



Product information

Product full identity:

Polymethyl methacrylate

Acrylic has superior optical properties with a high gloss surface. Good impact strength and ease of fabrication combined with the availability of a comprehensive range of colours makes this popular product the ideal choice for many display applications.

Properties

- » Lighter and far more impact resistant than glass
- » Machine and polish finish
- » Solvent Cemented
- » Fabrication, Formed and moulded
- » Great UV resistance

Applications

- » Scientific
- » Marine
- » Light covers
- » Flow meters
- » Exhibition work
- » Architectural
- » Guards
- » Protection Screens
- » Furniture

This document contains

- » Technical Datasheet (Page 2)
- » Chemical Datasheet (Page 3)
- » Safety Datasheet (Pages 4-6)

For any further information regarding food, fire and water certificates then please contact the sales team on 0114 256 0889

Technical Properties

Physical Properties	Test	Unit	Result
1. Specific gravity	ISO 1183	g/cm ³	1.19
2. Water absorption	ISO 62	%	0.3
3. Maximum service temp. Upper temp limit (no stronger mechanical stress involved)	-	°C	80
Lower temp limit	-	°C	-40
Mechanical Properties	Test	Unit	Result
1. Tensile strength at yield	ISO 527	MPa	70
2. Elongation at yield	ISO 527	%	-
3. Tensile strength at break	ISO 527	MPa	83
4. Elongation at break	ISO 527	%	5
5. Impact strength	ISO 179	kJ/m ²	20
6. Notch impact strength	ISO 179	kJ/m ²	2
7. Ball indentation / Rockwell hardness	ISO 2039-1	MPa	92
8. Shore-D	DIN 53505	-	-
9. Flexural strength	ISO 178	MPa	120
10. Modulus of elasticity	ISO 527	MPa	3200
Thermal Properties	Test Method	Unit	Result
1. Vicat-softening point VST/B/50	ISO 306	°C	107
2. Heat deflection temperature HDT/B	ISO 75	°C	101
HDT/A	-	°C	97
3. Coefficient of linear thermal expansion	ISO 75-2	(x10 ⁻⁵ /°C)	0.7
4. Thermal conductivity at 20 °C	ISO 8302	W/(m*K)	0.18
Electrical Properties	Test Method	Unit	Result
1. Volume resistivity	VDE 0303	Ω x m	>10 ¹⁵
2. Surface resistivity	-	Ω	>10 ¹⁴
3. Dielectric constant at 1MHz	-	-	3.1
4. Dielectric loss factor at 1 MHz	DIN 53483	-	0.02
5. Dielectric strength	VDE 0303	kV/mm	30
6. Tracking resistance	IEC 60112	-	-
Additional Data	Test Method	Unit	Result
1. Bondability	-	-	+
2. Food compliance	FDA	-	+
3. Flammability	UL 94	-	HB

All The above information is for guide purposes only. The data has been taken from standard test results provided by our manufacturers.

Key:

Yes	Limited	No data
+	0	-

Chemical Properties

Agent	Conc %	Working Temp		Agent	Conc %	Working	Temp
		20°C	60°C				
Acetic Acid	100	-	-	Hydrogen peroxide	10	+	
Acetone	100	-	-	Hydrogen Sulphide		+	
Ammonia	Conc.	+		Isopropyl Alcohol	100	+/o	
Ammonium chloride				Mercurochrome		-	-
Amyl Alcohol		-	-	Methyl alcohol	100	-	-
Benzene		-	-	Methyl ethyl ketone	100	-	-
Bleaching Solution	12,5 Cl			Methylene chloride	100	-	-
Boric Acid	100			Nitric acid	10	+	+
Brake Fluid				Nitric acid	50	-	-
Butyl Acetate		-	-	Nitrobenzine		-	-
Calcium Chloride		+	+	Oxalic Acid		+	
Carbon disulphide	100	-	-	Ozone, gas	ca. 0,5 ppm	+	
Carbon Tetrachloride		-	-	Paraffin Oil	100	+	
Chlorine, gas	100	o		Perchlorethylene		o	
Chlorobenzene	100			Petroleum	100	+	
Chloroform		-	-	Petroleum, aromatic free	100	o	
Citric Acid	10	+	+	Phenol, aqu	ca.9	-	-
Cresol		-	-	Phosphoric Acid	50	-	-
Cyclohexanone	100	-	-	Potassium hydroxide liquor	50	+	
Cyclohexene	100	-	-	Propyl alcohol			
Diesel Fuel		+		Pyridine			
Ethyl acetate	100	-	-	Silicone oil		+	
Ethyl alcohol	96	+/o	-	Sodium carbonate, aqu		+	+
Ethylene Chloride	100	-	-	Sodium chloride, aqu		+	
Formic Acid	10	-	-	Sodium Hydroxide liquor	15	+	+
Frost protection agent				Sodium Hydroxide liquor	60	-	
Fuel, aromatic free		+		Sodium hydrogen sulphite		+	
Glycerine	100	+		Sodium nitrate, aqu			
Glycol	100	+		Sodium thiosulfate		+	
Heating oil		+		Sulphuric Acid	96	-	-
Heptane	100	-	-	Tetrahydrofurance	100	-	-
Hydrochloric acid	conc.	+		Toluene	100	-	-
Hydrofloric acid	40	-	-	Trichlorethylene	100	-	-
				Xylene		-	-

Safety Properties

Substance / preparation and company detail

Acrylic Cast
Direct Plastics Limited
Rother Valley Way,
Holbrook,
Sheffield,
S20 3RW
0114 2560889

Composition / indications to components

Chemical nature: Polymethyl methacrylate - Copolymer
Polymethyl methacrylate >98% CAS-No. 9011-14-7
Methyl methacrylate <2% CAS-No. 80-62-6
Ethyl acrylate <0.1% CAS-No. 140-88-5
Contains: light stabilizing agents, colorants, pigments and releasing agents.

Possible dangers

No obligation to label in accordance to EU directive 1999/45/EG

First-aid measures

On inhalation of decomposition products: Keep patient calm, remove to fresh air and seek medical help
On skin contact: Areas affected by molten material should be quickly placed under cold running water, do not remove the material and seek immediate medical help.
Medical notes: On inhalation of decomposition products: Treat according to symptoms (decontamination, vital functions), no known specific antidote.

Fire-fighting measures

Suitable extinguishing media: water, dry extinguishing media, foam, carbon dioxide
Special protective equipment: In case of fire, wear a self contained breathing apparatus.
Further information: Dispose of fire residues and contaminated extinguishing water in accordance to local regulations.

Measures in case of unintended release

Methods for cleaning up: Sweep/shovel up.

Handling and storage

Handling

Ensure good ventilation and local exhaustion of the working area
In case of mechanical operations (drill, saw, mill) the instructions/limited values for handling fine dust are to be observed (VDI guideline 3673, 2263) (Germany) MAK-value (mill): 6 mg/m³.
Fire and explosion protection: no specific measures must be taken.

Storage

In original packing, protected against environmental impacts, keep in a dry place.

Safety Properties

Limitation of exposition

The following can be released when the product is processed (traces):
Components with workplace control parameters.

Traces of Methyl Methacrylate	210mg/m ³	50ppm	CAS-No 80-62-6	EG-No 201-297-1	R36/37/38, R43
Traces of Ethyl Acrylate	21mg/m ³	50ppm	CAS-No 96-33-3	EG-No 205-438-8	R11, R36/37/38, R43, S 20/21/22.

Threshold odour value of decomposition products: 1- 5 ppm

Explosion limits of decomposition products: 1.8 – 12.5 Vol%

The relevant MAK values should be observed (Germany) TRGS 900 (Germany).

Given suitable ventilation, it can be assumed that the threshold limits will not be reached.

Personal protective equipment

In case of usual handling, no special protective equipment will be necessary.

Under consideration of applied work technique it may be mandatory to use:

Respiratory protection: dust filter type P1 in case of fine dust creation.

Skin protection: safety gloves, in case rough edges may cause cuts

Eye protection: safety glasses or complete face protection

General safety and hygiene measures

No general safety and hygiene measures necessary

Physical and chemical characteristics

Colour: clear or coloured

Odour: odourless

Change in physical state:

Softening point > 110 °C ISO 306 (Method A)

Ignition temperature > 425 °C DIN 51794

Fire promoting properties: none

Density: 1.19 g/cm³ ISO 1183

Bulk density: n. a. kg/m³

Solubility in water: insoluble

Solubility in other solvents:

soluble in organic solvents:

Stability and reactivity

Start of thermal decomposition: at 350°C

Thermal decomposition, burning or faulty handling may diffuse noxious gases and vapours.

Thermal decompositions release carbon dioxide, carbon monoxide, monomers, steam and other degradation products.

Avoid thermal decomposition, do not overheat.

When burning, the material is classified F1 (AFNOR NFX 70-100 and NFF 16-101)

Toxic information

Acute toxicity: No data available, insoluble in water

Additional information: In our experience and according to information available to us the product is not harmful to health provided it is correctly handled and processed according to the given recommendations.

Ecological information

Behaviour and environmental effects

Due to the consistency of the product, and its insolubility in water, it will apparently not be bio-available.

Safety Properties

Waste-disposal information

The product is qualified for material recycling. After suitable treatment the material can again be melted and processed.

The product can be dumped or incinerated in accordance to local regulations.

Disposal code: EAK-Code: 120 105 (waste from mechanical forming, processing)

EAK-Code: 170 203 (waste-parts, oddments)

Transport information

Not classified as hazardous under transport regulations.

Regulations

Labelling according to EU Directives

Not subject to labelling

National legislation / regulations

Not classified according to German "Hazardous Substance" regulations (Germany).

Water hazard class: WGK (0) (Germany)

Further information

The information is based on our current knowledge. They are meant to describe our products in respect to safety requirements. They do not represent any guarantee of the described product in the sense of the legal guarantee regulations.