

Material Safety Data Sheet

Methyl Methanesulfonate, 99% (GC)

ACC# 97189

Section 1 - Chemical Product and Company Identification

MSDS Name: Methyl Methanesulfonate, 99% (GC)

Catalog Numbers: AC156890000, AC156890050, AC156890250

Synonyms: MMS; Methanesulphonic Acid Methyl Ester; Methyl Mesylate.

Company Identification:

Acros Organics N.V.

One Reagent Lane

Fair Lawn, NJ 07410

For information in North America, call: 800-ACROS-01

For emergencies in the US, call CHEMTREC: 800-424-9300

Section 2 - Composition, Information on Ingredients

| CAS# | Chemical Name | Percent | EINECS/ELINCS |
|---------|-------------------------|---------|---------------|
| 66-27-3 | Methyl Methanesulfonate | 97 | 200-625-0 |

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Appearance: colorless to light yellow clear liquid. Cancer suspect agent. The toxicological properties of this material have not been fully investigated. May cause eye and skin irritation. May cause respiratory and digestive tract irritation. Harmful if swallowed. **Warning!** Danger of cumulative effects. May cause cardiac disturbances. May cause central nervous system depression.

Target Organs: Central nervous system, cardiovascular system.

Potential Health Effects

Eye: May cause eye irritation.

Skin: May cause skin irritation.

Ingestion: Harmful if swallowed. May cause irritation of the digestive tract. May cause cardiac disturbances. The toxicological properties of this substance have not been fully investigated. May cause central nervous system depression.

Inhalation: May cause respiratory tract irritation. The toxicological properties of this substance have not been fully investigated. May cause cardiac abnormalities. Inhalation at high concentrations may cause CNS depression and asphyxiation.

Chronic: No information found. May cause cancer in humans. Adverse reproductive effects have been reported in animals. Laboratory experiments have resulted in mutagenic effects.

Section 4 - First Aid Measures

Eyes: Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid.

Skin: Get medical aid. Flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse.

Ingestion: Never give anything by mouth to an unconscious person. Get medical aid immediately. Do NOT induce vomiting. If conscious and alert, rinse mouth and drink 2-4 cupfuls of milk or water.

Inhalation: Remove from exposure and move to fresh air immediately. If breathing is difficult, give oxygen. Get medical aid. Do NOT use mouth-to-mouth resuscitation. If breathing has ceased apply artificial respiration using oxygen and a suitable mechanical device such as a bag and a mask.

Notes to Physician: Treat symptomatically and supportively.

Section 5 - Fire Fighting Measures

General Information: As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Will burn if involved in a fire. Vapors may be heavier than air. They can spread along the ground and collect in low or confined areas. Runoff from fire control or dilution water may cause pollution.

Extinguishing Media: In case of fire, use water, dry chemical, chemical foam, or alcohol-resistant foam. Use agent most appropriate to extinguish fire.

Flash Point: 104 deg C (219.20 deg F)

Autoignition Temperature: Not available.

Explosion Limits, Lower:Not available.

Upper: Not available.

NFPA Rating: (estimated) Health: 2; Flammability: 1; Instability: 0

Section 6 - Accidental Release Measures

General Information: Use proper personal protective equipment as indicated in Section 8.

Spills/Leaks: Absorb spill with inert material (e.g. vermiculite, sand or earth), then place in suitable container. Avoid runoff into storm sewers and ditches which lead to waterways. Clean up spills immediately, observing precautions in the Protective Equipment section. Provide ventilation.

Section 7 - Handling and Storage

Handling: Wash thoroughly after handling. Use with adequate ventilation. Avoid contact with eyes, skin, and clothing. Keep container tightly closed. Avoid ingestion and inhalation.

Storage: Store in a tightly closed container. Store in a cool, dry, well-ventilated area away from incompatible substances.

Section 8 - Exposure Controls, Personal Protection

Engineering Controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.

Exposure Limits

| Chemical Name | ACGIH | NIOSH | OSHA - Final PELs |
|-------------------------|-------------|-------------|-------------------|
| Methyl Methanesulfonate | none listed | none listed | none listed |

OSHA Vacated PELs: Methyl Methanesulfonate: No OSHA Vacated PELs are listed for this chemical.

Personal Protective Equipment

Eyes: Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin: Wear appropriate protective gloves and clothing to prevent skin exposure.

Clothing: Wear appropriate protective clothing to minimize contact with skin.

Respirators: Wear a NIOSH/MSHA or European Standard EN 149 approved full-facepiece airline respirator in the positive pressure mode with emergency escape provisions.

Section 9 - Physical and Chemical Properties

Physical State: Clear liquid

Appearance: colorless to light yellow

Odor: None reported.

pH: Not available.

Vapor Pressure: Not available.

Vapor Density: 3.8

Evaporation Rate:Not available.

Viscosity: Not available.

Boiling Point: 202 - 203 deg C @ 760.00mmHg

Freezing/Melting Point:Not available.

Decomposition Temperature:Not available.

Solubility: 200 g/l (20 c)

Specific Gravity/Density:1.3000g/cm3

Molecular Formula:C2H6O3S

Molecular Weight:110.13

Section 10 - Stability and Reactivity

Chemical Stability: Stable under normal temperatures and pressures.

Conditions to Avoid: Incompatible materials, excess heat, strong oxidants.

Incompatibilities with Other Materials: Oxidizing agents, strong acids, strong bases.

Hazardous Decomposition Products: Carbon monoxide, oxides of sulfur, irritating and toxic fumes and gases, carbon dioxide.

Hazardous Polymerization: Has not been reported.

Section 11 - Toxicological Information

RTECS#:

CAS# 66-27-3: PB2625000

LD50/LC50:

CAS# 66-27-3:

Oral, mouse: LD50 = 290 mg/kg;

Oral, rat: LD50 = 225 mg/kg;

Carcinogenicity:

CAS# 66-27-3:

California: carcinogen, initial date 4/1/88

NTP: Suspect carcinogen

IARC: Group 2A carcinogen

Epidemiology: No information available.

Teratogenicity: No information available.

Reproductive Effects: No information available.

Neurotoxicity: No information available.

Mutagenicity: No information available.

Other Studies: See actual entry in RTECS for complete information.

Section 12 - Ecological Information

Ecotoxicity: No data available. No information available.

Environmental: Terrestrial Fate: indicates that methylmethanesulfonate will have very high mobility in soil. As this compound is estimated to be miscible in water, leaching may be possible. Methyl methanesulfonate may volatilize from dry soil surfaces. AQUATIC FATE: If released to water, methyl methanesulfonate will hydrolyze fairly rapidly. Half-lives of 4.56 hours at 25 deg C. Atmospheric Fate: methyl methanesulfonate will exist mainly in the vapor phase. In the vapor phase it will degrade slowly by reaction with photochemically produced hydroxyl radicals with an estimated half-life of about 69 days.

Physical: No information available.

Other: No information available.

Section 13 - Disposal Considerations

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.

RCRA P-Series: None listed.

RCRA U-Series: None listed.

Section 14 - Transport Information

| | US DOT | IATA | RID/ADR | IMO | Canada TDG |
|-----------------------|--|------|---------|-----|---------------------------|
| Shipping Name: | DOT regulated - small quantity provisions apply (see 49CFR173.4) | | | | No information available. |
| Hazard Class: | | | | | |
| UN Number: | | | | | |
| Packing Group: | | | | | |

Section 15 - Regulatory Information

US FEDERAL

TSCA

CAS# 66-27-3 is listed on the TSCA inventory.

Health & Safety Reporting List

None of the chemicals are on the Health & Safety Reporting List.

Chemical Test Rules

None of the chemicals in this product are under a Chemical Test Rule.

Section 12b

None of the chemicals are listed under TSCA Section 12b.

TSCA Significant New Use Rule

None of the chemicals in this material have a SNUR under TSCA.

SARA

CERCLA Hazardous Substances and corresponding RQs

None of the chemicals in this material have an RQ.

SARA Section 302 Extremely Hazardous Substances

None of the chemicals in this product have a TPQ.

SARA Codes

CAS # 66-27-3: acute, chronic.

Section 313

No chemicals are reportable under Section 313.

Clean Air Act:

This material does not contain any hazardous air pollutants. This material does not contain any Class 1 Ozone depleters. This material does not contain any Class 2 Ozone depleters.

Clean Water Act:

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.

OSHA:

None of the chemicals in this product are considered highly hazardous by OSHA.

STATE

CAS# 66-27-3 can be found on the following state right to know lists: California, New Jersey, Pennsylvania, Minnesota, Massachusetts.

The following statement(s) is(are) made in order to comply with the California Safe Drinking Water Act: WARNING: This product contains Methyl Methanesulfonate, a chemical known to the state of California to cause cancer. California No Significant Risk Level:

CAS# 66-27-3: 7 æg/day NSRL

European/International Regulations

European Labeling in Accordance with EC Directives

Hazard Symbols:

XN

Risk Phrases:

R 22 Harmful if swallowed.
R 33 Danger of cumulative effects.

Safety Phrases:

S 23 Do not inhale gas/fumes/vapour/spray.

WGK (Water Danger/Protection)

CAS# 66-27-3: No information available.

Canada - DSL/NDSL

CAS# 66-27-3 is listed on Canada's DSL List.

Canada - WHMIS

This product has a WHMIS classification of D1B, D2A.

Canadian Ingredient Disclosure List

CAS# 66-27-3 is listed on the Canadian Ingredient Disclosure List.

Exposure Limits

CAS# 66-27-3: OEL-FINLAND;Carcinogen OEL-SWEDEN;Carcinogen

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| Section 16 - Additional Information |
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MSDS Creation Date: 9/02/1997

Revision #4 Date: 3/18/2003

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