Material Safety Data Sheet
Methylene Blue, High Purity Biological Stain

ACC# 95702

Section 1 - Chemical Product and Company Identification

MSDS Name: Methylene Blue, High Purity Biological Stain
Catalog Numbers: AC229800000, AC229801000
Synonyms: Phenothiazin-5-ium, 3,7-bis(dimethylamino)-, chloride, trihydrate; C.I. Basic Blue 9, trihydrate; C.I. 52015, trihydrate; 3,7-Bis(dimethylamino)phenothiazin-5-ium chloride trihydrate; Methylene Blue trihydrate.
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
7220-79-3	Methylene Blue trihydrate	96	unlisted

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Appearance: dark green solid.
Warning! Causes respiratory tract irritation. Causes eye and skin irritation. May be harmful if swallowed. Reproductively active.
Target Organs: Blood, eyes.

Potential Health Effects
Eye: May cause chemical conjunctivitis. Causes eye irritation and possible injury.
Skin: Causes skin irritation. Absorption into the body may cause cyanosis (bluish discoloration of skin due to deficient oxygenation of the blood).
Ingestion: May cause gastrointestinal irritation with nausea, vomiting and diarrhea. May cause hemolytic anemia. May be harmful if swallowed.
Inhalation: Causes respiratory tract irritation. May cause methemoglobinemia, cyanosis (bluish discoloration of skin due to deficient oxygenation of the blood), convulsions, tachycardia, dyspnea (labored breathing), and death. Can produce delayed pulmonary edema.
Chronic: Effects may be delayed. Laboratory experiments have resulted in mutagenic effects. Repeated contact may cause corneal damage. May cause adverse reproductive 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: 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.
Inhalation: Remove from exposure and move to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid. Do NOT use mouth-to-mouth resuscitation.
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. This material in sufficient quantity and reduced particle size is capable of creating a dust explosion.
Extinguishing Media: Use extinguishing media most appropriate for the surrounding fire.
Flash Point: Not applicable.
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: Vacuum or sweep up material and place into a suitable disposal container. Clean up spills immediately, observing

precautions in the Protective Equipment section. Avoid generating dusty conditions. Provide ventilation.

Section 7 - Handling and Storage

Handling: Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Use with adequate ventilation. Minimize dust generation and accumulation. Avoid contact with eyes, skin, and clothing. Avoid breathing dust.
Storage: Keep container closed when not in use. 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 ventilation to keep airborne concentrations low.
Exposure Limits

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
Methylene Blue trihydrate	none listed	none listed	none listed
Methylene Blue	none listed	none listed	none listed

OSHA Vacated PELs: Methylene Blue trihydrate: No OSHA Vacated PELs are listed for this chemical. Methylene Blue: 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 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: dark green
Odor: odorless
pH: 3-4.5 (1% aq sol)
Vapor Pressure: Negligible.
Vapor Density: 13 (Air=1)
Evaporation Rate: Not available.
Viscosity: Not available.
Boiling Point: Decomposes.
Freezing/Melting Point:190 deg C (dec)
Decomposition Temperature:190 deg C
Solubility: Slightly soluble.
Specific Gravity/Density:1.230
Molecular Formula:C16H18ClN3S.3H2O
Molecular Weight:373.89

Section 10 - Stability and Reactivity

Chemical Stability: Stable at room temperature in closed containers under normal storage and handling conditions.
Conditions to Avoid: Dust generation, excess heat, excess light.
Incompatibilities with Other Materials: Oxidizing agents, reducing agents, bases, dichromates, alkali iodides, caustic alkalis.
Hazardous Decomposition Products: Chlorine, nitrogen oxides, carbon monoxide, oxides of sulfur, carbon dioxide.
Hazardous Polymerization: Will not occur.

Section 11 - Toxicological Information

RTECS#:
CAS# 7220-79-3: SP5740000
CAS# 61-73-4: SO5600000
LD50/LC50:
Not available.

CAS# 61-73-4:
Oral, mouse: LD50 = 3500 mg/kg;
Oral, rat: LD50 = 1180 mg/kg;
.
NTP Carcinogenesis studies; on test (two year studies), October 2000.
Carcinogenicity:
CAS# 7220-79-3: Not listed by ACGIH, IARC, NTP, or CA Prop 65.
CAS# 61-73-4: Not listed by ACGIH, IARC, NTP, or CA Prop 65.

Epidemiology: No information found
Teratogenicity: No information found

Reproductive Effects: Oral, rat: TDLo = 2500 mg/kg (female 1-22 day(s) after conception) Fertility - post-implantation mortality (e.g. dead and/or resorbed implants per total number of implants).
Mutagenicity: DNA Adduct: Mouse, Ascites tumor = 70 umol/L.; DNA Adduct: Mammal - species unspecified Lymphocyte = 1830 nmol/L.
Neurotoxicity: No information found
Other Studies:

Section 12 - Ecological Information

Ecotoxicity: No data available. Laboratory adsorption studies determined that Methylene Blue was strongly adsorbed to three different soils. Volatilization of Methylene Blue will not be important from moist or dry soil surfaces. If released to water, Methylene Blue would adsorb to suspended solids and sediment based upon soil adsorption studies. It will be essentially non-volatile from water surfaces. An estimated BCF value of 1.5 suggests that Methylene Blue will not bioconcentrate in aquatic organisms.
Environmental: If released to the atmosphere, Methylene Blue will exist as both vapor and particulate in the ambient atmosphere. Vapor-phase Methylene Blue is degraded in the atmosphere by reaction with photochemically produced hydroxyl radicals with an estimated half-life of about 1.9 hours. Direct photolysis in the environment may also be possible. Particulate-phase Methylene Blue may be physically removed from the air by wet and dry deposition.
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:	Not regulated as a hazardous material	No information available.
Hazard Class:		
UN Number:		
Packing Group:		

Section 15 - Regulatory Information

US FEDERAL

TSCA
CAS# 7220-79-3 is not listed on the TSCA inventory. It is for research and development use only.
CAS# 61-73-4 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 # 7220-79-3: immediate, delayed.
CAS # 61-73-4: immediate, delayed.
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# 7220-79-3 is not present on state lists from CA, PA, MN, MA, FL, or NJ.
CAS# 61-73-4 is not present on state lists from CA, PA, MN, MA, FL, or NJ.

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:

XN

Risk Phrases:

R 22 Harmful if swallowed.

Safety Phrases:

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 protection.

WGK (Water Danger/Protection)

CAS# 7220-79-3: No information available.
CAS# 61-73-4: 2

Canada - DSL/NDSL

CAS# 61-73-4 is listed on Canada's DSL List.

Canada - WHMIS

This product has a WHMIS classification of D2A, 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# 61-73-4 is listed on the Canadian Ingredient Disclosure List.

Section 16 - Additional Information

MSDS Creation Date: 9/02/1997
Revision #6 Date: 3/04/2004