

Material Safety Data Sheet

Methyl Viologen hydrate

ACC# 71121

Section 1 - Chemical Product and Company Identification

MSDS Name: Methyl Viologen hydrate
Catalog Numbers: AC227320000, AC227320010, AC227320050, AC227322500

Synonyms:

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
1910-42-5	1,1-Dimethyl-4,4'-bipyridinium dichloride	100.0	217-615-7

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Appearance: yellow solid.

Warning! Causes severe eye irritation. Harmful if swallowed or absorbed through the skin. May cause skin irritation. May cause respiratory and digestive tract irritation. Air sensitive. Danger of cumulative effects.

Target Organs: Kidneys, lungs.

Potential Health Effects

Eye: Causes severe eye irritation.

Skin: May cause skin irritation. Harmful if absorbed through the skin.

Ingestion: Harmful if swallowed. May cause irritation of the digestive tract. Human systemic effects include acute renal failure, acute tubular necrosis, cough, diarrhea, dyspnea (labored breathing), headache, hyperactivity, nausea, vomiting, ulceration or bleeding from stomach.

Inhalation: May cause respiratory tract irritation. May cause a delayed damaging effect on the lung alveoli.

Chronic: Effects may be delayed. Chronic ingestion may cause fetal effects. 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 immediately.

Skin: Get medical aid immediately. 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: 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.

Extinguishing Media: Use agent most appropriate to extinguish fire. In case of fire, use carbon dioxide, dry chemical powder or appropriate foam.

Flash Point: Not available.

Autoignition Temperature: Not available.

Explosion Limits, Lower: Not available.

Upper: Not available.

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

Section 6 - Accidental Release Measures

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

Spills/Leaks: Clean up spills immediately, observing precautions in the Protective Equipment section. Avoid generating dusty conditions.

Provide ventilation. Place under an inert atmosphere. Cover with dry earth, dry sand, or other non-combustible material followed with plastic sheet to minimize spreading and contact with water.

Section 7 - Handling and Storage

Handling: Wash thoroughly after handling. Use only in a well-ventilated area. Minimize dust generation and accumulation. Avoid contact with eyes, skin, and clothing. Do not ingest or inhale. Handle under an inert atmosphere. Store protected from air.

Storage: Store in a tightly closed container. Store in a cool, dry, well-ventilated area away from incompatible substances. Do not expose to air. Store under an inert atmosphere.

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 ventilation to keep airborne concentrations low.

Exposure Limits

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
1,1-Dimethyl-4,4'-bipyridinium dichloride	0.5 mg/m ³ TWA; 0.1 mg/m ³ TWA (respirable fraction) (listed under Paraquat).	0.1 mg/m ³ TWA (respirable dust) 1 mg/m ³ IDLH	0.5 mg/m ³ TWA (respirable dust)

OSHA Vacated PELs: 1,1-Dimethyl-4,4'-bipyridinium dichloride: 0.1 mg/m³ TWA (respirable dust)

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 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: Solid

Appearance: yellow

Odor: None reported.

pH: Not available.

Vapor Pressure: Not available.

Vapor Density: Not available.

Evaporation Rate: Not available.

Viscosity: Not available.

Boiling Point: Not available.

Freezing/Melting Point: > 300 deg C

Decomposition Temperature: Not available.

Solubility: Freely Soluble.

Specific Gravity/Density: Not available.

Molecular Formula: C₁₂H₁₄Cl₂N₂.xH₂O

Molecular Weight: 257.15

Section 10 - Stability and Reactivity

Chemical Stability: Stable under normal temperatures and pressures.

Conditions to Avoid: Incompatible materials, dust generation, exposure to air.

Incompatibilities with Other Materials: Strong oxidizing agents.

Hazardous Decomposition Products: Hydrogen chloride, nitrogen oxides, carbon monoxide, carbon dioxide, nitrogen.

Hazardous Polymerization: Has not been reported.

Section 11 - Toxicological Information

RTECS#:

CAS# 1910-42-5: DW2275000

LD50/LC50:

CAS# 1910-42-5:

Draize test, rabbit, eye: 25 mg Mild;
Draize test, rabbit, eye: 12500 ug Severe;
Inhalation, rat: LC50 = 1 mg/m³/6H;
Oral, mouse: LD50 = 120 mg/kg;
Oral, rat: LD50 = 57 mg/kg;
Skin, rabbit: LD50 = 325 mg/kg;
Skin, rat: LD50 = 80 mg/kg;

Carcinogenicity:

CAS# 1910-42-5: Not listed by ACGIH, IARC, NTP, or CA Prop 65.

Epidemiology: No information available.

Teratogenicity: No information available.

Reproductive Effects: Fertility: Post-implantation mortality (ipr-mouse) TDLo=30150 ug/kg (8-16D preg).; Specific developmental abnormalities: musculoskeletal (ipr-rat) TDLo: 6500 ug/kg (6D preg).

Mutagenicity: DNA damage: Human lymphocyte = 250 mg/L; DNA repair: *Salmonella typhimurium* = 100 ug/plate.; Specific locus test: *Drosophila melanogaster* = 2 mmol/L.; Sex chromosome loss and nondisjunction: *Drosophila melanogaster* = 1929 mg/L.; Unscheduled DNA synthesis: Human cells = 20 mg/L.; DNA inhibition: Human lymphocyte = 900 mg/L.

Neurotoxicity: No information available.

Other Studies:

Section 12 - Ecological Information

Ecotoxicity: Fish: Rainbow trout: LC50 = 38-62 mg/L; 48 Hr.; Unspecified

Fish: Bluegill/Sunfish: LC50 = 16.0 mg/L; 96 Hr.; Unspecified

Fish: Guppy: LC50 = 7-11.0 mg/L; 96 Hr.; Unspecified

Water flea Daphnia: LC50 = 45.0 mg/L; 24 Hr.; Unspecified

Bacteria: *Phytobacterium phosphoreum*: LC50 = 967 mg/L; 5 minutes; Microtox test

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:	TOXIC SOLID, ORGANIC, N.O.S.*	TOXIC SOLID ORGANIC NOS (METHYL VIOLOGEN HYDRATE)
Hazard Class:	6.1	6.1
UN Number:	UN2811	UN2811
Packing Group:	II	II

Section 15 - Regulatory Information

US FEDERAL

TSCA

CAS# 1910-42-5 is not listed on the TSCA inventory. It is for research and development use only.

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

CAS# 1910-42-5: 10 lb TPQ (lower threshold); 10000 lb TPQ (upper threshold)

Section 313

This material contains 1,1-Dimethyl-4,4'-bipyridinium (CAS# 1910-42-5, 100.0%), which is subject to the reporting requirements of Section 313 of SARA Title

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# 1910-42-5 can be found on the following state right to know lists: California, New Jersey, Pennsylvania, Minnesota, 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 + N

Risk Phrases:

R 26 Very toxic by inhalation.
R 36/37/38 Irritating to eyes, respiratory system and skin.
R 24/25 Toxic in contact with skin and if swallowed.
R 48/25 Toxic : danger of serious damage to health by prolonged exposure if swallowed.
R 50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Safety Phrases:

S 22 Do not breathe dust.
S 36/37/39 Wear suitable protective clothing, gloves and eye/face protection.
S 45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
S 60 This material and its container must be disposed of as hazardous waste.
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# 1910-42-5: No information available.

Canada - DSL/NDSL

None of the chemicals in this product are listed on the DSL or NDSL list.

Canada - WHMIS

This product has a WHMIS classification of 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

CAS# 1910-42-5 is not listed on the Canadian Ingredient Disclosure List.

Section 16 - Additional Information

MSDS Creation Date: 6/25/1999**Revision #4 Date:** 10/03/2005

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall Fisher be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if Fisher has been advised of the possibility of such damages.