SAFETY DATA SHEET

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

PRODUCT NAME	METHACRYLIC ACID - STABILIZED
Product Description	This product contains Methacrylic acid and low levels of stabiliser.
Alternative names	Stabilised methacrylic acid; 2-Methyl 2-propenoic acid; alpha Methacrylic acid; alpha Methylacrylic acid; MAA.
CAS No.	000079-41-4
Recommended uses and restrictions on use	Intermediate for production of methacrylate esters and comonomer for production of polymers.
Manufacturer	Lucite International Canada Inc., 2795 Slough Street, Mississauga, ON L4T 1G2 Tel: (905) 673-3345 Fax: (905) 673-1459 msdsinfo@lucite.com
Emergency Phone No.	1-800-424-9300 (Transport Emergency) 1-877-886-2143 (Medical Emergency)

2. HAZARDS IDENTIFICATION

Hazard classification

Flammable liquid Category 4.
Acute toxicity (Dermal) Category 3.
Acute toxicity (Oral) Category 4.
Acute toxicity (Inhalation) Category 4.
Skin corrosion / irritation Category 1A.
Serious eye damage / eye irritation Category 1.
STOT - single exposure Category 3
Hazardous to the aquatic environment - Acute hazard Category 3.

Label elements

Symbol

Signal word: Danger

Hazard statement(s):

H227: Combustible liquid.
H311: Toxic in contact with skin.
H302: Harmful if swallowed.
H332: Harmful if inhaled.
H314: Causes severe skin burns and eye damage.
H335: May cause respiratory irritation.
H402: Harmful to aquatic life.

Precautionary statement(s)	P210: Keep away from heat/sparks/open flames/hot surfaces. – No smoking. P260: Do not breathe vapor. P264: Wash thoroughly after handling. P270: Do not eat, drink or smoke when using this product. P271: Use only outdoors or in a well-ventilated area. P273: Avoid release to the environment. P280: Wear protective gloves/protective clothing/eye protection/face protection. P301+P312: IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell. P301+P330+P331: IF SWALLOWED: rinse mouth. Do NOT induce vomiting. P302+P352: IF ON SKIN: Wash with plenty of soap and water. P303+P361+P353: IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. P304+P340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. P305 + P351 + P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P310: Immediately call a POISON CENTER or doctor/physician. P330: Rinse mouth. P363: Wash contaminated clothing before reuse. P370 + P378: In case of fire, use water spray, foam, dry powder or CO_2 for extinction. P403+P233: Store in a well-ventilated place. Keep container tightly closed. P403+P235: Store in a well-ventilated place. Keep cool. P405: Store locked up. P501: Dispose of contents/container to hazardous waste in accordance with local, state or national legislation. Incinerate under approved controlled conditions, using incinerators suitable for the disposal of noxious chemical waste.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical identity of the substance	Methacrylic acid .
Common name(s), synonym(s) of the substance	Stabilised methacrylic acid; 2-Methyl 2-propenoic acid; alpha Methacrylic acid; alpha Methylacrylic acid; MAA.
CAS No.	000079-41-4
Impurities and stabilizing additives	Standard grades contain inhibitors from among the following: 1450 ppm Maximum p-Methoxyphenol (CAS No. 150-76-5) Hydroquinone (CAS No. 123-31-9)

Hazardous ingredient(s)	%W/W	CAS No.
Methacrylic acid	>99	000079-41-4

4. FIRST AID MEASURES

Description of first aid measures

Inhalation	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Administer oxygen if necessary.
Skin Contact	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Wash with plenty of soap and water. Wash contaminated clothing before reuse.
Eye Contact	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Ingestion	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

Most important symptoms and effects, both acute and delayed

Toxic in contact with skin. Causes severe skin burns and eye damage. Harmful if swallowed. Harmful if inhaled. May cause respiratory irritation.

Indication of any immediate medical attention and special treatment needed

Following severe exposure the patient should be kept under medical review for at least 48 hours as delayed pulmonary oedema may develop.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media	In case of fire, use water spray, foam, dry powder or CO_2 for extinction. Keep containers cool by spraying with water if exposed to fire.
Unsuitable Extinguishing Media	Do not use water jet.
Special hazards arising from the substance or mixture	May polymerize on heating. Sealed containers may rupture explosively if hot.
Special protective equipment and precautions for fire fighters	A self contained breathing apparatus and suitable protective clothing should be worn in fire conditions.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	Ensure suitable personal protection (including respiratory protection) during removal of spillages. Do not breathe vapor. Wear protective gloves and eye/face protection. See Section: 8
Environmental precautions	Avoid release to the environment. Spillages or uncontrolled discharges into watercourses must be alerted to the appropriate regulatory body.
Methods and materials for containment and cleaning up	Contain spillages with sand, earth or any suitable adsorbent material. Spillages should be neutralised by the use of lime or lime slurry followed by water washing. Do not allow to enter drains, sewers or watercourses. Transfer to a container for disposal or recovery.
Other advice	See Section: 8, 13

7. HANDLING AND STORAGE

HANDLING	Do not eat, drink or smoke at the work place. Wash thoroughly after handling. Do not breathe vapor. Use only outdoors or in a well-ventilated area. Do not eat, drink or smoke when using this product. In the event of an uncontrolled polymerisation, indicated by temperature rise or visible formation of polymer: Evacuate the area. If safe to do so: Cool vessel by applying cooling water to cooling coils or the exterior of the vessel. Ensure adequate venting by opening up hatches. Add additional inhibitor (PTZ) in a concentrated solution or slurry. Dilute the methacrylic acid with water. CAUTION: BEWARE OF UNRELEASED PRESSURE IT IS STRONGLY RECOMMENDED THAT YOU REFER TO THE METHACRYLIC ACID SAFE HANDLING MANUAL FOR FURTHER INFORMATION.
STORAGE	Keep container tightly closed. Store in a well-ventilated place. Keep cool. Store locked up. Keep away from heat, sparks, open flame, hot surfaces - No smoking. Keep away from direct sunlight. Never let bulk quantities freeze. Bulk quantities must be stored under air. Monitor stored material for loss of inhibitor. Monomer vapors are uninhibited and may form polymers in vent or flame arresters, resulting in blockage of vents. If drums containing the product freeze, allow to thaw slowly in a warm room at temperatures up to 40°C. Roll the drums every 6 - 8 hours to mix the contents.
Storage Temperature	Ideal storage temperature is 18 - 25°C. Never store above 40°C.
Storage Life	Provided proper storage and handling procedures are followed (see safety data sheet and Methacrylic Acid - Safe Handling Manual) the product may be stored for up to 6 months from the date of receipt.
Incompatible materials:	Polymerization catalysts such as peroxy or azo compounds, strong acids, alkalis, oxidizing agents and metal salts. Attacks Copper and mild steel.
Other advice	None.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Substance	CAS No.	OSHA PEL TWA	ACGIH TWA	ACGIH STEL	Company Std. TWA	Company Std. STEL
Methacrylic acid	000079-41-4					

Appropriate engineering controls

Do not eat, drink or smoke at the work place. Provide adequate ventilation, including appropriate local extraction, to ensure that the occupational exposure limit is not exceeded. Consideration should be given to the work procedures involved and the potential extent of exposure as they may determine whether a higher level of protection is required.

Individual protection measures, such as personal protective equipment (PPE)

Eye/face protection

Wear eye/face protection.
Safety spectacles/goggles/full face shield.

Skin protection

Wear protective gloves.
For splash protection: Butyl; EN 374.
For immersion protection: Butyl; 0.7 mm or greater; EN 374. Suitability of gloves should be confirmed with glove manufacturer. Change gloves, if contamination occurs or duration of activity exceeds breakthrough time. Breakthrough time of the glove material: refer to the information provided by the gloves' producer.

Respiratory protection

Wear suitable respiratory protective equipment if exposure to levels above the occupational exposure limit is likely. A suitable mask with filter type A (EN141 or EN405) may be appropriate. In the event of formation of particularly high levels of vapor a self contained breathing apparatus may be appropriate.

9. PHYSICAL AND CHEMICAL PROPERTIES

Form	Liquid.
Color.	Colorless.
Odour	Pungent.
Odour threshold (ppm)	Not available.
pH (Value)	Not available.
Melting Range (°C)	14 - 16
Boiling Point (°C)	160 with slight polymerisation.
Flash point (°C)	67 [Closed cup]
Relative Evaporation Rate (Ether = 1)	Not available.
Flammability (solid, gas)	Not applicable.
Flammable Limits (Lower) (%v/v)	1.6
Flammable Limits (Upper) (%v/v)	8.7
Vapour pressure (Pascal)	133 at 25°C
Vapor Density (Air=1)	3
Specific Gravity	1.018 at 20°C
Solubility (Water)	Miscible above 17°C Partially soluble below 17°C
Solubility (Other)	Soluble in most organic solvents.
Partition coefficient (n-Octanol/water)	0.93
Auto Ignition Temperature (°C)	400
Decomposition temperature (°C)	Not available.
Viscosity (mPa. s)	Not available.
Explosive Properties	Not applicable.
Oxidising Properties	Not applicable.

10. STABILITY AND REACTIVITY

Reactivity	Will exothermically polymerise in the presence of initiators.
Chemical Stability	Stable under normal conditions in the presence of air between 18-25°C. Stable in the presence of inhibitor.
Hazardous Reactions	Susceptible to polymerization initiated by prolonged heating or the presence of catalyst.
Conditions to avoid	Heat and direct sunlight.

Materials to avoid	Polymerization catalysts such as peroxy or azo compounds, strong acids, alkalis, oxidizing agents and metal salts. Attacks Copper and mild steel.
Hazardous Decomposition Product(s)	Stable to at least boiling point. Some polymerisation may occur at these temperatures.

11. TOXICOLOGICAL INFORMATION

Acute toxicity

Ingestion	Harmful if swallowed.
Ingestion toxicity data	LD50 (rat) 1320 - 2260 mg/Kg
Ingestion STOT-single exposure	Not applicable.
Inhalation	May cause respiratory irritation. May cause drowsiness and dizziness.
Inhalation toxicity data	No information available.
Inhalation STOT-single exposure	Exposure to high concentrations may produce adverse effects on the nasal epithelium.
Respiratory sensitization data	Not a respiratory sensitizer.
Aspiration hazard data	Not an aspiration hazard.
Skin Contact	Causes severe burns. Toxic in contact with skin. Can be absorbed through skin causing systemic harmful effects.
Skin contact toxicity data	LD50 (rabbit) >500 - <1000 mg/Kg
Skin contact STOT-single exposure	Not applicable.
Skin sensitization data	It is not a skin sensitizer.
Eye Contact	Causes serious eye damage.
Eye contact toxicity data	Severe/very severe irritant to rabbit eyes.
Eye STOT-single exposure	Not applicable.
Germ cell mutagenicity data	Salmonella typhimurium (TA1535, 1537, 98, 100) negative (OECD 471)

Repeated exposure toxicity

Chronic exposure	Repeated exposure of animals by inhalation to levels well above the occupational exposure limit produces adverse effects on the nasal epithelium (levels of 100ppm and 300ppm).
STOT - repeated exposure data	Systemic effects : NOAEC (inhalation) (rat) (90 days) 300 ppm NOAEC (inhalation) (mouse) (90 days) 100 ppm
Reproductive toxicity data	No information available but no adverse reproductive effects are anticipated.
Carcinogenicity data	It is unlikely to present a carcinogenic hazard to man.
Other information	None.

12. ECOLOGICAL INFORMATION

Ecotoxicity	Harmful to aquatic life. LC50 (rainbow trout) (96 hour) (flow through) 85 mg/l LC50 (zebra fish) (96 hour) (semi-static) >100-180 mg/l EC50 (Daphnia magna) (48 hour) (Flow through) >130 mg/l EC50 (selenastrum capricornutum) (96 hour) 45 mg/l The product is substantially removed in biological treatment processes. Will inhibit biological treatment processes due to low pH.
Persistence and degradability	Readily biodegradable. 86% (28 days) 60% (10 days)
Bioaccumulative potential	The product has low potential for bioaccumulation.
Mobility	The product is predicted to have high mobility in soil.
Other adverse effects	Not subject to international restrictions.

13. DISPOSAL CONSIDERATIONS

Avoid release to the environment. Decontaminate empty drums before recycling.

Disposal methods	Dispose of contents/container to hazardous waste in accordance with local, state or national legislation. Incinerate under approved controlled conditions, using incinerators suitable for the disposal of noxious chemical waste.

14. TRANSPORT INFORMATION

UN No.	2531
Proper Shipping Name	METHACRYLIC ACID, STABILIZED
Class	8
Packing group	II
Special precautions for user	No special requirements
Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	Not applicable.
Marine Pollutant :	Not classified as a Marine Pollutant.

15. REGULATORY INFORMATION

US Federal Regulations

SARA 302 - Extremely Hazardous Substances: Not listed

SARA 311/312 - Hazard Categories

Acute	Yes
Chronic	Yes
Fire	Yes
Reactivity	Yes
Pressure	No.

California: Proposition 65 (California) : Not listed

Canadian Regulations

WHMIS Classification:
Class B, Division 3, Combustible Liquid
Class D, Division 1, Subdivision B, Toxic Material
Class D, Division 2, Subdivision B, Toxic Material
Class E, Corrosive Material
Class F, Dangerously Reactive Material

NFPA Rating

Health	3
Flammability	2
Reactivity	2

NPCA-HMIS Rating

Health	3
Flammability	2
Reactivity	2

16. OTHER INFORMATION

The following sections contain revisions or new statements:	2, 3, 4, 15, 16
Date of preparation:	15 -October- 2012

Inventory Status

European Union	To the best of our knowledge all chemicals in this product comply with REACH regulations.
United States (TSCA)	Listed in TSCA
Canada (DSL/NDSL)	Listed in DSL
Japan (ENCS)	Listed in ENCS
Philippines (PICCS)	Listed in PICCS
Australia (AICS)	Listed in AICS
South Korea (KECI)	Listed in KECI
China (IECSC)	Listed in IECSC

Import to the EU is regulated under REACH. Confirmation from Lucite International UK Ltd acting as Only Representative and registrant is required to confirm that the volume of material imported has been confirmed as within the Only Representative supply chain.

IT IS STRONGLY RECOMMENDED THAT YOU REFER TO THE METHACRYLIC ACID SAFE HANDLING MANUAL BEFORE HANDLING, STORING OR USING METHACRYLIC ACID.

Methacrylate monomers are used safely in a wide variety of applications including some areas of personal hygiene. We are aware of some reports suggesting that use of methacrylate monomers in fingernail extension applications may result in loosening or shedding of the nails of the user as well as respiratory or other effects in those exposed to high levels of the vapors. Lucite International Inc. has performed no technical or clinical testing and has no data to support the use of methacrylate monomers in this application. Under no circumstances should methacrylate monomers be used in this or similar applications.

MEDICAL USE: CAUTION: DO NOT USE IN MEDICAL APPLICATIONS INVOLVING IMPLANTATION IN THE HUMAN BODY.
Lucite International Inc. has performed no clinical testing on the use of this product in any medical application. Lucite International Inc. has no data to support the use of this product in any medical application. This product was not designed or manufactured for use in implantation in the human body or in contact with internal body fluids or tissues. Lucite International Inc. has neither sought, nor received, approval from any regulatory agency for the use of this product in implantation in the human body or in contact with internal body fluids or tissues.

For further information on the properties and uses, or storage and handling, of Methacrylic acid refer to Product data sheet; Methacrylic acid (TS/C/2204/11).

It is the responsibility of the end-product manufacturer to identify all market and use-specific regulations and to ensure compliance with these regulations.

Subject to the exclusions and limitations set out below the Information contained in this publication or as otherwise supplied to the User is believed to be accurate and has been given in good faith. It is for the User to use the Information contained in this publication or as otherwise supplied to the User with care and satisfy itself of the suitability of the product for their intended use and the applicability of the advice given. Except to the extent that exclusion is prevented by applicable law Lucite International Inc. gives no warranty as to the fitness of the product for any particular purpose and any implied warranty or condition (statutory or otherwise) is excluded and accepts no liability for loss or damage (other than that arising from death or personal injury caused by defective product, if proved), resulting from reliance on this information. Freedom under Patents, Copyright and Designs cannot be assumed.