TECHNICAL DATA SHEET
Methyl Methacrylate

CAS #	EINECS #	Formula
80-62-6	201-297-1	$C_5H_8O_2$

GENERAL DESCRIPTION

Methyl Methacrylate, also known as MMA, Methacrylic acid methyl ester, or Methyl 2-methylprop-2-enoate is an organic compound with the formula C4H80. It's clear, colorless, volatile liquid with a characteristic odor. MMA is slightly soluble in water and miscible with most organic solvents. MMA is a highly efficient and versatile solvent for thinners, cleaning agents, coatings, adhesives, plastics, construction, reactive resins, and textile treatment. Inhibited with 40-50 ppm Methyl Ethyl Hydroquinone (MEHQ) to prevent polymerization.

TYPICAL PROPERTIES & SPECIFICATIONS

DESCRIPTION	RESULT
Flash Point:	10 °C (50 °F) DIN51755
Initial Boiling Point:	100.3 °C (212.54 °F) (1.013 hPa)
Melting Point/Freezing Point:	-48 °C (-54.4 °F)
Partition Coefficient (n-octanol/water):	1.38 (measured)
Dynamic Viscosity:	0.53 mPa.s (68 °F (20 °C))
Vapor Pressure:	37 hPa (20°C)
Vapor Density (air=1):	Approx 3.5 (20°C)
Density:	0.936 g/cm3 (20°C)
Odor Threshold:	0.05 - 0.34 ppm
Pounds/Gallon:	7.82
Auto-Ignition Temperature:	435 °C (815 °F) DIN 51 794
Solubility (water):	15.3 g/l (20°C)

Property	Test Method	Unit	Min.	Max.
Purity MMA:	M2-7	%	99.90	100
Acid Content:	M4	%	0	0.0050
Water Content:	M3	%	0	0.050
Color:	M5	APHA	0	5
Stabilization, MEHQ:	M1-1	ppm	45	55

Note: Typical Properties are for reference purposes only. Actual results may vary.

AVAILABILITY

Methyl Methacrylate is available in 4 fl oz, Pint (16 fl oz), Quart (32 fl oz), Gallon (128 fl oz), 5-gallon (640 fl oz), and 55 gallon drums (7040 fl oz).

SHELF LIFE

Due to the sacrificial inhibitor, Methyl Methacrylate has a shelf life of 1 year. MMA should not be stored for longer than 1 year.

SAFETY INFORMATION

Hazard Statements	Highly flammable liquid and vapor Causes skin irritation May cause an allergic skin reaction Causes serious eye irritation May cause respiratory irritation May cause drowsiness or dizziness
Precautionary Statements - Prevention	Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Keep away from heat, sparks, open flames, hot surfaces. -No smoking. Keep container tightly closed. Ground/bond container and receiving equipment. Use explosion-proof electrical, ventilation, lighting equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Avoid breathing dust, fume, gas, mist, vapors, spray. Wash face, hands, and any exposed skin thoroughly after handling. Do not eat, drink or smoke when using this product. Use only outdoors or in a well-ventilated area. Wear protective gloves, respiratory protection, eye protection, protective clothing, and face protection. Wash contaminated clothing before reuse.
Precautionary Statements - Response	IF ON SKIN: Take off immediately all contaminated clothing. Rinse skin with water/shower. If skin irritation occurs: get medical advice/attention. IF INHALED: Remove person to fresh air and keep comfortable for breathing. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention. Call a POISON CENTER/doctor if you feel unwell. In case of fire: Use dry powder, carbon dioxide, alcohol-resistant foam, or water fog.
Storage	Store tightly closed in a cool, well-ventilated place. Store locked up. Store away from sources of ignition.
Disposal	Dispose on contents/container to an approved waste disposal plant. Dispose of in accordance with local, regional, national, and international regulations.

SHIPPING INFORMATION

Proper Shipping Name:	Methyl Methacrylate Monomer, Stabilized
UN Number:	UN1247
Class or Division:	3
Packing Group:	II
Label Required:	Flammable Liquid (3)

Note: Safety Information & Shipping Information are for reference purposes only. Refer to the Safety Data Sheet for the most current safety and shipping information.

STORAGE

Keep out of direct sunlight in a cool, dark area with low humidity away from heat, sparks, flames, and other sources of ignition. The presence of oxygen is required for the stabilizer to function effectively. MMA should be stored between 60°F to 75 °F. For extended storage periods over 4 weeks it is advisable to replenish the dissolved oxygen content.

Read the following page for information on inhibitors and stabilization.

STABILIZATION AND INHIBITOR

*Methyl Methacrylate inhibitor Methyl Ethyl Hydroquinone (MEHQ) is a sacrificial inhibitor. The inhibitor level may vary from 45-55 ppm but will continue to drop over time as it is actively preventing the MMA from polymerizing. The rate of polymerization for MMA depends upon the level and maintenance of inhibitor, size of container, humidity levels, and storage temperature.

Methacrylic esters polymerize exothermally. When this occurs, they present the risk of generating pressure and temperature. Methacrylic ester monomers are stabilized using polymerization inhibitor additives at a level appropriate to the anticipated storage temperatures and duration of storage. These stabilizers require the presence of oxygen to function, and thus oxygen availability is a key consideration in the storage of methacrylate monomers. Storage of methacrylate monomers with an inert gas atmosphere will prevent the stabilizers from functioning correctly; to avoid risk of dangerous polymerization, do not store methacrylate monomers with an inert gas atmosphere.

A minimum oxygen level of 5% is required to support the polymerization inhibitor functionality. If necessary, under appropriately engineered controls, it is possible to reduce storage oxygen levels to the 5% to 8% range. This will keep the vapor space outside of the flammability range while ensuring inhibitors can still function.

There are five main causes of unintended polymerization of methacrylate esters:

- high temperatures leading to inhibitor depletion;
- contamination initiating reaction;
- lack of oxygen preventing stabilization;
- inhibitor depletion after long storage duration;
- corrosion products acting as reaction initiators.

SUMMARY

- Even slow polymerization has the potential to later accelerate into a runaway reaction.
- If the temperature rises above 45°C (113°F) or the rate of rise is greater than 2°C (3.6°F) per hour and no source of external heat has been identified then it is highly likely that polymerization is occurring and action is needed.
- If the temperature rises at a rate greater than 5°C (9°F) per hour then the situation is critical.

Contact Caseway for any additional questions regarding stabilization (inhibitors).

ADDITIONAL INFORMATION

This product is considered a hazardous material. Do not handle until all safety precautions have been read and understood. Read the product label & safety data sheet (SDS) for information on proper handling, health risks, firefighting methods, spill procedures, emergency contact information, precautionary information, disposal information & more. Safety data sheets are available at www.casewayproducts.com or by emailing support@casewayproducts.com

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