SECTION 1 - PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifier
Product Name: Methyl Methacrylate, Stabilized
Synonym(s): MMA; Methacrylic acid, methyl ester; 2-Methyl-propenoic acid, methyl ester; Methyl 2-methylpropenoate

1.2 Relevant identified uses of the substance or mixture and uses advised against
General use: Industrial applications
Uses advised against: None known

1.3 Details of the supplier and of the safety data sheet
Manufacturer/Distributor
Silver Fern Chemical, Inc.
2226 Queen Anne Avenue North
Suite C
Seattle, WA  98109 USA
1-866-282-3384
Website - www.silverfernchemical.com; email address - info@silverfernchemical.com

1.4 Emergency telephone number: INFO-TRAC +1-800-535-5053; Outside USA & Canada +1-352-323-3500

SECTION 2 - HAZARDS IDENTIFICATION

2.1 Classification of substance or mixture
Product definition: Substance
Classification in accordance with 29 CFR 1910 (OSHA HCS) and Regulation EC No. 1272/2008
Flammable liquid - Category 2 [H225]
Skin irritation - Category 2 [H315]
Skin sensitization - Category 1B [H317]
Specific target organ toxicity, single exposure - Category 3 (STOT-SE 3) [H335]

2.2 Label Elements

Hazard Symbol(s):

GHS02  GHS07

Signal Word:
Danger

Hazard Statement(s):
H225 - Highly flammable liquid and vapor
H315 - Causes skin irritation
H317 - May cause an allergic skin reaction
H335 - May cause respiratory irritation

Precautionary Statements:

[Prevention]
P210 - Keep away from heat, sparks, open flames and hot surfaces.  No smoking.
P233 - Keep container tightly closed.
P240 - Ground and bond container and receiving equipment.
P241 - Use explosion-proof electrical, ventilating, lighting and mixing equipment.
P242 - Use only non-sparking tools.
P243 - Take precautionary measures against static discharge.
P261 - Avoid breathing mist, fumes and vapor.
P264 - Wash hands and other skin areas exposed to material thoroughly after handling.
P271 - Use only outdoors or in a well-ventilated area.
P272 - Contaminated work clothing should not be allowed out of the workplace.
P280 - Wear protective gloves, protective clothing and eye protection.

[Response]
P303 + P361 + P353 - IF ON SKIN (or hair): Remove immediately all contaminated clothing.  Rinse skin with water or shower.
P304 + P340 + P312 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.  Call a Poison Center or doctor if you feel unwell.
SECTION 3 - COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

<table>
<thead>
<tr>
<th>% by Weight</th>
<th>Ingredient</th>
<th>CAS Number</th>
<th>EC Number</th>
<th>Annex Number</th>
<th>GHS Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt;99</td>
<td>Methyl Methacrylate*</td>
<td>80-62-6</td>
<td>201-297-1</td>
<td>607-035-00-6</td>
<td>H226, H315, H317, H335</td>
</tr>
</tbody>
</table>

*This product is stabilized with low levels of Hydroquinone Methyl Ether (MEHQ) or Tri(butylcresyl)butane.

3.2 Mixtures

Not applicable

There are no ingredients present in this product which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

SECTION 4 - FIRST AID MEASURES

4.1 Description of first aid measures

Inhalation: If product mist or vapor causes respiratory irritation or distress, move the exposed person to fresh air immediately. If breathing is difficult or irregular, administer oxygen; if respiratory arrest occurs, start artificial respiration by trained personnel. If unconscious, maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. Contact a doctor, paramedical personnel or Poison Control Center if the victim feels unwell.

Eyes: Immediately flush eyes with large amounts of water or saline solution for at least 15 minutes, occasionally lifting the upper and lower lids. Remove contact lenses, if present and easy to do, after first 2 minutes and continue rinsing. If irritation persists seek medical advice, preferably from an ophthalmologist.

Skin: Flush skin with large amounts of water while removing contaminated clothing. Wash the affected area with soap and water and continue rinsing. Wash contaminated clothing thoroughly before reuse. Discard contaminated shoes. If irritation persists or if rash develops, seek medical attention.

Ingestion: Rinse mouth with water if the victim is conscious. Remove dentures, if present. Give 1 - 2 glasses of water to drink if the victim is conscious, alert and able to swallow. Do not induce vomiting unless directed to do so by medical personnel. Vomiting may occur spontaneously. To prevent aspiration of material into the lungs, lay the victim on one side with the head lower than the waist. Never give anything by mouth to an unconscious or convulsing person. Do not leave the victim unattended. Seek immediate medical attention.

4.2 Most important symptoms and effects, both acute and delayed

- **Potential health symptoms and effects**
  - Eyes: Causes mild eye irritation. Exposure to product vapor or fumes may cause eye irritation.
  - Skin: Causes skin irritation with localized redness, itching and discomfort. May cause skin sensitization. Persons previously sensitized can experience allergic skin reactions with redness, itching, swelling and rash upon reexposure to this product. May cause allergic dermatitis.
  - Inhalation: Vapor or fumes may cause irritation of the respiratory tract. May cause allergic reaction with asthma-like symptoms.
  - Ingestion: May cause gastrointestinal irritation with nausea, abdominal pain, vomiting and diarrhea. May be harmful if swallowed.
  - Chronic: Pre-existing disorders of the skin and respiratory system may be aggravated by exposure to this product. Chronic exposure may cause headache, drowsiness, nausea and weakness. Prolonged and repeated exposure may result in cross-sensitization with other methacrylates and acrylates. May cause allergic dermatitis. Repeated exposure to high levels may cause adverse effects on the heart, lungs, liver and kidneys.

4.3 Indication of any immediate medical attention and special treatment needed

Advice to Doctor and Hospital Personnel

Treat symptomatically and supportively.

SECTION 5 - FIRE FIGHTING MEASURES

5.1 Extinguishable media

Suitable methods of extinction: Use extinguishing media such as water spray or fog, carbon dioxide, foam and dry chemical.

Unsuitable methods of extinction: Water jets or streams may spread the fire.

5.2 Special hazards arising from the substance or mixture

Highly flammable liquid! Vapors are heavier than air and can travel along the ground to a source of ignition and flash back. Vapors can spread along the ground and collect in low or confined areas. Exposure to ignition sources can ignite vapors, causing a flash fire. Closed containers may explode due to the buildup of pressure when exposed to extreme heat. During emergency conditions overexposure to decomposition products may cause a health hazard. Symptoms may not be immediately apparent or may be delayed. Obtain medical attention.
5.3 Advice for firefighters

Full protective equipment including self-contained breathing apparatus should be used. Water may be used to cool closed containers to prevent pressure buildup and possible autoignition or explosion when exposed to extreme heat. If possible, firefighters should control runoff water to prevent environmental contamination. Fire residues and contaminated extinguishing water must be disposed of in accordance with local regulations.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Evacuate non-essential personnel. Ventilate the area. Remove all sources of ignition. No smoking. Wear appropriate protective clothing and equipment designated in Section 8. Spilled material creates a slip hazard.

6.2 Environmental precautions

Avoid dispersal of spilled material or runoff and prevent contact with soil and entry into drains, sewers or waterways.

6.3 Methods and materials for containment and cleaning up

Clean up spills immediately. Cover drains and contain spill. Cover spill with a large quantity of inert absorbent. Do not use combustible material such as sawdust. Collect material using non-sparking tools and place into an approved container for proper disposal. Observe possible material restrictions (Sections 7.2 and 10.5). Do not allow material or runoff from rinsing contaminated areas to enter floor drains or storm drains and ditches that lead to waterways. Dispose of via a licensed waste disposal contractor.

6.4 Reference to other sections

For indications about waste treatment, see Section 13.

SECTION 7 - HANDLING AND STORAGE

7.1 Precautions for safe handling

Wear all appropriate personal protective equipment specified in Section 8. Do not get in eyes or on skin or clothing. Do not inhale mist or vapor. No smoking. If normal use of material presents a respiratory hazard, use only adequate ventilation or wear an appropriate respirator.

Advice on protection against fire and explosion

Avoid sources of ignition. Vapors may form an explosive mixture with air, especially in confined spaces.

7.2 Conditions for safe storage, including any incompatibilities

Store in dry, cool and well-ventilated areas away incompatible materials (see Section 10.5), food and drink. Keep away from heat and ignition sources. Keep away from direct sunlight. Keep from freezing. Transfer only to approved containers having correct labeling. Keep containers tightly closed when not in use. Protect containers against physical damage. Containers that have been opened must be carefully resealed and kept upright to prevent spillage. Containers are hazardous when empty as they contain product residues. Use appropriate containment to avoid environmental contamination. Ventilate closed areas. Do not take internally. Keep out of reach of children.

7.3 Specific end uses

Apart from the uses mentioned in Section 1.2, no other specific uses are stipulated.

SECTION 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control parameters

Occupational exposure limits

<table>
<thead>
<tr>
<th>CAS Number</th>
<th>Ingredient</th>
<th>OSHA PEL - TWA</th>
<th>ACGIH TLV</th>
<th>NIOSH</th>
</tr>
</thead>
<tbody>
<tr>
<td>80-62-6</td>
<td>Methyl Methacrylate</td>
<td>100 ppm; 410 mg/m³</td>
<td>50 ppm TWA; Skin</td>
<td>100 ppm; 410 mg/m³ TWA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>100 ppm STEL</td>
<td>1,000 ppm IDLH (LEL)</td>
</tr>
</tbody>
</table>

A "skin" notation following the inhalation exposure guideline refers to the potential for dermal absorption of the material including eyes and mucous membranes either by direct contact with vapors or by direct skin contact. It is intended to alert the reader that inhalation may not be the only route of exposure and that measures to minimize dermal exposure should be considered.

8.2 Exposure controls

Engineering measures: Technical measures and appropriate working operations should be given priority over the use of personal protective equipment. Use adequate ventilation. Local exhaust is preferable.

Individual protection measures: Wear protective clothing to prevent repeated or prolonged contact with product. Protective clothing needs to be selected specifically for the workplace, depending on concentrations and quantities of hazardous substances handled. The chemical resistance of the protective equipment should be enquired at the representative supplier.

Hygiene measures: Facilities storing or using this material should be equipped with an eyewash station and safety shower. Change contaminated clothing. Preventive skin protection is recommended. Wash hands thoroughly after use, before eating, drinking, smoking or using the lavatory.

Eye/face protection: Wear safety glasses with unperforated side shields or protective splash goggles during use.

Hand Protection: Wear gloves recommended by glove supplier for protection against materials in Section 3. Gloves should be impermeable to chemicals and oil. Breakthrough time of selected gloves must be greater than the intended use period.

Skin protection: Wear protective clothing. Wear protective boots if the situation requires.

Respiratory protection: Always use an approved respirator when vapor/aerosols are generated. Where risk assessment shows air-purifying respirators are appropriate use a full-faced respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a...
SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Clear colorless liquid</td>
</tr>
<tr>
<td>Odor</td>
<td>Characteristic</td>
</tr>
<tr>
<td>Odor Threshold</td>
<td>0.5 - 0.1 ppm</td>
</tr>
<tr>
<td>Molecular Weight</td>
<td>100.116 g/mol</td>
</tr>
<tr>
<td>Chemical Formula</td>
<td>C₅H₈O₂</td>
</tr>
<tr>
<td>pH</td>
<td>No data available</td>
</tr>
<tr>
<td>Freezing/Melting Point, Range</td>
<td>-48 °C (-54 °F)</td>
</tr>
<tr>
<td>Initial Boiling Point</td>
<td>100.5 °C (212.9 °F)</td>
</tr>
<tr>
<td>Evaporation Rate</td>
<td>&gt;1 (n-BuOAc = 1)</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Flash Point</td>
<td>10 °C (50 °F), closed cup</td>
</tr>
<tr>
<td>Auto-Ignition Temperature</td>
<td>400 °C (752 °F) @ 1,013.25 hPa</td>
</tr>
<tr>
<td>Decomposition Temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>Lower Explosive Limit (LEL)</td>
<td>2.1% (v)</td>
</tr>
<tr>
<td>Upper Explosive Limit (UEL)</td>
<td>12.5% (v)</td>
</tr>
<tr>
<td>Vapor Pressure</td>
<td>27 mm Hg @ 20 °C</td>
</tr>
<tr>
<td>Vapor Density</td>
<td>3.5 (Air = 1)</td>
</tr>
<tr>
<td>Relative Density</td>
<td>0.949 @ 15.5 °C</td>
</tr>
<tr>
<td>Viscosity</td>
<td>0.53 mPa.s @ 20 °C</td>
</tr>
<tr>
<td>Solubility in Water</td>
<td>1.6% @ 20 °C</td>
</tr>
<tr>
<td>Partition Coefficient: n-octanol/water</td>
<td>log Pow = 1.38</td>
</tr>
<tr>
<td>Oxidizing Properties</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Explosive Properties</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Volatiles by Weight @ 21 °C</td>
<td>No data available</td>
</tr>
</tbody>
</table>

9.2 Other data

No data available

SECTION 10 - STABILITY AND REACTIVITY

10.1 Reactivity

This product is considered stable under specified conditions of storage, shipment and/or use.

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

Inhibitor is added to this product to prevent polymerization. However, hazardous polymerization can occur. Excessive aging, heat, contamination with polymerization catalysts, oxygen-free atmosphere, inhibitor depletion or ultraviolet light (sunlight) may cause polymerization. Uncontrolled polymerization may produce a rapid release of energy with the potential for an explosion of unvented closed containers.

10.4 Conditions to avoid

Heat, flames, sources of ignition and contact with incompatible materials.

10.5 Incompatible materials

Acids, bases, oxidizing agents, reducing agents, UV light, free radical initiators, organic peroxides

10.6 Hazardous decomposition products

This product does not decompose up to auto-ignition temperature. As a result there are no known hazardous decomposition products for this material.

SECTION 11 - TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute Oral Toxicity

LD₅₀, rat - 7,900 mg/kg
SECTION 13 - DISPOSAL CONSIDERATIONS

The generation of waste should be avoided or minimized whenever possible. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe way. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.

13.1 Waste treatment methods
- Methods of disposal: The generation of waste should be avoided or minimized whenever possible. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe way. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.
- RCRA P-Series: No listing
- RCRA U-Series: Methyl Methacrylate (CAS #80-62-6): U162

SECTION 12 - ECOLOGICAL INFORMATION

12.1 Toxicity
- This product is harmful to aquatic life.
- Acute and prolonged toxicity to fish: LC₅₀ - Oncorhynchus mykiss (rainbow trout), 96 h: >79 mg/l
- Toxicity to aquatic invertebrates: EC₅₀ - Daphnia magna (Water flea), 48 h: 6.9 mg/l
- Toxicity to aquatic plants: EC₅₀ - Pseudokirchneriella subcapitata (green algae), static test, 72 h: > 110 mg/l

12.2 Persistence and degradability
- This material is readily biodegradable.

12.3 Bioaccumulation potential
- This material has low potential for bioaccumulation.

12.4 Mobility in soil
- The potential for mobility in soil is high.

12.5 Results of PBT and vPvB assessment
- This material is not classified as PBT or vPvB.

12.6 Other adverse effects
- Additional ecological information
  - Do not allow material to run into surface waters, wastewater or soil.
  - An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

Safety Data Sheet
Methyl Methacrylate, Stabilized

Effective Date: 18 April 2017
Supercedes:
SECTION 15 - REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for substance or mixture

U. S. Federal Regulations

OSHA Hazard Communication Standard: This material is classified as hazardous in accordance with OSHA 29 CFR 1910-1200.


EPA Risk Management Planning Standard: This product is not regulated under EPA RMP Standard (RMP) 40 CFR Part 68.

EPA Federal Insecticide, Fungicide and Rodenticide Act: This product is not a registered Pesticide under the FIFRA, 40 CFR Part 150.

Drug Enforcement Administration (DEA) List 2, Essential Chemicals (21 CFR 1310.02(b) and 1310.4(f)(2) and Chemical Code Number
No listings

Drug Enforcement Administration (DEA) List s1 & 2, Exempt Chemical Mixtures (21 CFR 1310.12(c)) and Code Number
No listings

Department of Homeland Security (DHS) Chemical Facility Anti-Terrorism Standards (CFATS) Chemicals
No listings

Superfund Amendments and Reauthorization Act (SARA)

SARA Section 311/312 Hazard Categories: Fire Hazard, Acute Health Hazard, Chronic Health Hazard, Reactivity Hazard

SARA 313 Information: Methyl Methacrylate (CAS #80-62-6) is subject to reporting requirements of Section 313 of the Emergency Planning and Community Right-to-Know Act of 1986.

SARA 302/304 Extremely Hazardous Substance: No components of the product exceed the threshold (de minimis) reporting levels established by these sections of Title III of SARA.

SARA 302/304 Emergency Planning & Notification: No components of the product exceed the threshold (de minimis) reporting levels established by these sections of Title III of SARA.

Comprehensive Response Compensation and Liability Act (CERCLA): This product contains the following CERCLA reportable substance:

Methyl Methacrylate (CAS #80-62-6): RQ - 453.6 kg (1,000 lbs)

Clean Air Act (CAA)

Methyl Methacrylate (CAS #80-62-6) is listed as a Hazardous Air Pollutant (HAP) designated in CAA Section 112 (b).
This product does not contain any Class 1 Ozone depletors.
This product does not contain any Class 2 Ozone depletors.
15.2 Chemical safety assessment

For this product a chemical safety assessment was not carried out.

SECTION 16 - OTHER INFORMATION

Hazardous Material Information System (HMIS) Hazard Warning Symbol and Classification

<table>
<thead>
<tr>
<th>Health</th>
<th>Flammability</th>
<th>Physical Hazard</th>
<th>Personal Protection</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

HMIS Hazard Rating Legend

<table>
<thead>
<tr>
<th>Flammability</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 = Minimal</td>
</tr>
<tr>
<td>1 = Slight</td>
</tr>
<tr>
<td>2 = Moderate</td>
</tr>
<tr>
<td>3 = Serious</td>
</tr>
<tr>
<td>4 = Severe</td>
</tr>
</tbody>
</table>

NFPA Hazard Rating Legend

<table>
<thead>
<tr>
<th>Instability</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 = Insignificant</td>
</tr>
<tr>
<td>1 = Slight</td>
</tr>
<tr>
<td>2 = Moderate</td>
</tr>
<tr>
<td>3 = High</td>
</tr>
<tr>
<td>4 = Extreme</td>
</tr>
</tbody>
</table>

National Fire Protection Association (NFPA)

Abbreviation Key

- ACGIH: American Conference of Governmental Industrial Hygienists
- ADR: Accord Dangereux Routier (European regulations concerning the international transport of dangerous goods by road)
- CAS: Chemical Abstract Services
- CFR: Code of Federal Regulations
- DOT: Department of Transportation
- EPA: Environmental Protection Agency
- ERG: Emergency Response Guide Book
- FDA: Food and Drug Administration
- GHS: Globally Harmonized System of Classification and Labelling of Chemicals (GHS)
- HCS: Hazard Communication Standard
- IARC: International Agency for Research on Cancer
- IATA: International Air Transport Association
- ICAO: International Civil Aviation Organization
- IDLH: Immediately Dangerous to Life and Health
DISCLAIMER OF RESPONSIBILITY

The information on this SDS was obtained from sources which we believe are reliable. However, the information is provided without any warranty, expressed or implied, regarding its correctness. Some information presented and conclusions drawn herein are from sources other than direct test data on the substance itself. The conditions or methods of handling, storage, use and disposal of the product are beyond our control and may be beyond our knowledge. For this and other reasons, we do not assume damage or expense arising out of or in any way responsibility and expressly disclaim liability for loss, connected with handling, storage, use, or disposal of this product. If the product is used as a component in another product, this SDS information may not be applicable.

Revision Date: 18 April 2017