

PMMA – Poly Methyl Methacrylate (Acrylic)

Facts:

PMMA, Poly Methyl Methacrylate (Acrylic) offers excellent processing, clarity, surface finish, low creep, good dimensional stability and high impact strength.

PMMA has excellent optical and weathering properties and white light transmittance can be as high as 92%. Moulded parts can have very low birefringence which makes it ideally suited as a material for video discs.

PMMA exhibits typically low room temperature creep. The initial tensile strength is high but under long term, high stress loading, it exhibits stress craze. Impact strength is good but it does show some notch sensitivity.

Formulations vary by molecular weight and physical properties such as flow rate, heat resistance and toughness. Higher molecular weight grades are tougher than lower molecular weight grades. High flow formulations are generally preferred for injection moulding.

Applications:

Lenses, light fittings, automotive interior, appliance housings and white goods.

Technical Data

General

Material Status	• Commercial: Active
UL Yellow Card ¹	• E256044-100422217 • E54695-268348 • E256044-100422219
Search for UL Yellow Card	• Mitsubishi Rayon America Inc. • Acrypet®
Availability	• North America
Features	• Good Chemical Resistance • Good Weather Resistance • High Hardness • Good Impact Resistance • High Clarity • Pleasing Surface Appearance
Uses	• Appliances • Electrical/Electronic Applications • Automotive Applications • Optical Applications
Forms	• Pellets

Physical	Nominal Value Unit	Test Method
Specific Gravity	1.16 g/cm ³	ASTM D792
Melt Mass-Flow Rate (MFR) (230°C/3.8 kg)	2.4 g/10 min	ASTM D1238
Molding Shrinkage - Flow	0.40 to 0.80 %	ASTM D955
Water Absorption (24 hr)	0.40 %	ASTM D570
Mechanical	Nominal Value Unit	Test Method
Tensile Strength ³	39.3 MPa	ASTM D638
Tensile Elongation ³ (Break)	90 %	ASTM D638
Flexural Modulus (6.35 mm)	1770 MPa	ASTM D790
Flexural Strength (6.35 mm)	58.6 MPa	ASTM D790
Impact	Nominal Value Unit	Test Method
Notched Izod Impact (6.35 mm)	34 J/m	ASTM D256
Hardness	Nominal Value Unit	Test Method
Rockwell Hardness (M-Scale)	50	ASTM D785
Thermal	Nominal Value Unit	Test Method
Deflection Temperature Under Load 1.8 MPa, Unannealed	84.0 °C	ASTM D648
Vicat Softening Temperature	99.0 °C	ASTM D1525
CLTE - Flow	0.000095 cm/cm/°C	ASTM D696
Optical	Nominal Value Unit	Test Method
Refractive Index	1.490	ASTM D542
Transmittance (3200 μm)	92.0 %	ASTM D1003

Additional Information

Surface Resistivity, JIS K6911: >10¹⁶ ohm
 Volume Resistivity, JIS K6911: >10¹⁵ ohm-cm
 Dielectric Breakdown Strength: 15 kV/mm
 Dielectric Constant, 60Hz: 3.9
 Dielectric Loss Tangent, 60Hz: 0.04
 Arc Resistance, JIS K6911: No Trace

Notes

¹ A UL Yellow Card contains UL-verified flammability and electrical characteristics. UL IDES continually works to link Yellow Cards to individual plastic materials in Prospector, however this list may not include all of the appropriate links. It is important that you verify the association between these Yellow Cards and the plastic material found in Prospector. For a complete listing of Yellow Cards, visit the UL Yellow Card Search.

² Typical properties: these are not to be construed as specifications.

³ Type I

Where to Buy

Supplier

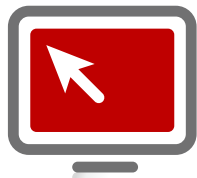
Mitsubishi Rayon America Inc.
New York, NY USA
Telephone: 212-223-3043
Web: <http://www.mrany.com/>

Distributor

EnCom, Inc.
Telephone: 866-481-7700
Web: <http://www.encompolymers.com/>
Availability: North America



Founded in 1986 and based in Laramie, Wyoming, IDES is now part of the UL family of companies. UL is a premier global independent safety science company with more than a century of proven history. Employing nearly 10,000 professionals in over 100 countries, UL has five distinct business units -- Product Safety, Environment, Life & Health, Knowledge Services and Verification Services -- to meet the expanding needs of our customers and to deliver on our public safety mission.



Prospector Plastics Database - www.ides.com/prospector

Prospector is a searchable online database that includes 85,000 data sheets from 875 manufacturers and 44,000 UL yellow cards. Each data sheet includes property, processing and supplier contact information. Prospector is relied on by nearly 400,000 design engineers and plastics processors. Using Prospector, they save time with plastic material selection by quickly and easily referencing technical information critical to the success of their products.

"Prospector is absolutely the best and most well-known search engine for plastic raw materials in the world. We use Prospector every day – it's a real time saver!"

– Birgit Elvardt Bader, Production Manager, Micotron

Power Searches

Property Search – select plastics by 500 key properties and design parameters.

Alternative Resins Search – find replacement plastics within minutes.

Automotive Plastics Search – easily locate automotive approved plastics.

Curve Data – view, overlay and export curve data.



Material Data Management – www.ides.com/datasheets

With our data management services, plastic suppliers and distributors can have custom search interfaces available on their website for their customers, website visitors, sales and customer service teams. These provide intuitive ways to find and view technical data sheets for their products.

"With UL IDES data services, our website now displays the most current information on the products we distribute and links to our backend RFQ and sales order system, adding both value and service for our customers."

– Kevin Chase, Owner & President, Chase Plastics



Advertising – www.ides.com/advertise

Reach 365,000 pre-qualified plastics professionals and generate leads with proven techniques. Electronic newsletter insertions, sponsored webinars and powerful online ads are available to make the most of your lead-generation program.

For more information, call: 800.788.4668 or 307.742.9227 ext. 220