SILVER FERN CHEMICAL, INC.

Safety Data Sheet

Isobornyl Methacrylate

SECTION 1 - PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifier

Product name: Isobornyl Methacrylate

Synonym(s): IBOMA; IBMA; Methacrylic acid isobornyl ester; exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl methacrylate

REACH Registration Number: No data available at this time.

1.2 Relevant identified uses of the substance or mixture and uses advised against

General use: Industrial and laboratory 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

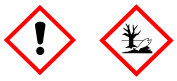
Product definition: Substance

Classification in accordance with 28 CFR 1910 (OSHA HCS)

Skin irritation - Category 2 [H315]
Skin sensitization - Category 1 [H317]
Eye irritation - Category 2A [H319]
Specific target organ toxicity, single exposure - Category 3 (STOT SE 3) [H335]
Aquatic chronic - Category 1 [H411]

2.2 Label elements

Hazard symbol(s):



GHS07 GHS09

Signal word: Warning

Hazard statement(s):

H315 - Causes skin irritation
H317 - May cause an allergic skin reaction
H319 - Causes serious eye irritation
H335 - May cause respiratory irritation
H411 - Toxic to aquatic life with long lasting effects

Precautionary statements:

[Prevention]

P261 - Avoid breathing vapor and fumes.
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.
P273 - Avoid release to the environment.
P280 - Wear protective gloves, protective clothing and eye protection.

[Response]

P302 + P352 - IF ON SKIN: Wash with plenty of soap and water.
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.
P312 - Call a POISON CENTER or doctor if you feel unwell.
P321 - Specific treatment: Seek medical attention as needed. Refer to Section 4 of this SDS.
P333 + P337 + P313 - If skin irritation or rash occurs or if eye irritation persists: Get medical attention.
P362 - Take off contaminated clothing and wash before reuse.
P391 - Collect spillage.

[Storage] P405 +P403 + P233 - Store locked up in a well-ventilated place. Keep container tightly closed.
[Disposal] P501 - Dispose of contents and containers in accordance with national and local regulations.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS

None known

SECTION 3 - COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

% by Weight	Ingredient	CAS Number	EC Number	Annex Number	GHS Classification
>99	Isobornyl Methacrylate	7534-94-3	231-403-1	----------	H315, H317, H319, H335, H411

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.

3.2 Mixtures

Not applicable

SECTION 4 - FIRST AID MEASURES

4.1 Description of first aid measures

Inhalation: If product vapor or fume 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. If symptoms persist, seek medical attention.

Eyes: Do not rub eyes or keep eyes closed. Immediately flush eyes with large amounts of water or saline solution for at least 30 minutes, occasionally lifting the upper and lower lids. Remove contact lenses, if present and easy to do, after first 2 minutes and continue rinsing. Seek immediate medical attention, preferably from an ophthalmologist.

Skin: Flush skin with large amounts of water while removing contaminated clothing. Wash affected areas with soap and water followed by thorough rinsing. Wash contaminated clothing and shoes thoroughly before reuse. If irritation persists or if a rash develops, seek medical attention.

Ingestion: Rinse mouth with water if the victim is conscious. Remove dentures, if present. DO NOT induce vomiting. Give 1 - 2 cupfuls of water to drink if the victim is conscious, alert, able to swallow and is not experiencing respiratory distress. Never give anything by mouth to a convulsing or unconscious 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 serious eye irritation with redness, itching, swelling, tearing and pain. Vapor and fumes from material may cause eye irritation.

Skin: May cause skin irritation with localized redness and itching. May cause sensitization. Persons previously sensitized can experience allergic skin reactions upon re-exposure to this product. Symptoms may include with redness, itching, swelling and rash.

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 in 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 acrylates and methacrylates.

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 suitable for surrounding fire.

Unsuitable methods of extinction: None known

5.2 Special hazards arising from the substance or mixture

Closed containers may rupture due to the buildup of pressure when exposed to extreme heat. Polymerization is exothermic and can degenerate into an uncontrolled reaction. 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.

Explosion hazards: Material does not present an explosion hazard.

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. Wear appropriate protective clothing and equipment designated in Section 8.2. Remove all sources of ignition. No smoking. Ventilate the area. Clean up spills immediately. Spilled material creates a slip hazard.

6.2 Environmental precautions

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

6.3 Methods and materials for containment and cleaning up

Cover drains and contain spill. Cover spill with a large quantity of inert absorbent. Do not use combustible material such as sawdust. Collect material and place in an approved container for disposal. Observe possible restrictions (Sections 7.2 and 10.5). Do not allow material or runoff from contaminated areas to enter floor drains or storm drains and ditches that lead to waterways. Dispose of via a licensed waste disposal contractor. Wash contaminated area with soap and water.

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 8.2. Do not get in eyes or on skin or clothing. Do not breathe fumes or vapor. If normal use of material presents a respiratory hazard, use only adequate ventilation or wear appropriate respiratory protection.

Advice on protection against fire and explosion

Polymerization is exothermic and can degenerate into an uncontrolled reaction. Not considered explosion hazard.

7.2 Conditions for safe storage, including any incompatibilities

Store tightly closed containers out of direct sunlight in cool, dry, well-ventilated storage areas. Keep from freezing. Transfer only to approved containers having correct labeling. Protect containers against physical damage. Keep containers tightly closed. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not reuse empty containers as they retain 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 value limits

Contains no substances with occupational exposure limit values.

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: None required with normal use. Where risk assessment shows air-purifying respirators are appropriate use a half-mask respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU). Follow OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149.

Environmental exposure controls: Do not empty into drains.

PPE must not be considered a long-term solution to exposure control. PPE usage must be accompanied by employer programs to properly select, maintain, clean fit and use. Consult a competent industrial hygiene resource to determine hazard potential and/or the PPE manufacturers to ensure adequate protection.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance	Clear, colorless liquid
Odor	Mild, acrylic
Odor Threshold	No data available
Molecular Weight	222.33 g/mol
Chemical Formula	$C_{14}H_{22}O_2$
pH	No data available

Freezing/Melting Point Range	No data available
Initial Boiling Point	>140 ºC @ 20 mm Hg
Evaporation Rate	No data available
Flammability (solid, gas)	Not applicable
Flash Point	108 °C (226 °F), closed cup
Autoignition Temperature	No data available
Decomposition Temperature	No data available
Lower Explosive Limit (LEL)	No data available
Upper Explosive Limit (UEL)	No data available
Vapor Pressure	No data available
Vapor Density Range	No data available
Relative Density	0.98 - 1.00 g/cm^3 @ 20 °C
Viscosity	No data available
Solubility in Water	Negligible
Partition Coefficient: n-octanol/water	log Pow = 5.09
Oxidizing Properties	Not applicable
Explosive Properties	Not applicable
Volatiles by Weight @ 21 ºC	No data available

9.2 Other data
No data available

SECTION 10 - STABILITY AND REACTIVITY

10.1 Reactivity
Product can undergo hazardous, exothermic polymerization.

10.2 Chemical stability
Stable under recommended storage conditions, handling and use.

10.3 Possibility of hazardous reactions
This material can undergo hazardous polymerization. Polymerization is exothermic and can degenerate into an uncontrolled reaction.

10.4 Conditions to avoid
This material polymerizes exothermically in the presence of heat, contamination, oxygen-free atmosphere, free radicals, peroxides and inhibitor depletion. DO NOT expose to sunlight.

10.5 Incompatible materials
Strong oxidizing agents, strong reducing agents, free radical generators, inert gas, oxygen scavengers, peroxides

10.6 Hazardous decomposition products
Thermal decomposition products include oxides of carbon, acrylates, undefined compounds, acrid smoke and fumes.

SECTION 11 - TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects
Acute oral toxicity
LD_{50}, rat: 3,100 - 6,700 mg/kg

Acute inhalation toxicity
Expected to have low acute inhalation toxicity

Acute dermal toxicity
LD_{50}, rabbit: >5,000 mg/kg

Skin irritation
Causes skin irritation.

Eye irritation
Causes serious eye irritation.

Sensitization
May cause an allergic skin reaction and respiratory sensitization.

Genotoxicity in vitro
No data available

Mutagenicity
No data available

Specific organ toxicity - single exposure
No data available

Specific organ toxicity - repeated exposure
May be irritating to the respiratory system.

Aspiration hazard
No data available

11.2 Further information
No component of this product present at levels greater than or equal to the 0.01% threshold (de minimis) is identified as a probable, possible, potential or confirmed carcinogen by IARC, ACGIH, NTP or OSHA.

No data is available regarding the mutagenicity or teratogenicity of this product, nor is there available data that indicated that it causes adverse developmental or fertility effects.

Handle in accordance with good industrial hygiene and safety practice.

SECTION 12 - ECOLOGICAL INFORMATION

12.1 Toxicity

This substance is harmful to aquatic life with long lasting effects.

Acute and prolonged toxicity to fish: LC_{50} - Danio rerio (zebra fish), 96 h: 1.79 mg/l

Acute toxicity to aquatic invertebrates: EC_{50} - Daphnia magna (Water flea), 48 h: 2.57 mg/l

Acute toxicity to aquatic plants: ErC_{50} - Pseudokirchneriella subcapitata (green algae), 96 h: 2.78 mg/l

12.2 Persistence and degradability

This substance is expected to be readily biodegradable.

12.3 Bioaccumulation potential

This substance has the potential to bioaccumulate.

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

No data available

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.

SECTION 13 - DISPOSAL CONSIDERATIONS

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: No listing

SECTION 14 - TRANSPORT INFORMATION

Note: Transportation information provided is for reference only. Customer is urged to consult 49 CFR 100 - 177, IMDG, IATA, EC, United Nations TDG and WHMIS (Canada) TDG information manuals for detailed regulations and exceptions covering specific container sizes, packaging materials and methods of shipping.

U.S. DOT (Ground Transportation)

NOT REGULATED FOR TRANSPORT

IMO/IMDG (Water Transportation)

Proper Shipping Name: Environmentally hazardous substance, liquid, n.o.s. (Isobornyl Methacrylate)
Hazard Class: 9
UN/NA: UN3082
Packing Group: III
Marine Pollutant: YES
EMS Number: F-A, S-F

ICAO/IATA (Air Transportation)

Proper Shipping Name: Environmentally hazardous substance, liquid, n.o.s. (Isobornyl Methacrylate)
Hazard Class: 9
UN/NA: UN3082
Packing Group: III
Quantity Limitations: 49 CFR 175.27 and 175.75 - Cargo Aircraft Only: No limit; Passenger Aircraft/rail: No limit

RID/ADR (Rail Transportation)

Proper Shipping Name: Environmentally hazardous substance, liquid, n.o.s. (Isobornyl Methacrylate)
Hazard Class: 9
UN/NA: UN3082
Packing Group: III

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.

OSHA Process Safety Management Standard: This substance is not regulated under OSHA PSM Standard 29 CFR 1910.119.

EPA Risk Management Planning Standard: This substance 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.

Toxic Substance Control Act (TSCA) Inventory: Isobornyl Methacrylate (CAS #7534-94-3) is listed on the TSCA Inventory. It is not subject to TSCA 12(b) Export Notification.

Drug Enforcement Administration (DEA) List 2, Essential Chemicals (21 CFR 1310.02(b) and 1310.4(f)(2)) and Chemical Code Number
Not listed

Drug Enforcement Administration (DEA) Lists 1 & 2, Exempt Chemical Mixtures (21 CFR 1310.12(c)) and Code Number
Not listed

Department of Homeland Security (DHS) Chemical Facility Anti-Terrorism Standards (CFATS) Chemicals
Not listed

Superfund Amendments and Reauthorization Act (SARA)

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

SARA 313 Information: None of the components in this product exceed the threshold (de minimis) 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 of 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 of these sections of Title III of SARA.

Comprehensive Response Compensation and Liability Act (CERCLA): This product contains no CERCLA reportable substances.

Clean Air Act (CAA)
This product does not contain any substances 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.

Clean Water Act (CWA)
None of the chemicals in this product are listed as Hazardous Substances under the CWA.
None of the chemicals in this product are listed as Priority Pollutants under the CWA.
None of the chemicals in this product are listed as Toxic Pollutants under the CWA.

U.S. State Regulations

California Prop 65, Safe Drinking Water and Toxic Enforcement Act of 1986
None of the chemicals in this product are known to the State of California to cause cancer, birth defects or reproductive harm.

Other U.S. State Inventories
Isobornyl Methacrylate (CAS #7534-94-3) is not listed on any State Hazardous Substance Inventories, Right-to-Know lists and/or Air Quality/Air Pollutants lists.

Canada

WHMIS Hazard Classification
May intensify fire, oxidizer
Harmful if swallowed
Causes skin irritation and serious eye damage
May cause respiratory irritation

Canadian National Pollutant Release Inventory (NPRI): This substance is not listed on the NPRI.

European Economic Community

WGK, Germany (Water danger/protection): 1 (low hazard to waters)

Global Chemical Inventory Lists

Country	Inventory Name	Inventory Listing*
Canada	Domestic Substance List (DSL)	Yes
Canada	Non-Domestic Substance List (NDSL)	No
Europe	Inventory of New and Existing Chemicals (EINECS)	Yes
United States	Toxic Substance Control Act (TSCA)	Yes
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
New Zealand	New Zealand Inventory of Chemicals (NZIoC)	Yes
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (ECL)	Yes
Philippines	Philippines Inventory of Chemicals and Chemical Substances (PICCS)	Yes

*Yes - All components of this product are in compliance with the inventory requirements administered by the governing country.
No - One or more components of this product are not on the inventory or are exempt from listing.

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)

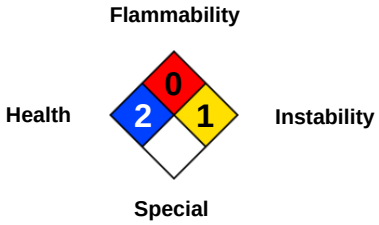
HMIS Hazard Rating Legend

0 = Minimal 1 = Slight 2 = Moderate 3 = Serious
4 = Severe * = Chronic Health Hazard

NFPA Hazard Rating Legend

0 = Insignificant 1 = Slight 2 = Moderate
3 = High 4 = Extreme

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
EMS Guide	Emergency Response Procedures for Ships Carrying Dangerous Goods
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
IMDG	International Maritime Dangerous Goods
IMO	International Maritime Organization
mppcf	Millions of Particles Per Cubic Foot
NA	North America
NAERG	North American Emergency Response Guide Book
NIOSH	National Institute for Occupational Safety
NTP	National Toxicology Program
NOEC	No Observable Effect Concentration
OSHA	Occupational Safety and Health Administration
PBT	Persistent, Bioaccumulating and Toxic
PEL	Permissible Exposure Limit
PMCC	Pensky-Martens Closed Cup
ppm	Parts Per Million
RCRA	Resource Conservation and Recovery Act
RID	Dangerous Goods by Rail
RQ	Reportable Quantity
TCC/Tag	Tagliabue Closed Cup
TLV	Threshold Limit Value
TSCA	Toxic Substance Control Act
TWA	Time-Weighted Average
UN	United Nations
VOC	Volatile Organic Compounds
vPvB	Very Persistent and Very Bioaccumulating
WHMIS	Workplace Hazardous Materials Information System

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.

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