Material Safety Data Sheet
Methyl disulfide

ACC# 49111

Section 1 - Chemical Product and Company Identification

MSDS Name: Methyl disulfide
Catalog Numbers: AC165590010, AC165592500, AC220940500
Synonyms: Dimethyl disulfide.
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
624-92-0	Methyl disulfide	>99	210-871-0

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Appearance: clear yellow liquid. Flash Point: 15 deg C.
Danger! May be fatal if inhaled. **Flammable liquid and vapor.** Harmful if swallowed. Causes eye, skin, and respiratory tract irritation. Stench. May be harmful if absorbed through the skin. May cause central nervous system effects. May cause blood abnormalities.
Target Organs: Central nervous system, respiratory system.

Potential Health Effects

Eye: Causes eye irritation.
Skin: Causes skin irritation. May cause dermatitis. Not expected to cause an allergic skin reaction.
Ingestion: May cause gastrointestinal irritation with nausea, vomiting and diarrhea. May cause liver damage. May be harmful if swallowed.
Inhalation: May be fatal if inhaled. Vapors may cause dizziness or suffocation. Causes upper respiratory tract irritation. Exposure may cause blood abnormalities. Causes irritation of the mucous membrane.
Chronic: Effects may be delayed. Exposure to high concentrations may cause tearing, cyanosis (bluish discoloration of skin due to deficient oxygenation of the blood), central nervous system depression or hemorrhage in the lung. Prolonged or repeated exposure may cause hemolytic anemia which can lead to renal failure. Following repeated application of dimethyl disulfide to the skin of rabbits, severe skin irritation and necrosis, transient lethargy, increased mortality, spasms, and effects on the heart and red blood cells were observed.

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. Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse.
Ingestion: Do not induce vomiting. If victim is conscious and alert, give 2-4 cupfuls of milk or water. Never give anything by mouth to an unconscious person. Get medical aid immediately.
Inhalation: Get medical aid immediately. Remove from exposure and move to fresh air immediately. If breathing is difficult, give oxygen. 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. Use water spray to keep fire-exposed containers cool. Flammable liquid and vapor. Vapors are heavier than air and may travel to a source of ignition and flash back. Vapors can spread along the ground and collect in low or confined areas.
Extinguishing Media: Use water spray, dry chemical, carbon dioxide, or appropriate foam.
Flash Point: 15 deg C (59.00 deg F)
Autoignition Temperature: 300 deg C (572.00 deg F)
Explosion Limits, Lower:1.10 vol %
Upper: 16.00 vol %
NFPA Rating: (estimated) Health: 3; Flammability: 3; 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. Remove all sources of ignition. Use a spark-proof tool. Provide ventilation. A vapor suppressing foam may be used to reduce vapors. Approach spill from upwind.

Section 7 - Handling and Storage

Handling: Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Ground and bond containers when transferring material. Use spark-proof tools and explosion proof equipment. Avoid contact with eyes, skin, and clothing. Empty containers retain product residue, (liquid and/or vapor), and can be dangerous. Keep away from heat, sparks and flame. Do not ingest or inhale. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose empty containers to heat, sparks or open flames. Do not breathe vapor. Use only with adequate ventilation.
Storage: Keep away from sources of ignition. Store in a cool, dry, well-ventilated area away from incompatible substances. Flammables-area. Keep containers tightly closed.

Section 8 - Exposure Controls, Personal Protection

Engineering Controls: Use process enclosure, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits. Use explosion-proof ventilation equipment. Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.
Exposure Limits

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
Methyl disulfide	none listed	none listed	none listed

OSHA Vacated PELs: Methyl disulfide: No OSHA Vacated PELs are listed for this chemical.
Personal Protective Equipment
Eyes: Wear chemical splash goggles.
Skin: Wear appropriate protective gloves to prevent skin exposure.
Clothing: Wear appropriate protective clothing to prevent skin exposure.
Respirators: A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements or European Standard EN 149 must be followed whenever workplace conditions warrant respirator use.

Section 9 - Physical and Chemical Properties

Physical State: Liquid
Appearance: clear yellow
Odor: stench - disagreeable odor
pH: Not applicable.
Vapor Pressure: 28.7 mm Hg @ 25 deg C
Vapor Density: 3.25 (air=1)
Evaporation Rate: Not available.
Viscosity: 0.62 MPA.S 20 deg C
Boiling Point: 109 deg C @ 760 mm Hg
Freezing/Melting Point:-85 deg C
Decomposition Temperature:390 deg C
Solubility: Insoluble.
Specific Gravity/Density:1.0625g/cm3
Molecular Formula:C2H6S2
Molecular Weight:94.19

Section 10 - Stability and Reactivity

Chemical Stability: Stable under normal temperatures and pressures.
Conditions to Avoid: Ignition sources, excess heat, confined spaces.
Incompatibilities with Other Materials: Strong oxidizing agents, strong reducing agents, strong bases.
Hazardous Decomposition Products: Carbon monoxide, oxides of sulfur, irritating and toxic fumes and gases, carbon dioxide, hydrogen sulfide.
Hazardous Polymerization: Has not been reported.

Section 11 - Toxicological Information

RTECS#:
CAS# 624-92-0: JO1927500
LD50/LC50:
CAS# 624-92-0:
Draize test, rabbit, eye: 100 uL/24H;
Inhalation, mouse: LC50 = 12300 ug/m3/2H;
Inhalation, rat: LC50 = 15850 ug/m3/2H;
.
Oral, rat: LD50 = 290-500 mg/kg. ation, rat: LC50 = 805 ppm/4H = 1610 ppm/1H. na Chemicals.
Carcinogenicity:
CAS# 624-92-0: Not listed by ACGIH, IARC, NTP, or CA Prop 65.

Epidemiology: No information found
Teratogenicity: No information found
Reproductive Effects: No information found
Mutagenicity: No information found
Neurotoxicity: No information found
Other Studies:

Section 12 - Ecological Information

Ecotoxicity: No data available. Estimated Koc values of 36-218 suggest moderate to high soil mobility of solution-phase methyl disulfide. Volatilization and photodegradation are expected to be major fate processes for methyl disulfide in water. Aquatic hydrolysis, bioconcentration and adsorption to sediment are not expected to be important fate processes because of the lack of hydroyzable group and high water solubility. Based upon a vapor pressure of 28.7 mm Hg at 25 deg C methyl disulfide is expected to exist primary in the vapor phase in the ambient atmosphere.
Environmental: No information available.
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	Canada TDG
Shipping Name:	DIMETHYL DISULFIDE	DIMETHYL DISULFIDE
Hazard Class:	3	3
UN Number:	UN2381	UN2381
Packing Group:	II	II
Additional Info:		FLASHPOINT 15C

Section 15 - Regulatory Information

US FEDERAL

TSCA
CAS# 624-92-0 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.
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 # 624-92-0: immediate, fire.
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 depletors.
This material does not contain any Class 2 Ozone depletors.
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# 624-92-0 can be found on the following state right to know lists: New Jersey, Pennsylvania, Massachusetts.

California Prop 65

California No Significant Risk Level: None of the chemicals in this product are listed.

European/International Regulations
European Labeling in Accordance with EC Directives
Hazard Symbols:

T+ F N

Risk Phrases:

R 11 Highly flammable.
R 22 Harmful if swallowed.
R 26 Very toxic by inhalation.
R 36/37/38 Irritating to eyes, respiratory system and skin.
R 51/53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Safety Phrases:

S 16 Keep away from sources of ignition - No smoking.
S 26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S 36/37/39 Wear suitable protective clothing, gloves and eye/face pr otection.
S 38 In case of insufficient ventilation, wear suitable respiratory equipment.
S 45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
S 28A After contact with skin, wash immediately with plenty of water .
S 61 Avoid release to the environment. Refer to special instructions /safety data sheets.

WGK (Water Danger/Protection)

CAS# 624-92-0: 2

Canada - DSL/NDSL

CAS# 624-92-0 is listed on Canada's DSL List.

Canada - WHMIS

This product has a WHMIS classification of B2, D1B, D2B.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations.

Canadian Ingredient Disclosure List

Section 16 - Additional Information

MSDS Creation Date: 3/04/1999
Revision #3 Date: 9/20/2005