



# MATERIAL SAFETY DATA SHEETS

## SECTION I

### PRODUCT AND COMPANY IDENTIFICATION

**Product: Methylene Blue USP, CP**  
**This MSDS is valid for all grades and catalog #'s**

Synonyms: Basic Blue 9; 3,7-bis(Dimethylamio) phenothiazin-5-ium Chloride; Methylene Blue Trihydrate  
Formula: C<sub>16</sub>H<sub>18</sub>N<sub>3</sub>S-Cl.3H<sub>2</sub>O  
Manufacturer: PHARMCO-AAPER  
58 Vale Road  
Brookfield, Connecticut 06804, USA  
Phone (203) 740-3471  
Fax (203) 740-3481  
  
1101 Isaac Shelby Drive  
Shelbyville, KY 40065  
Phone (502) 633-0650  
Fax (502) 633-0685

Emergency Contact:  
CHEMTREC 1-800-424-9300

## SECTION II

### COMPOSITION /INFORMATION ON INGREDIENTS

% by weight	Material	CAS #	TLV/PEL	LC50/LD50
100	Methylene Blue USP	7220-79-3	Not available	ORAL (LD50): Acute: 1180 mg/kg [Rat]. 3500 mg/kg [Mouse].

## SECTION III

### HAZARDS IDENTIFICATION

**Potential Acute Health Effects:** Slightly hazardous in case of skin contact (irritant), of eye contact (irritant), of ingestion, of inhalation.

**Potential Chronic Health Effects:**

CARCINOGENIC EFFECTS: Not available.  
MUTAGENIC EFFECTS: Mutagenic for mammalian somatic cells. Mutagenic for bacteria and/or yeast.  
TERATOGENIC EFFECTS: Not available.  
DEVELOPMENTAL TOXICITY: Not available.  
Repeated or prolonged exposure is not known to aggravate medical condition.

## SECTION IV

### FIRST AID

Obtain medical attention for all cases of over-exposure.  
**Eye Contact:** Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Cold water may be used. Get medical attention.  
**Skin Contact:** Wash with soap and water. Cover the irritated skin with an emollient. Get medical attention if irritation develops. Cold water may be used.  
**Hazardous Skin Contact:** Not available.  
**Inhalation:** If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.  
**Hazardous Inhalation:** Not available  
**Ingestion:** Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If large quantities of this material are swallowed, call a physician immediately. Loosen tight clothing such as a collar, tie, belt or waistband.  
**Hazardous Ingestion:** Not available.

## SECTION V

### FIRE FIGHTING MEASURES

**Fire:**

Flammability of the Product: May be combustible at high temperature.  
Auto-Ignition temperature: Not available  
Flash point: Not available  
Flammable limits: Not available  
Products of Combustion: These products are carbon oxides (CO, CO<sub>2</sub>), nitrogen oxides (NO, NO<sub>2</sub>...), sulfur oxides (SO<sub>2</sub>, SO<sub>3</sub>...), halogenated compounds.  
**Fire Hazards:** Slightly flammable to flammable in presence of open flames and sparks, of heat. Non-flammable in presence of shocks.  
**Explosion Hazards:** Risks of explosion of the product in presence of mechanical impact: Not available. Slightly explosive in presence of open flames and sparks.  
**Fire Extinguishing Media:** SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use water spray, fog or foam. Do not use water jet.  
**Special Information:** Fine dust dispersed in air in sufficient concentrations, and in the presence of an ignition source is a potential dust explosion hazard.

## SECTION VI

## SPILL/ACCIDENTAL RELEASE MEASURES

**Small Spill:** Use appropriate tools to put the spilled solid in a convenient waste disposal container. Finish cleaning by spreading water on the contaminated surface and dispose of according to local and regional authority requirements.

**Large Spill:** Use a shovel to put the material into a convenient waste disposal container. Finish cleaning by spreading water on the contaminated surface and allow to evacuate through the sanitary system.

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## SECTION VII HANDLING AND STORAGE

**Precautions:** Keep away from heat. Keep away from sources of ignition. Ground all equipment containing material. Do not ingest. Do not breathe dust. Avoid contact with eyes. Wear suitable protective clothing. If ingested, seek medical advice immediately and show the container or the label. Keep away from incompatibles such as oxidizing agents, reducing agents, alkalis.

**Storage:** Keep container tightly closed. Keep container in a cool, well-ventilated area.

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## SECTION VIII EXPOSURE CONTROLS / PERSONAL PROTECTION

**Engineering Controls:** Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

**Personal Protection:** Splash goggles. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

**Personal Protection in Case of a Large Spill:** Splash goggles. Full suit. Dust respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

**Exposure Limits:** Not available

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## SECTION IX PHYSICAL AND CHEMICAL PROPERTIES

**Physical State/Appearance:** Solid. (Crystals solid. Powdered solid.)

**Molecular Weight:** 373.9 g/mole

**Odor:** Slight.

**Taste:** Not available.

**Color:** Green. (Dark.)

**pH (1% Solution in Water):** Not available.

**Boiling Point:** Not available.

**Melting Point:** 190°C (374°F)

**Critical Temperature:** Not available.

**Specific Gravity:** Not available.

**Vapor Pressure (mm Hg):** Not applicable.

**Vapor Density (Air=1):** Not available.

**Volatility:** Not available.

**Odor Threshold:** Not available.

**Evaporation Rate:** Not available.

**Viscosity:** Not available.

**Water/Oil Dist. Coefficient:** Not available.

**Ionicity (in water):** Not available.

**Dispersion Properties:** See solubility in water.

**Solubility:** Soluble in cold water. Soluble in chloroform. Sparingly soluble in alcohol.

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## SECTION X STABILITY/REACTIVITY INFORMATION

**Stability:** The product is stable.

**Instability Temperature:** Not available.

**Conditions of Instability:** Excess heat, light, air, incompatible materials

**Incompatibilities:** Reactive with oxidizing agents, reducing agents, alkalis.

**Corrosivity:** Not available.

**Special Information:** Light Sensitive. Air Sensitive. Also incompatible with caustic alkali, dichromates, alkali iodides.

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## SECTION XI TOXICOLOGICAL INFORMATION

**Routes of Entry:** Inhalation. Ingestion.

**Toxicity to Animals:** Methylene Blue [anhydrous; CAS no. 61-73-4]: Acute oral toxicity (LD50): 1180 mg/kg [Rat].

**Chronic Effects on Humans: MUTAGENIC EFFECTS:** Mutagenic for mammalian somatic cells. Mutagenic for bacteria and/or yeast.

**Other Toxic Effects on Humans:** Slightly hazardous in case of skin contact (irritant), of ingestion, of inhalation.

**Special Information on Toxicity to Animals:** Not available.

**Special Information on Chronic Effects/Toxicity on Humans:** May cause adverse reproductive effects (female fertility- post implantation mortality; male fertility - inhibition of sperm motility) based on animal data. No human data found. May affect genetic material (mutagenic). Methylene Blue is used as as color marker on skin , in tissue or amniotic fluid. It may be teratogenic via intraamniotic injection. Acute Potential Health Effects:

**Skin:** May cause skin irritation. It may color the skin a bluish color. **Eyes:** Dust causes eye irritation. It may cause corneal and conjunctival injury. **Inhalation:** Dust may cause respiratory tract irritation. No expected health hazard via inhalation during normal industrial handling. **Ingestion:** May be harmful if swallowed. Ingestion of large doses may cause gastrointestinal tract irritation, burning sensation mouth, nausea, vomiting, diarrhea, abdominal pain. May affect blood (hemolytic anemia, hyperbilirubinemia, methemoglobinemia), metabolism (weight loss). Other symptoms of overdose may include anxiety, chest pain, confusion, dizziness, headache, unusual tiredness and weakness, severe sweating, tremors. Symptoms of Methemoglobinemia include cyanosis, headache, lethargy, dizziness, fatigue, syncope, dyspnea, central nervous system depression, seizures, arrhythmia, and shock.

**SECTION XII  
ECOLOGICAL INFORMATION**

**Ecotoxicity:** Not available

**BOD5 and COD:** Not available

**Products of Biodegradation:** Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

**Toxicity of the Products of Biodegradation:** The products of degradation are as toxic as the product itself.

**Special Information on Products of Biodegradation:** Not available.

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**SECTION XIII  
DISPOSAL CONSIDERATIONS**

**Waste Disposal:** Not available.

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**SECTION XIV  
TRANSPORTATION INFORMATION**

**DOT Classification:** DOT Not a DOT controlled material (United States).

**UN:** Not applicable.

**Special Provisions for Transport:** Not applicable.

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**SECTION XV  
REGULATORY INFORMATION**

**Federal and State Regulations:** California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer which would require a warning under the statute: **No products were found.**

California prop. 65: This product contains the following ingredients for which the State of California has found to cause birth defects which would require a warning under the statute: **No products were found.**

**Other Classifications:**

WHMIS (Canada): Not controlled under WHMIS (Canada). CAS no. 61-73-4 is listed on the Canadian DSL; CAS no. 7220-79-3 is not listed on the Canadian DSL

DSCL (EEC): R22- Harmful if swallowed. R36- Irritating to eyes.

**Protective Equipment:** Gloves. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Splash goggles.

**References:** Not available.

**Other Special Considerations:** Not available.

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The information contained herein is based on data considered to be accurate based on the material as packaged. However, no warranty is expressed regarding the accuracy of these data or the results to be obtained from the use thereof. If this product is combined with other materials, deteriorates, or becomes contaminated, it may pose hazards not mentioned in this MSDS. It is the user's obligation to determine the conditions of safe use of the product. While this MSDS is based on technical data judged to be reliable, PHARMCO-AAPER assumes not responsibility for the completeness or accuracy of the information contained herein.