
SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product/Catalog Number(s):

60-108.5	0.5, 5, 10, & 20 mg/ml (5.0 µg, 50 µg, 100 µg, & 200 µg/10 µl); 1.8 ml/vial, 20 each/pack
60-108A25	25 µl/ml; 1.0 ml/vial, 5/pack
60-177	20 mg/ml (1000 µg/50µl), 1.8 ml/vial, 50/pack

Product name: Methyl methanesulfonate

Synonyms: Methanesulfonic acid methyl ester; methyl methanesulfonic acid; as-dimethyl sulfite; methyl mesylate; MMS

Manufacturer: Molecular Toxicology Inc.

Address: 157 Industrial Park Drive, Boone, North Carolina, 28607

Phone: (1) 828 264 9099 (8:30 – 17:00 EST)

Fax: 828 264 0103

Emergency contact (Chemtrec): Contact 1800-424-9300 (USA) or 703 527 3887 (International) at other times
Email: chemtrec@chemtrec.com; <http://www.chemtrec.com/>

Recommended use: Laboratory, For Research Only

Restrictions on use: Not for clinical use

Section 1 notes:

SECTION 2. HAZARDS IDENTIFICATION

Classification of the substance or mixture per GSH and EU Directive 1272/2008



Danger

Physical hazards None known

Health hazards Combustible liquid
Acute toxicity, Oral (Category 3)
Skin irritation (Category 2)
Eye irritation (Category 2A)
Carcinogenicity (Category 1B)

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Specific target organ toxicity - single exposure (Category 3), respiratory system

Environmental hazards See eco-toxicity section 12.

Labelling

Hazard Statements H301 Toxic if swallowed.
H315 Causes skin irritation.
H319 Causes serious eye irritation.
H227 Combustible liquid
H335 May cause respiratory irritation.
H350 May cause cancer.
H341 Suspected of causing genetic defects

Precautionary Statements P201 Obtain special instructions before use.
P210 Keep away from heat/sparks/open flames/hot surfaces
P202 Do not handle until all safety precautions have been read and understood
P261 Avoid breathing dust/ fume/ gas/ mist/ vapors/ spray.
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P271 Use only outdoors or in a well-ventilated area.
P280 Wear protective gloves/eye protection/face protection
P301 + P310 + P330 IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician. Rinse mouth.
P302 + P352 IF ON SKIN: Wash with plenty of soap and water.
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/ physician if you feel unwell.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308 + P313 IF exposed or concerned: Get medical advice/ attention
P332+313 If skin irritation occurs: Get medical attention/advice
P337+313 If eye irritation persists: Get medical attention/advice
P362 Take off contaminated clothing and wash before reuse.
P370 + P378 In case of fire: Use alcohol-resistant foam, dry chemical or carbon dioxide.
P403 + P233 + P235 Store in a well-ventilated place. Keep container tightly closed. Keep cool.
P405 Store locked up.
P501 Dispose of contents/ container to an approved waste disposal plant.

Other hazards **Hazards not otherwise classified (HNOC) or not covered by GHS** – Rapidly absorbed through skin.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substances

Component	Purpose	CAS-No	EC-No.	Weight %
Methyl Methanesulfonate (C ₂ H ₆ O ₃ S)	Biochemical used in the study of carcinogenesis	66-27-3	200-625-0	≤ 2.5%
Dimethyl sulfoxide (DMSO)	Organic solvent	67-68-5	200-664-3	≥ 97.5%

SECTION 4. FIRST AID MEASURES

Description of first aid measures

Eye Contact	Rinse eyes and under eyelids immediately with plenty of water for at least 15 minutes. Consult a doctor.
Skin Contact	Wash off with plenty of soap and water. Take victim immediately to hospital. Consult a physician.
Ingestion	Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with plenty of water. Consult a physician.
Inhalation	If breathed in, move person into fresh air. If not breathing, provide artificial respiration. Consult a physician.
Protection of first-aiders	Not required

General advice

Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2) and/or in section 11.

Indication of any immediate medical attention and special treatment needed

No data available

SECTION 5. FIREFIGHTING MEASURES

Extinguishing media

Use alcohol-resistant foam, dry chemical or carbon dioxide. For large fires, apply water from as far as possible. Use very large quantities (flooding) of water applied as a mist or spray; solid streams of water may be ineffective. Cool all affected containers with flooding quantities of water.

Special hazards arising from the substance or mixture

Carbon oxides, Sulphur oxides

Advice for firefighters

Fire-fighters should wear self-contained breathing apparatus (SCBA).

Further information

Use water spray to cool unopened containers.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Wear respiratory protection. Avoid breathing vapors, mist or gas. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas.

Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not release material into drains.

Methods and material for containment and cleaning up

Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and dispose of as hazardous waste. Keep in suitable, closed containers for disposal.

Reference to other sections

Refer to Sections 7 for information on safe handling

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

SECTION 7. HANDLING AND STORAGE

Precautions for safe handling

Avoid contact with skin and eyes. Avoid inhalation of vapor or mist.

Keep away from sources of ignition - No smoking. Take measures to prevent the buildup of electrostatic charge. For precautions see section 2.

Conditions for safe storage, including any incompatibilities

Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

Storage class (TRGS 510): Non-combustible, acute toxic Cat.3 / toxic hazardous materials or hazardous materials causing chronic effects.

Specific end use(s)

Apart from the uses mentioned in section 3 no other specific uses are stipulated.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION**Control parameters****Components with workplace control parameters**

Component	CAS-No.	Value	Control parameters	Basis
Dimethyl sulfoxide	67-68-5	TWA	250.000000 ppm	USA. Workplace Environmental Exposure Levels (WEEL)

Exposure controls***Appropriate engineering controls***

Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes and clothing. Wash hands before breaks, immediately after handling the product and at the end of the workday.

Personal protective equipment

Eye Protection: Face shield and safety glasses. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Hand Protection

Chemical resistant gloves; nitrile or butyl- rubber recommended. Inspect gloves before use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact

Material: butyl-rubber

Minimum layer thickness: 0.3 mm

Break through time: 480 min

Material tested:Butoject® (KCL 897 / Aldrich Z677647, Size M)

Splash contact

Material: Nitrile rubber

Minimum layer thickness: 0.2 mm

Break through time: 68 min

Material tested:Dermatril® P (KCL 743 / Aldrich Z677388, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374

If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Skin and body protection

Complete suit protecting against chemicals. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

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Respiratory Protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multipurpose 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).

Hygiene Measures

Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

Control of environmental exposure

Prevent further leakage or spillage if safe to do so. Do not let product enter drains

Exposure limits

Permissible Exposure Limits and Threshold Limit Values not specified by OSHA.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Appearance	Liquid, clear - light yellow
Auto-ignition temperature	no data available
Boiling point	189°C (372°F)
Decomposition temperature	no data available
Density	no data available
Upper/lower flammability or explosive limits	Upper explosion limit: 42 %(V) Lower explosion limit: 3.5 %(V)
Flash point	87 °C (189 °F) - closed cup
Formula	N/A
Melting point	16 - 19°C (61 - 66°F)
Molecular weight	N/A
Odor threshold	no data available
Osmolality	no data available
pH	no data available
Solubility in water	no data available
Specific gravity	no data available

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Vapor density 2.70 - (Air = 1.0)
Vapor pressure no data available
Viscosity no data available

Other information

SECTION 10. STABILITY AND REACTIVITY

Reactivity

No data available.

Chemical stability

Stable under recommended conditions. Decomposition will not occur if used and stored appropriately.

Possibility of hazardous reactions

No hazardous reactions known.

Conditions to avoid

Heat, flames, and sparks

Incompatible materials

Acid chlorides, phosphorus halides, strong acids, strong reducing agents, strong oxidizing agents, strong bases, strong bases.

Hazardous decomposition products

Hazardous decomposition products formed under fire conditions. - Carbon oxides, sulfur oxides

Other decomposition products – unknown

In the event of fire, see section 5.

SECTION 11. TOXICOLOGICAL INFORMATION

Information on toxicological effects

Acute toxicity

Oral LD50

no data available

Inhalation LC50

Dermal LD50

no data available

Other information on acute toxicity

no data available

Skin corrosion/irritation

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no data available

Serious eye damage/eye irritation

no data available

Respiratory or skin sensitization

no data available

Germ cell mutagenicity

no data available

Carcinogenicity

This product is or contains a component that has been reported to be probably carcinogenic based on its IARC, OSHA, ACGIH, NTP, or EPA classification.

Possible human carcinogen

IARC: 2A - Group 2A: Probably carcinogenic to humans (Methyl methanesulphonate)

ACGIH: Not listed.

NTP: Reasonably anticipated to be a human carcinogen (Methyl methanesulphonate)

Reproductive toxicity

no data available

Teratogenicity

no data available

Specific target organ toxicity - single exposure (Globally Harmonized System)

Inhalation - May cause respiratory irritation.

Specific target organ toxicity - repeated exposure (Globally Harmonized System)

no data available

Aspiration hazard

no data available

Potential health effects

Inhalation May be harmful if inhaled. Causes respiratory tract irritation.

Ingestion Toxic if swallowed.

Skin May be harmful if absorbed through skin. Causes skin irritation.

Eyes Causes eye irritation.

Signs and Symptoms of Exposure

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Synergistic effects

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no data available

Additional Information

RTECS: PB2625000

SECTION 12. ECOLOGICAL INFORMATION

Toxicity

Aquatic ecotoxicity: no data available

Persistence and degradability: No data available.

Behavior in environment systems:

Bioaccumulative potential: No data available.

Mobility in soil: No data available.

Additional ecological information:

General notes:

Do not allow undiluted product or large quantities of it to reach ground water, water course, or sewage system.
Do not allow material to be released to the environment without proper governmental permits.

Results of PBT and vPVB Assessment

PBT: Not applicable

vPvB: Not applicable

Other adverse effects: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

SECTION 13. DISPOSAL CONSIDERATIONS

Product

Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging

Dispose of as unused product.

SECTION 14. TRANSPORT INFORMATION

DOT (US)

UN number: 2810 Class: 6.1 Packing group: III

Proper shipping name: Toxic, liquids, organic, n.o.s. (Methyl methanesulphonate)

Marine pollutant: No

Poison Inhalation Hazard: No

IMDG

UN number: 2810 Class: 6.1 Packing group: III EMS-No: F-A, S-A

Proper shipping name: TOXIC LIQUID, ORGANIC, N.O.S. (Methyl methanesulphonate)

Marine pollutant: No

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IATA

UN number: 2810 Class: 6.1 Packing group: III

Proper shipping name: Toxic liquid, organic, n.o.s. (Methyl methanesulphonate) inner packagings with Dangerous Goods > 5L for liquids or > 5kg for solids.

Other shipping information:

When sold in quantities of less than or equal to 1 ml, or 1g, with an Excepted Quantity Code of E1, E2, E4, or E5, this item meets the De Minimis Quantities exemption, per IATA 2.6.10. Therefore, packaging does not have to be labeled as Dangerous Goods/Excepted Quantity.

SECTION 15. REGULATORY INFORMATION

SARA 302 Components

SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components

SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards

Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

Methyl methanesulphonate	CAS-No. 66-27-3
Dimethyl sulfoxide	CAS-No. 67-68-5

Pennsylvania Right To Know Components

Methyl methanesulphonate	CAS-No. 66-27-3
Dimethyl sulfoxide	CAS-No. 67-68-5

New Jersey Right To Know Components

Methyl methanesulphonate	CAS-No. 66-27-3
Dimethyl sulfoxide	CAS-No. 67-68-5

California Prop. 65 Components

WARNING! This product contains a chemical known to the State of California to cause cancer.

Methyl methanesulphonate
CAS-No.66-27-3

SECTION 16. OTHER INFORMATION

HMIS Rating

Health hazard: 2
Chronic Health Hazard: *
Flammability: 2
Physical Hazard 0

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NFPA Rating

Health hazard: 2

Fire Hazard: 2

Reactivity Hazard: 0

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Molecular Toxicology, Inc. shall not be held liable for any damage resulting from handling or from contact with the above product. See www.moltox.com and/or the invoice or packing slip for additional terms and conditions of sale.