TECHNICAL DATA SHEET
Methacrylic Acid

CAS #	EINECS #	Formula
79-41-4	201-204-4	$C_4H_6O_2$

GENERAL DESCRIPTION

Methacrylic Acid, also known as MAA, Acrylic Acid, or 2-Propenoic acid, 2-methyl- is an organic compound with the formula C4H602. It's clear, colorless, volatile liquid with a characteristic odor. Methacrylic Acid is slightly soluble in warm water and miscible with most organic solvents. Undiluted or glacial methacrylic acid [MAA] is produced for use a building block to make a wide range of polymer-based products like binders in paints and coatings but also water-soluble polymers, as an interlevant in glass and, as an intermediate for the manufacture of methacrylic acid esters.

*Stabilized with 225-275 ppm MEHQ

PHYSICAL PROPERTIES

Description	Result
Flash Point:	67 °C (152.6 °F) (1.013 hPa)
Initial Boiling Point:	163 °C (325.4 °F) (1.013 hPa)
Melting Point/Freezing Point:	16 °C (61 °F)
Partition Coefficient (n-octanol/water):	0.93
Dynamic Viscosity:	1.38 mPa.s (68 °F (20 °C))
Vapor Pressure:	0.97 hPa (20°C)
Vapor Density (air=1):	>1
Density:	1.01 g/cm3 (20°C)
Specific Gravity (H20=1):	1.015
Solubility (water):	98 g/l (20°C)

Property	Test Method	Unit	Min.	Max.
Purity GMAA:	M76	%	99.50	100
Water Content:	M3	%	0	0.200
Color:	M5	APHA	0	20
Stabilization, MEHQ:	M27	ppm	225	275

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

AVAILABILITY

Available in 4 fl oz, Pint (16 fl oz), Quart (32 fl oz), Gallon (128 fl oz), 55 Gallon Drum (7040 fl oz).

SHELF LIFE

Methacrylic Acid shelf life is 1 year. Do not store product longer than shelf life.

SAFETY INFORMATION

Hazard Statements	Combustible liquid Harmful if swallowed Toxic in contact with skin Causes severe skin burns and eye damage Harmful if inhaled May cause respiratory irritation May cause drowsiness or dizziness
Precautionary Statements - Prevention	Keep away from heat, sparks, open flames, and hot surfaces. -No smoking. Do not breathe dust, fume, gas, mist, vapors, and 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, protective clothing, eye protection, 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. IF SWALLOWED: Rinse mouth. Do not induce vomiting. Call a POISON CENTER/doctor if you feel unwell. In case of fire: Use dry chemical, CO2, or alcohol resistant foam to extinguish.
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:	Methacrylic Acid, Stabilized
UN Number:	UN2531
Class or Division:	8
Packing Group:	II
Label Required:	Corrosive (8)

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

*Store in a tightly closed container in a cool, dry area away from direct sunlight, heat, sparks, flames, and any sources of ignition.

The presence of oxygen is required for the stabilizer to function effectively. Methacrylic acid must be stored between 18 to 35 °C (64 to 95 °F), preferably between 20 to 25 °C (68 to 77 °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

*Methacrylic Acid inhibitor Methyl Ethyl Hydroquinone (MEHQ) is a sacrificial inhibitor. The inhibitor level may vary from 225-275 ppm but will continue to drop over time as it is actively preventing the MAA from polymerizing. The rate of polymerization for MAA 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 Methacrylic Acid with an inert gas atmosphere will prevent the stabilizers from functioning correctly; to avoid risk of dangerous polymerization, do not store Methacrylic Acid 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 Methacrylic Acid:

- 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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