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| <b>MSDS</b>   | <b>Material Safety Data Sheet</b> | 24 Hour Emergency Telephone: 908-859-2151<br>CHEMTREC: 1-800-424-9300   |
|   |                                   | National Response in Canada<br>CANUTEC: 613-996-6666  |
| From: Mallinckrodt Baker, Inc.<br>222 Red School Lane<br>Phillipsburg, NJ 08865                     |                                   | Outside U.S. and Canada<br>Chemtrec: 703-527-3887   |
|                    |                                   | <b>NOTE:</b> CHEMTREC, CANUTEC and National Response Center emergency numbers to be used only in the event of chemical emergencies involving a spill, leak, fire, exposure or accident involving chemicals. |
| All non-emergency questions should be directed to Customer Service (1-800-582-2537) for assistance. |                                   |   |

## METHYLENE BLUE

### 1. Product Identification

**Synonyms:** Basic Blue 9, trihydrate; Methylene blue trihydrate; 3,7-Bis(dimethylamino)phenazathionium chloride trihydrate  
**CAS No.:** 61-73-4 (Anhydrous); 7220-79-3 (Trihydrate)  
**Molecular Weight:** 373.91  
**Chemical Formula:** C<sub>16</sub>H<sub>18</sub>C<sub>1</sub>N<sub>3</sub>S . 3H<sub>2</sub>O  
**Product Codes:**  
J.T. Baker: 2702, Q473, Q475  
Mallinckrodt: 5891, E065

### 2. Composition/Information on Ingredients

| Ingredient     | CAS No  | Percent | Hazardous |
|----------------|---------|---------|-----------|
| Methylene Blue | 61-73-4 | 100%    | Yes       |

### 3. Hazards Identification

#### Emergency Overview

**WARNING! HARMFUL IF SWALLOWED.**

**SAF-T-DATA<sup>(tm)</sup>** Ratings (Provided here for your convenience)

Health Rating: 2 - Moderate  
Flammability Rating: 1 - Slight  
Reactivity Rating: 1 - Slight  
Contact Rating: 1 - Slight  
Lab Protective Equip: GOGGLES; LAB COAT; VENT HOOD; PROPER GLOVES  
Storage Color Code: Green (General Storage)

#### Potential Health Effects

This material is relatively nonhazardous in routine industrial situations.

#### Inhalation:

No adverse health effects expected from inhalation. May cause a short period of rapid or difficult breathing.

#### Ingestion:

A burning sensation of the mouth may be noted following ingestion of methylene blue. May cause nausea, vomiting, diarrhea, and gastritis. Large doses may cause abdominal and chest pain, headache, profuse sweating, mental confusion, painful micturition, and methemoglobinemia.

#### Skin Contact:

Not expected to be a health hazard from skin exposure. Methylene blue may color the skin a bluish color. May cause photosensitization.

#### Eye Contact:

No adverse effects expected. May cause mechanical irritation.

**Chronic Exposure:**

No information found.

**Aggravation of Pre-existing Conditions:**

No information found.

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## 4. First Aid Measures

**Inhalation:**

Remove to fresh air. Get medical attention for any breathing difficulty.

**Ingestion:**

Induce vomiting immediately as directed by medical personnel. Never give anything by mouth to an unconscious person.

**Skin Contact:**

Immediately flush skin with plenty of soap and water for at least 15 minutes. Remove contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention if irritation develops.

**Eye Contact:**

Immediately flush eyes with plenty of water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get medical attention if irritation persists.

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## 5. Fire Fighting Measures

**Fire:**

Methylene blue does not burn. Not considered to be a fire hazard.

**Explosion:**

Not considered to be an explosion hazard.

**Fire Extinguishing Media:**

Use any means suitable for extinguishing surrounding fire.

**Special Information:**

In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode.

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## 6. Accidental Release Measures

Ventilate area of leak or spill. Wear appropriate personal protective equipment as specified in Section 8.

Spills: Pick up and place in a suitable container for reclamation or disposal, using a method that does not generate dust.

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## 7. Handling and Storage

Keep in a tightly closed container, stored in a cool, dry, ventilated area. Protect against physical damage. Avoid dust formation and control ignition sources. Isolate from incompatible substances. Containers of this material may be hazardous when empty since they retain product residues (dust, solids); observe all warnings and precautions listed for the product.

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## 8. Exposure Controls/Personal Protection

**Airborne Exposure Limits:**

None established.

**Ventilation System:**

In general, dilution ventilation is a satisfactory health hazard control for this substance. However, if conditions of use create discomfort to the worker, a local exhaust system should be considered.

**Personal Respirators (NIOSH Approved):**

Not expected to require personal respirator usage. For conditions of use where exposure to dust or mist is apparent and engineering controls are not feasible, a particulate respirator (NIOSH type N95 or better filters) may be worn. If oil particles (e.g. lubricants, cutting fluids, glycerine, etc.) are present, use a NIOSH type R or P filter. For emergencies or instances where the exposure levels are not known, use a full-face positive-pressure, air-supplied respirator. WARNING: Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.

**Skin Protection:**

Wear protective gloves and clean body-covering clothing.

**Eye Protection:**

Use chemical safety goggles and/or full face shield where dusting or splashing of solutions is possible. Maintain eye wash fountain and quick-drench facilities in work area.

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## 9. Physical and Chemical Properties

**Appearance:**  
Dark green crystals with bronze luster or crystalline powder.  
**Odor:**  
Odorless.  
**Solubility:**  
Soluble in water.  
**Specific Gravity:**  
No information found.  
**pH:**  
No information found.  
**% Volatiles by volume @ 21C (70F):**  
0  
**Boiling Point:**  
Decomposes.  
**Melting Point:**  
100 - 110C (212 - 230F)  
**Vapor Density (Air=1):**  
13  
**Vapor Pressure (mm Hg):**  
Not applicable.  
**Evaporation Rate (BuAc=1):**  
No information found.

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## 10. Stability and Reactivity

**Stability:**  
Stable under ordinary conditions of use and storage.  
**Hazardous Decomposition Products:**  
May produce oxides of nitrogen, sulfur and carbon when heated to decomposition.  
**Hazardous Polymerization:**  
Will not occur.  
**Incompatibilities:**  
Strong oxidizing agents, alkali, dichromates, alkali iodides, reducing agents.  
**Conditions to Avoid:**  
Heat, flame, ignition sources, dusting and incompatibles.

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## 11. Toxicological Information

Methylene Blue: 1180 mg/kg LD50 oral rat. Investigated as a mutagen, reproductive effector.

| -----\Cancer Lists\----- |                      |             |               |
|--------------------------|----------------------|-------------|---------------|
| Ingredient               | ---NTP Carcinogen--- |             | IARC Category |
|                          | Known                | Anticipated |               |
| Methylene Blue (61-73-4) | No                   | No          | None          |

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## 12. Ecological Information

**Environmental Fate:**  
When released into the soil, this material is not expected to evaporate significantly. When released into water, this material is not expected to evaporate significantly. This material has an estimated bioconcentration factor (BCF) of less than 100. This material is not expected to significantly bioaccumulate. When released into the air, this material is expected to be readily degraded by reaction with photochemically produced hydroxyl radicals. When released into the air, this material may be removed from the atmosphere to a moderate extent by wet deposition. When released into the air, this material may be removed from the atmosphere to a moderate extent by dry deposition.  
**Environmental Toxicity:**  
No information found.

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## 13. Disposal Considerations

Whatever cannot be saved for recovery or recycling should be managed in an appropriate and approved waste disposal facility. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.

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## 14. Transport Information

Not regulated.

## 15. Regulatory Information

| -----\Chemical Inventory Status - Part 1\----- |      |     |       |           |
|--|------|-----|-------|-----------|
| Ingredient                                     | TSCA | EC  | Japan | Australia |
| Methylene Blue (61-73-4)                       | Yes  | Yes | Yes   | Yes       |

| -----\Chemical Inventory Status - Part 2\----- |       |     |                  |       |
|--|-------|-----|------------------|-------|
| Ingredient                                     | Korea | DSL | Canada--<br>NDSL | Phil. |
| Methylene Blue (61-73-4)                       | Yes   | Yes | No               | Yes   |

| -----\Federal, State & International Regulations - Part 1\----- |                  |     |                    |                |
|---|------------------|-----|--------------------|----------------|
| Ingredient  | -SARA 302-<br>RQ | TPQ | -SARA 313-<br>List | Chemical Catg. |
| Methylene Blue (61-73-4)  | No               | No  | No                 | No             |

| -----\Federal, State & International Regulations - Part 2\----- |        |                  |                |
|---|--------|------------------|----------------|
| Ingredient  | CERCLA | -RCRA-<br>261.33 | -TSCA-<br>8(d) |
| Methylene Blue (61-73-4)  | No     | No               | No             |

Chemical Weapons Convention: No TSCA 12(b): No CDTA: No  
SARA 311/312: Acute: Yes Chronic: No Fire: No Pressure: No  
Reactivity: No (Pure / Solid)

**Australian Hazchem Code:** None allocated.

**Poison Schedule:** None allocated.

### WHMIS:

This MSDS has been prepared according to the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

## 16. Other Information

**NFPA Ratings:** Health: 2 Flammability: 0 Reactivity: 0

### Label Hazard Warning:

WARNING! HARMFUL IF SWALLOWED.

### Label Precautions:

Wash thoroughly after handling.

Avoid contact with eyes, skin and clothing.

### Label First Aid:

If swallowed, induce vomiting immediately as directed by medical personnel. Never give anything by mouth to an unconscious person.

### Product Use:

Laboratory Reagent.

### Revision Information:

No Changes.

### Disclaimer:

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