

Poly methyl methacrylate (PMMA) is a transparent thermoplastic.

PMMA is an alternative to polycarbonate (PC) when extreme strength and high thermal resistance is not necessary. It is often preferred because of its moderate properties, easy handling and processing. PMMA has better scratch resistance properties than other conventional transparent plastic sheets like polycarbonate and pet-g.

There are also modified PMMA resins which have higher scratch resistance, improved impact resistance, and better thermal resistance.

PMMA transmits up to 92% of visible light (3 mm thickness), and gives a reflection of about 4% from each of its surfaces on account of its refractive index (1.4905 at 589.3 nm). Haze value is less than 1 % which offers excellent clarity. PMMA swells and dissolves in many organic solvents so it could be glued easily by using organic solvent based adhesives. Being transparent and durable, PMMA is a versatile material and has been used in a wide range of fields and applications such as PMMA in the form of sheets affords shatter resistant panels for building windows, skylights, bullet proof security barriers, signs & displays, sanitary ware (bathtubs), LCD screens, furniture, POP, lightings, roofing and many other applications. PMMA is the most preferred and well known plastic sheet in the market.



Properties of Acrylic (PMMA) Sheets

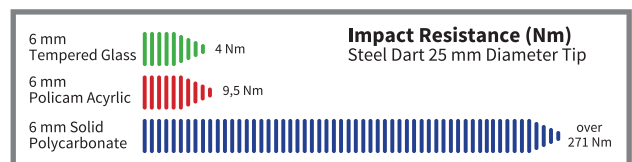
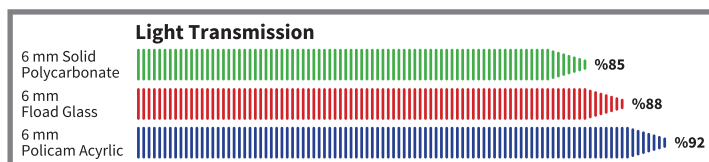
- Excellent thermoforming capabilities
- B2 / Class 4 / UL 94 HB fire rated
- 92% light transmission
- Outstanding weatherability
- High impact resistance
- Easily fabricated
- Resistant to inorganic acids
- Suitable for food contact
- Max continuous operating temperature 70 °C
- Max intermittent operating temperature 90 °C

Possible Applications of POLICAM Acrylic (PMMA) Sheets:

POLICAM manufactures high gloss acrylic sheets for sign and display industry. They are suitable to thermoform for vacuuming, blowing, forming and bending. Their uniform thickness make them the most suitable acrylic sheets for printing applications and laser cutting. POLICAM acrylic sheets have a very good UV resistance and weathering thus making them perfect material to use for outdoor applications. Acrylic is half of the density of glass and yet 17 times stronger. Moreover it can easily be cold bended onsite. Mostly used in construction as light domes, partition walls, glazing, roofing.

POLICAM specifically develops acrylic sheets for lighting fixtures and solutions. These opal sheets with different light transmission values, are enhanced with high efficient

diffuser particles to provide the best performance to smooth and homogenize the hot spots and uneven light distribution. Policam SoundBlock is the trademark for specifically developed acrylic sheets for noise barriers. Generally demanded in thicknesses 12 and 15mm, these sheets are CE certified and supplied to highway and railway projects. ISIK PLASTIK offers mirror coated Acrylic sheet. Acrylic mirror sheets are lighter, safer than glass and easier to machine, to cut and to mount. Therefore they are ideal to use in automotive, yacht decoration, furnitures, child's toys, sign making and displays. Our acrylic mirrors are protected by the industry's toughest protective back-coating. It is offered in silver and gold mirror. Policam Extruded Solid Clear Acrylic (PMMA) sheets have 10 years limited warranty.



Automotive and Transport

- Accessories, Coatings
- Interior and exterior trim
- Caravan windows
- Acrylic Ship Windows
- Light covers, Storage
- Windshields

Advertising and Visual Communications

- Corporate identity
- Display POS/POP and Advertising
- Museum casings
- Exhibit and trade show displays
- Recognition awards, Signage

Interiors and Household Goods

- Appliance parts, Furniture
- Gift and tableware, Kitchen sinks
- Lighting, Paints
- Worktops and surfaces
- Mirror Acrylic**
- Automotive, Yacht decoration
- Furniture, Child's toys
- Sign making and displays

Architectural and Construction

- Aquaria/structural panels
- Cladding, Lighting
- Door canopies and balustrades
- Door and window profiles
- Windows for Swimming Pools
- Diving Pools
- Public Aquarium Windows
- Transparent Barriers
- Skylights, Flood Windows
- Solid surfaces, Sound barriers

ACRYLIC PHYSICAL BENEFITS

FORMABLE; It's easy to shape and mold.

DURABLE; Impact resistance that stands the test of time.

WEATHERABLE; Stands up to the elements longer than many other plastics.

LIGHT TRANSMISSION; Highest light transmission rate for thermoplastics.

| Acoustic Values (EN ISO 10140-4 & EN ISO 717-1) | | |
|--|----------------|-----------------------------|
| Product | Thickness (mm) | Sound Reduction Values (dB) |
| PMMA | 15 | 30 |

* Certified by accredited laboratory.

Size of Policam PMMA Sheets

| Max. Width | *Standard Length | Width&Length Tolerance |
|------------|------------------|------------------------|
| 2050mm | 3050mm | - 0,1 % ; +0,3 % |

* Depends on customer request.
 * Policam pmma sheets are produced according to EN 7823-1

Thickness & Overall Thickness Tolerance of PMMA Sheets

| Product | Thickness in mm | Tolerance for Thickness |
|---------|-----------------|-------------------------|
| PMMA | 1,5 | ± 0,15 |
| | 2 | ± 0,2 |
| | 3 | ± 0,3 |
| | 4 | ± 0,2 |
| | 5 | ± 0,25 |
| | 6 | ± 0,3 |
| | 7 | ± 0,35 |
| | 8 | ± 0,4 |
| | 9 | ± 0,45 |
| | 10 | ± 0,5 |
| | 12 | ± 0,60 |
| 15 | ± 0,75 | |

Light Transmittance (ASTM D 1003)

| Thickness in mm | Standard Colours | | | | | | |
|-----------------|------------------|-------|----------------|----------------|--------|-------|-----|
| | Clear | White | White Diffuser | Clear Diffuser | Bronze | Opal | Red |
| 1,5 | 92 | 30 | 20 | 70 | | 60 | |
| 2 | 92 | 30 | 20 | 70 | | | 4 |
| 3 | 92 | 30 | 20 | 65 | 4,5 | 60/76 | 3 |
| 4 | 92 | 30 | 20 | 65 | | | |
| 5 | 92 | 25 | 16 | 60 | 4,5 | | |
| 6 | 92 | 25 | 16 | 60 | | | |
| 7 | | 20 | | 55 | | | |
| 8 | 92 | 20 | 12 | 55 | | | |
| 9 | | 15 | | 50 | | | |
| 10 | 92 | 15 | | 50 | | | |
| 12 | 92 | | | | | | |
| 15 | 92 | | | 48 | | | |

* custom colours are available upon request subject to a minimum order.

General Properties

| | CONDITIONS | TEST METHOD | UNIT | VALUE |
|-------------------------------------|---------------------|-------------|------------|---------|
| Density | | ISO 1183 | gr/cm3 | 1,19 |
| Water Absorbtion (24h) | 23°C / 50% RH (24h) | ISO 62 | % | 0,3 |
| Moulding Shrinkage | | ASTM D-955 | % | 0,2-0,6 |
| MECHANICAL PROPERTIES | | | | |
| Tensile Strength at Break | 23°C | ISO 527-2 | MPa | 83 |
| Elongation at break | 23°C | ISO 527-2 | % | 7 |
| Tensile Modulus | 23°C | ISO 527-2 | MPa | 3200 |
| Flexural Strength at Break | 23°C | ISO 178 | MPa | 120 |
| Flexural Modulus | 23°C | ISO 178 | MPa | 3300 |
| Charpy Impact Strength with Notched | 23°C | ISO 179-1eA | kJ/m2 | 2 |
| Izod impact strength | | ISO 178 | kJ/m2,1 | |
| Rockwell Hardness M Scale | | ISO 2039-2 | M -scale92 | |
| THERMAL PROPERTIES | | | | |
| Vicat Temperature | 50 N | ISO 306 | °C | 105 |
| Deflection temperature under load | 1,8 MPa | ISO 75 | °C | 100 |
| Coefficient of linear expansion | | ISO 11359-2 | mm/m °C | 0,07 |
| ELECTRICAL PROPERTIES | | | | |
| Dielectrical Strength | | DIN53481 | kV/mm | 20 |
| Dielectric Constantto | 1 KHz | DIN 53483 | | 3,1 |

For details on the chemical resistance of POLICAM PMMA SHEET to a range of chemicals please refer to ISIK PLASTIK.

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