SAFETY DATA SHEET

1. IDENTIFICATION

Product identifier

Product code: M3271
Product Name: METHYLENE BLUE, ANHYDROUS

Other means of identification

Synonyms:

- 3,7-Bis (dimethylamino) phenazathionium chloride
- 3,7-Bis(dimethylamino)phenothiazin-5-iium chloride
- Basic Blue 9
- Basic Lake Blue
- C.I. Basic Blue 9
- Calcozine Blue ZF
- Chromosmon
- D and C Blue No. 1
- External Blue 1
- Methylenblau (German)
- MMethylene Blue Polychrome
- Methylene Blue chloride
- Methylenium ceruleum
- Methylthionine
- Methylthionine chloride
- Methylthionium chloride
- Modr Methylenova (Czech)
- Modr Rozpoustedlova 8 (Czech)
- Modr Zasadita 9 (Czech)
- Phenothiazin-5-iium, 3,7-bis(dimethylamino)-, chloride
- Sandocryl Blue BRL
- Swiss Blue
- Tetramethylene Blue
- Tetramethylthionine chloride

CAS #: 61-73-4
RTECS #: SO5600000
CI#: Not available

Recommended use of the chemical and restrictions on use

Recommended use: Biological stain. Dyeing textiles. Dyeing leather.
Uses advised against: No information available

Supplier:
Spectrum Chemical Mfg. Corp
14422 South San Pedro St.
Gardena, CA 90248
(310) 516-8000

Order Online At: https://www.spectrumchemical.com

Revision Number: G1
Preparation Date: 12/03/2015
Revision Date: 12/03/2015
2. HAZARDS IDENTIFICATION

Classification

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

<table>
<thead>
<tr>
<th>Hazard Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute toxicity - Oral</td>
</tr>
<tr>
<td>Skin corrosion/irritation</td>
</tr>
<tr>
<td>Serious eye damage/eye irritation</td>
</tr>
<tr>
<td>Specific target organ toxicity (single exposure)</td>
</tr>
</tbody>
</table>

Label elements

Warning

Hazard statements
Harmful if swallowed
Causes skin irritation
Causes serious eye irritation
May cause respiratory irritation

Hazard statements - Response

Specific treatment (see .? on this label)
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.
IF ON SKIN: Wash with plenty of soap and water
If skin irritation occurs: Get medical advice/attention
Take off contaminated clothing and wash before reuse
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell.
IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell
Rinse mouth

Precautionary Statements - Storage

Store in a well-ventilated place. Keep container tightly closed
Store locked up

Product code: M3271  Product name: METHYLENE BLUE, ANHYDROUS
Precautionary Statements - Disposal
Dispose of contents/container to an approved waste disposal plant

3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Weight %</th>
<th>Trade Secret</th>
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<tr>
<td>Methylene Blue, Anhydrous 61-73-4</td>
<td>61-73-4</td>
<td>100</td>
<td>*</td>
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</table>

4. FIRST AID MEASURES

First aid measures
General Advice: Poison information centers in each State capital city can provide additional assistance for scheduled poisons (13 1126).

Skin Contact: Wash off immediately with soap and plenty of water removing all contaminated clothes and shoes. Get medical attention. If skin irritation persists, call a physician.

Eye Contact: Flush eyes with water for 15 minutes. Get medical attention.

Inhalation: Move to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

Ingestion: Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Obtain medical attention.

Most important symptoms and effects, both acute and delayed

Indication of any immediate medical attention and special treatment needed
Notes to Physician: Treat symptomatically

Protection of first-aiders
First-Aid Providers: Avoid exposure to blood or body fluids. Wear gloves and other necessary protective clothing. Dispose of contaminated clothing and equipment as bio-hazardous waste

5. FIRE-FIGHTING MEASURES

Extinguishing Media
Suitable Extinguishing Media: Dry chemical. Carbon dioxide (CO2). Water spray mist or foam.

Unsuitable Extinguishing Media: No information available.

Specific hazards arising from the chemical
Hazardous Combustion Products: Carbon monoxide; Carbon dioxide; hydrogen chloride gas; nitrogen oxides; sulfur oxides

Specific hazards: May be combustible at high temperatures

Special Protective Actions for Firefighters
Specific Methods: No information available.

Product code: M3271  Product name: METHYLENE BLUE, ANHYDROUS
Special Protective Equipment for Firefighters: As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal Precautions: Ensure adequate ventilation. Keep people away from and upwind of spill/leak. Avoid contact with skin, eyes and clothing. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Use personal protective equipment. Avoid dust formation. Remove all sources of ignition.

Environmental precautions Prevent further leakage or spillage if safe to do so. Prevent product from entering drains. Prevent from entering into soil, ditches, sewers, waterways, and/or ground water.

Methods and material for containment and cleaning up

Methods for containment Stop leak if you can do it without risk. Cover with plastic sheet to prevent spreading.

Methods for cleaning up Sweep up and shovel into suitable containers for disposal. Clean contaminated surface thoroughly.

7. HANDLING AND STORAGE

Precautions for safe handling

Technical Measures/Precautions: Provide sufficient air exchange and/or exhaust in work rooms. Avoid dust formation. Keep away from incompatible materials.

Safe Handling Advice
Wear personal protective equipment. Avoid contact with skin, eyes and clothing. Avoid dust formation. Do not ingest. Do not breathe vapours/dust. Keep away from heat and sources of ignition. Handle in accordance with good industrial hygiene and safety practice.

Conditions for safe storage, including any incompatibilities

Technical Measures/Storage Conditions:
Keep container tightly closed in a dry and well-ventilated place. Store at room temperature in the original container. Store away from incompatible materials. Protect from light. Sensitive to light. Store in light-resistant containers.

Incompatible Materials:

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

National occupational exposure limits

United States

<table>
<thead>
<tr>
<th>Components</th>
<th>OSHA</th>
<th>NIOSH</th>
<th>ACGIH</th>
<th>AIHA WHEEL</th>
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<td>Methylene Blue, Anhydrous 61-73-4</td>
<td>None</td>
<td>None</td>
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Canada

<table>
<thead>
<tr>
<th>Components</th>
<th>Alberta</th>
<th>British Columbia</th>
<th>Ontario</th>
<th>Quebec</th>
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<td>None</td>
<td>None</td>
</tr>
</tbody>
</table>

Product code: M3271 Product name: METHYLENE BLUE, ANHYDROUS
Appropriate engineering controls

Engineering measures to reduce exposure:

Ensure adequate ventilation. 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.

Individual protection measures, such as personal protective equipment

Personal Protective Equipment

- **Eye protection:** Goggles.
- **Skin and body protection:** Long sleeved clothing. Chemical resistant apron. Gloves.
- **Respiratory protection:** Wear respirator with dust filter.
- **Hygiene measures:** Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product. When using, do not eat, drink or smoke.
9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state: Solid.

Odor: Slight.

Molecular/Formula weight: 319.85

Flashpoint (°C/°F): No information available.

Lower Explosion Limit (%): No information available

Melting point/range(°C/°F): 100-110 °C/212-230 °F

Bulk density: No information available

Vapor pressure @ 20°C (kPa): No information available

VOC content (g/L): No information available

Viscosity: No information available

Appearance: Crystalline. Crystalline powder.

Taste: No information available

Flammability: No information available

Flash Point Tested according to: Not applicable

Upper Explosion Limit (%): No information available

Boiling point/range(°C/°F): No information available

Density (g/cm3): No information available

Evaporation rate: No information available

Odor threshold (ppm): No information available

Miscibility: No information available

Color: Dark green.

Formula: C16-H18-Cl-N3-S

Flash point (°C): No data available

Autoignition Temperature (°C/°F): No information available

pH: No information available

Specific gravity: No information available

Vapor density: No information available

Partition coefficient (n-octanol/water): 5.85

Solubility: Soluble in Ethanol
Soluble in Chloroform
Soluble in glacial Acetic acid
Insoluble in Ether
Insoluble in Xylene
Slightly soluble in water
Solubility in Water: 43,600 mg/L at 25 deg. C
Slightly soluble in pyridine

Flashpoint (°C/°F): No information available.

10. STABILITY AND REACTIVITY

Reactivity
Reactive with oxidizing agents, reducing agents, and bases

Chemical stability
Stability: Stable under recommended storage conditions

Possibility of Hazardous Reactions: Hazardous polymerization does not occur


Other Information
Corrosivity: No information available

Product code: M3271
Product name: METHYLENE BLUE, ANHYDROUS
11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Principal Routes of Exposure:
Ingestion. Inhalation.

Acute Toxicity

Component Information

*Methylene Blue, Anhydrous - 61-73-4*

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<tr>
<th>Route</th>
<th>Value</th>
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</thead>
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</tr>
<tr>
<td>LD50/oral/mouse</td>
<td>3500 mg/kg</td>
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<tr>
<td>LD50/dermal/rabbit</td>
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<tr>
<td>LD50/dermal/rabbit</td>
<td>No information available</td>
</tr>
<tr>
<td>LC50/inhalation/rat</td>
<td>No information available</td>
</tr>
<tr>
<td>LC50/inhalation/mouse</td>
<td>No information available</td>
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<tr>
<td>LD50/dermal/rabbit</td>
<td>No information available</td>
</tr>
<tr>
<td>VALUE-Acute Tox Oral</td>
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<tr>
<td>VALUE-Acute Tox Dermal</td>
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Product Information

<table>
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<tr>
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<tr>
<td>VALUE-Acute Tox Oral</td>
<td>11800 mg/kg</td>
</tr>
<tr>
<td>VALUE-Acute Tox Dermal</td>
<td>No information available</td>
</tr>
</tbody>
</table>

Symptoms

Skin Contact: Causes skin irritation. It may color the skin a bluish color.

Eye Contact: Causes serious eye irritation. May cause corneal injury.

Inhalation: Irritating to respiratory system
Ingestion: Harmful if swallowed. May cause digestive (gastointestinal) tract irritation. May cause abdominal pain, nausea, vomiting, diarrhea. It causes irritation or a burning sensation of the mouth and throat.

Ingestion: Methylene Blue is utilized as the main treatment for Methemoglobinemia, but it can induce Methemoglobinemia in people with glucose-6-phosphate dehydrogenase.

Aspiration hazard: No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure:

Chronic Toxicity: No information available

Sensitization: No information available

Mutagenic Effects: Mutations in microorganisms. Experiments with bacteria and/or yeast have shown mutagenic effects.

Carcinogenic effects: Not considered carcinogenic

<table>
<thead>
<tr>
<th>Components</th>
<th>IARC</th>
<th>ACGIH - Carcinogens</th>
<th>NTP</th>
<th>OSHA HCS - Carcinogens</th>
<th>Australia - Notifiable Carcinogenic Substances</th>
<th>Australia - Prohibited Carcinogenic Substances</th>
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<tbody>
<tr>
<td>Methylene Blue, Anhydrous</td>
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<td>Not listed</td>
<td>Not listed</td>
<td>Not listed</td>
<td>Not listed</td>
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</table>

Reproductive toxicity: No data is available

Reproductive Effects: No information available

Developmental Effects: No information available

Teratogenic Effects: No information available

Specific Target Organ Toxicity

STOT - single exposure: No information available

STOT - repeated exposure: No information available

Target Organs: No information available

12. ECOLOGICAL INFORMATION

Ecotoxicity

Ecotoxicity effects: No data available.

Persistence and degradability: No information available

Bioaccumulative potential: No information available

Mobility: No information available

13. DISPOSAL CONSIDERATIONS

Disposal Methods

Product code: M3271  
Product name: METHYLENE BLUE, ANHYDROUS
13. DISPOSAL CONSIDERATIONS

Waste from residues / unused products:
Waste must be disposed of in accordance with Federal, State and Local regulation.

Contaminated packaging:
Empty containers should be taken for local recycling, recovery or waste disposal

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<thead>
<tr>
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<tbody>
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14. TRANSPORT INFORMATION

DOT

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<td>Subsidiary Risk:</td>
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<tr>
<td>Packing Group:</td>
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<td>ERG No:</td>
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<td>Marine Pollutant</td>
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<td>DOT RQ (lbs):</td>
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TDG (Canada)

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ADR

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IMO / IMDG

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<td>Maximum Quantity:</td>
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RID

Product code: M3271  Product name: METHYLENE BLUE, ANHYDROUS
### 14. TRANSPORT INFORMATION

<table>
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**ICAO**

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**IATA**

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### 15. REGULATORY INFORMATION

#### International Inventories

<table>
<thead>
<tr>
<th>Components</th>
<th>U.S. TSCA</th>
<th>KOREA KECL</th>
<th>Philippines (PICCS)</th>
<th>Japan ENCS</th>
<th>CHINA</th>
<th>Australia (AICS)</th>
<th>EINECS-No.</th>
</tr>
</thead>
</table>

#### U.S. Regulations

**California Prop. 65: Safe Drinking Water and Toxic Enforcement Act of 1986.**

**Chemicals Known to the State of California to Cause Cancer:**
This product does not contain a chemical requiring a warning under California Prop. 65. (See table below)

**Chemicals Known to the State of California to Cause Reproductive Toxicity:**
This product does not contain a chemical requiring a warning under California Prop. 65. (See table below)

<table>
<thead>
<tr>
<th>Components</th>
<th>Carcinogen</th>
<th>Developmental Toxicity</th>
<th>Male Reproductive Toxicity</th>
<th>Female Reproductive Toxicity</th>
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<tr>
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<td>Not Listed</td>
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#### CERCLA/SARA

<table>
<thead>
<tr>
<th>Components</th>
<th>CERCLA - Hazardous Substances and their Reportable Quantities</th>
<th>Section 302 Extremely Hazardous Substances and TPQs</th>
<th>Section 302 Extremely Hazardous Substances and RQs</th>
<th>Section 313 - Chemical Category</th>
<th>Section 313 - Reporting de minimis</th>
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#### U.S. TSCA

- **Product code:** M3271
- **Product name:** METHYLENE BLUE, ANHYDROUS
Canada

WHMIS hazard class:
Non-controlled

Methylene Blue, Anhydrous
Uncontrolled product according to WHMIS classification criteria

Canada Controlled Products Regulation:
This product has been classified according to the hazard criteria of the CPR (Controlled Products Regulation) and the MSDS contains all of the information required by the CPR.

Methylene Blue, Anhydrous
1 %

Inventory

Methylene Blue, Anhydrous
Present
Not Listed

EU Classification

R-phrase(s)
R22 - Harmful if swallowed.

S-phrase(s)
S26 - In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S46 - If swallowed, seek medical advice immediately and show this container or label.

The product is classified in accordance with Annex VI to Directive 67/548/EEC

Indication of danger:
Xn - Harmful.
16. OTHER INFORMATION

Preparation Date: 12/03/2015
Revision Date: 12/03/2015
Prepared by: Sonia Owen

Disclaimer:
All chemicals may pose unknown hazards and should be used with caution. This Safety Data Sheet (SDS) applies only to the material as packaged. If this product is combined with other materials, deteriorates, or becomes contaminated, it may pose hazards not mentioned in this SDS. The physical properties reported in this SDS are obtained from the literature and do not constitute product specifications. Information contained herein does not constitute a warranty, whether expressed or implied, as to the safety, merchantability or fitness of the goods for a particular purpose. Spectrum Chemicals & Laboratory Products, Inc. assumes no responsibility for results obtained or for incidental or consequential damages, including lost profits, arising from the use of these data. No warranty against infringement of any patent, copyright or trademark is made or implied. It shall be the user's responsibility to develop proper methods of handling and personal protection based on the actual conditions of use. While this SDS is based on technical data judged to be reliable, Spectrum assumes no responsibility for the completeness or accuracy of the information contained herein.

End of Safety Data Sheet