.
Other	To improve object clarity, print slowly (<30mm/s). Produces sharp edges and shards when removing PMMA printed supports – take the appropriate precautions to avoid injury – wear PPE.

General Advice:

Start at the low end of the temperature range and increase if the flow is not liquid enough. Too low a printing temperature can cause small beads of partially-molten plastic to form. These can accumulate on the nozzle and object and may cause a mechanical failure of the print if the nozzle collides with a hardened bead stuck to the printed object.

Material Properties:

Physical Properties ⁽¹⁾	Value
Density	1.18g/cm ³
Glass Transition Temperature	90-110°C
Melting Temperature	220°C
Heat Deflection Temperature ⁽¹⁾	95°C
Heat Deflection Temperature ⁽²⁾	90°C
Vicat Softening Temperature	103°C
Tensile Strength	72.0 MPa / 10400 psi

(1) NOT to be construed as specifications

(2) @0.5MPa

(3) @1.8MPa

Strengths:

High Impact Strength and Clarity.

Hydrophobic (low water absorption).

A suitable 3D-printable replacement for 'lost-wax casting'.

Good UV resistance.

Good abrasion resistance.

Low smoke emission.

Weaknesses:

Poor temperature resilience – For instance, will deform if left in a hot car (over 50°C).

Produces sharp edges and shards when removing PMMA printed supports – take the appropriate precautions to avoid injury – wear PPE.

Low continuous use temperature <55°C.

Poor fatigue resistance.

Notch sensitive (cuts and cracks weaken object).

Poor solvent resistance (also hydrolysed esters).

Other Info:

In the unlikely event of the filament getting damp, it can be dried at 40-50°C for 8-12 hours in a circulating air dryer

Print Surface Materials:

Bed surfaces such as PEI, BuildTak, may require additional surface treatment (glue-sticks, ABS 'slurry', 3DLAC, etc.) to ensure the best possible bed adhesion.

Bed surfaces must be also be thoroughly cleaned with the appropriate cleaning fluid/solvent (for the bed surface material) in between each print.

A heated bed is essential to reduce warping.

General Safety:

As with all filaments, only print in an area with good ventilation, away from pets, and avoid breathing in any fumes or particles that will be released during the printing process.

Always wear eye protection around 3D printers and their materials, especially while in use.

It is always good practice to wear facemasks as a precautionary measure when 3D printing.

Keep away from food, and wash hands after use.

Do not touch the molten plastic - It will cause severe burns if it comes into contact with bare skin.

If bodily contact does occur, irrigate the affected area with copious amounts of cold water.

Do not attempt to remove the hardened plastic.

Seek medical attention.

Please note that the information given in this Technical Data Sheet, including, but not limited to, data, statements and typical values, are given in good faith. They are provided as an aid for material selection purposes only. The values and information presented on this sheet are typical values and should not be interpreted as being absolute or precise specifications. Colour pigments may induce variance in printing settings between filament colours.