



# HazTech Systems, Inc.

## SAFETY DATA SHEET

Revision number: 2  
Revision date: 12/09/2015

### 1. IDENTIFICATION

**Product name:** Methylene blue in methanol (mixture)  
**Product code:** RE2331  
**Synonyms:** Tetramethylthionine chloride, 3,7-bis(Dimethylamino)phenazathionium chloride, Basic Blue 9  
**CAS:** 7220-79-3/67-56-1  
**RTECS #** Not available  
**CI#:** Not available  
**Recommended use:** Laboratory chemicals, Manufacture of substances  
**Uses advised against:** No information available

**Company:**  
HazTech Systems, Inc.  
4996 Gold Leaf Drive  
Mariposa, CA 95338 U.S.A.  
Telephone:  
1-800-543-5487 / 1-209-966-8088  
Fax:  
1-209-966-8089  
e-mail:  
sales@hazcat.com  
www.hazcat.com

**Chemical Emergencies:**  
HazTech Systems, Inc. (8:00am - 5:00pm) PST  
1-800-543-5487  
**Transportation Emergencies:**  
Chemtrec 24-Hour  
1-800-424-9300 (U.S.A.)  
1-703-527-3887 (International)

### 2. HAZARD(S) IDENTIFICATION

**Classification of the substance or mixture**

**GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)**

Flammable liquids (Category 2), H225

Acute toxicity , Oral (Category 3), H301

Acute toxicity , Inhalation (Category 3), H331

Acute toxicity , Dermal (Category 3), H311

Specific target organ toxicity - single exposure (Category 1), H370

For the full text of the H-Statements mentioned in this Section, see Section 16.

**GHS Label elements, including precautionary statements**

Pictogram



Signal word

Danger

Hazard statement(s)

H225

Highly flammable liquid and vapour.

H301 + H311 + H331

Toxic if swallowed, in contact with skin or if inhaled

H370

Causes damage to organs.

H302

Harmful if swallowed

Precautionary statement(s)

P210

Keep away from heat/sparks/open flames/hot surfaces. -No smoking.

P233

Keep container tightly closed.

P240

Ground/bond container and receiving equipment.

P241

Use explosion -proof electrical/ ventilating/ lighting/ equipment.

P242

Use only non -sparking tools.

P264

Wash skin thoroughly after handling

P270

Do not eat, drink or smoke when using this product.

**2. HAZARDS IDENTIFICATION**

P243	Take precautionary measures against static discharge.
P260	Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
P264	Wash skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P271	Use only outdoors or in a well - ventilated area.
P280	Wear protective gloves/ eye protection/ face protection.
P301 + P310 + P330	IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician. Rinse mouth.
P303 + P361 + P353	IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P304 + P340 + P311	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/ physician.
P307 + P311	IF exposed: Call a POISON CENTER or doctor/ physician.
P363	Wash contaminated clothing before reuse.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol - resistant foam for extinction.
P403 + P233	Store in a well - ventilated place. Keep container tightly closed.
P403 + P235	Store in a well - ventilated place. Keep cool.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

**Hazards not otherwise classified (HNOC) or not covered by GHS - none**

**3. COMPOSITION/INFORMATION ON INGREDIENTS**

**Substances (Mixture)**

Synonyms	: Methyl alcohol/Methylene blue
Formula	: Not available
Molecular weight	: Not available
CAS -No.	: 67 -56 -1/7220-79-3
EC-No.	: Not available
Index -No.	: Not available
Registration number	: Not available

**Hazardous components**

Component	Classification	Concentration
<b>Methanol</b>		
	Flam. Liq. 2; Acute Tox. 3; STOT SE 1; H225, H301 + H311 + H331, H370	*
<b>Methylthioninium chloride</b>		
	Acute Tox. 4; H302	*

\* Proprietary

For the full text of the H-Statements mentioned in this Section, see Section 16.

**4. FIRST AID MEASURES**

**General advice**

Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

**If inhaled**

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

**In case of skin contact**

Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

**In case of eye contact**

Flush eyes with water as a precaution.

**If swallowed**

Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

**Most important symptoms and effects, both acute and delayed**

The most important known symptoms and effects are described in the labelling (see section 2) and/or in section 11

**Indication of any immediate medical attention and special treatment needed**

No data available

**5. FIREFIGHTING MEASURES**

**Extinguishing media**

**Suitable extinguishing media**

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

**Special hazards arising from the substance or mixture**

Carbon oxides Nitrogen oxides (NOx), Sulfur oxides, Hydrogen chloride gas

**Advice for firefighters**

Wear self-contained breathing apparatus for firefighting if necessary.

**Further information**

Use water spray to cool unopened containers.

**6. ACCIDENTAL RELEASE MEASURES**

**Personal precautions, protective equipment and emergency procedures**

Wear respiratory protection. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations.

Vapours can accumulate in low areas.

For personal protection see section 8.

**Environmental precautions**

Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

**Methods and materials for containment and cleaning up**

Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13).

**Reference to other sections**

For disposal see section 13.

**7. HANDLING AND STORAGE**

**Precautions for safe handling**

Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.

Use explosion-proof equipment. Keep away from sources of ignition - No smoking. Take measures to prevent the build up of electrostatic charge.

For precautions see section 2.

**Conditions for safe storage, including any incompatibilities**

Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

Storage class (TRGS 510): Flammable liquids

**Specific end use(s)**

Apart from the uses mentioned in section 1 no other specific uses are stipulated

**8. EXPOSURE CONTROLS/PERSONAL PROTECTION**

**Control parameters**

**Components with workplace control parameters**

Component	CAS -No.	Value	Control parameters	Basis
Methanol	67-56-1	TWA	200.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Headache		
		Nausea Dizziness Eye damage Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Danger of cutaneous absorption		
		STEL	250.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Headache Nausea Dizziness Eye damage Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Danger of cutaneous absorption		

Methylene blu

**8. EXPOSURE CONTROLS/PERSONAL PROTECTION**

		TWA	200.000000 ppm 260.000000 mg/m <sup>3</sup>	USA. NIOSH Recommended Exposure Limits
		Potential for dermal absorption		
		ST	250.000000 ppm 325.000000 mg/m <sup>3</sup>	USA. NIOSH Recommended Exposure Limits
		Potential for dermal absorption		
		TWA	200.000000 ppm 260.000000 mg/m <sup>3</sup>	USA. Occupational Exposure Limits (OSHA) - Table Z -1 Limits for Air Contaminants
		The value in mg/m <sup>3</sup> is approximate.		
Methylene blue	Is not a substance that has occupational exposure limit values			

**Biological occupational exposure limits**

Component	CAS -No.	Parameters	Value	Biological specimen	Basis
Methanol	67-56-1	Methanol	15.0000 mg/l	Urine	ACGIH - Biological Exposure Indices (BEI)
	Remarks	End of shift (As soon as possible after exposure ceases)			

**Derived No Effect Level (DNEL)**

Application Area	Exposure routes	Health effect	Value
Workers	Skin contact	Long-term systemic effects	40mg/kg BW/d
Consumers	Skin contact	Long-term systemic effects	8mg/kg BW/d
Consumers	Ingestion	Long-term systemic effects	8mg/kg BW/d
Workers	Skin contact	Acute systemic effects	40mg/kg BW/d
Consumers	Skin contact	Acute systemic effects	8mg/kg BW/d
Consumers	Ingestion	Acute systemic effects	8mg/kg BW/d
Workers	Inhalation	Acute systemic effects	260 mg/m <sup>3</sup>
Workers	Inhalation	Acute local effects	260 mg/m <sup>3</sup>
Workers	Inhalation	Long-term systemic effects	260 mg/m <sup>3</sup>
Workers	Inhalation	Long-term local effects	260 mg/m <sup>3</sup>
Consumers	Inhalation	Acute systemic effects	50 mg/m <sup>3</sup>
Consumers	Inhalation	Acute local effects	50 mg/m <sup>3</sup>
Consumers	Inhalation	Long-term systemic effects	50 mg/m <sup>3</sup>
Consumers	Inhalation	Long-term local effects	50 mg/m <sup>3</sup>

**Predicted No Effect Concentration (PNEC)**

Compartment	Value
Soil	23.5 mg/kg
Marine water	15.4 mg/l
Fresh water	154 mg/l
Fresh water sediment	570.4 mg/kg
Onsite sewage treatment plant	100 mg/kg

**Exposure controls****Appropriate engineering controls**

Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

**Personal protective equipment****Eye/face protection**

Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

**8. EXPOSURE CONTROLS/PERSONAL PROTECTION****Skin protection**

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

## Full contact

Material : butyl-rubber

Minimum layer thickness: 0.3 mm

Break through time : 480 min

Material tested: Butoject® (KCL 897 / Aldrich Z677647, Size M)

## Splash contact

Material : Nitrile rubber

Minimum layer thickness: 0.4 mm

Break through time : 31 min

Material tested: Camatril® (KCL 730 / Aldrich Z677442, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374

If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

**Body Protection**

Complete suit protecting against chemicals, Flame retardant antistatic protective clothing., The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

**Respiratory protection**

Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type AXBEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

**Control of environmental exposure**

Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

**9. PHYSICAL AND CHEMICAL PROPERTIES****Information on basic physical and chemical properties**

- |   |   |
|---|---|
| a) Appearance                                   | Form : liquid<br>Color: Dark blue   |
| b) Odor   | pungent   |
| c) Odor Threshold                               | No data available   |
| d) pH   | No data available   |
| e) Melting point/freezing point                 | Melting point/range : -98 °C ( -144 °F)   |
| f) Initial boiling point and boiling range      | 64.7 °C (148.5 °F)  |
| g) Flash point                                  | 9.7 °C (49.5 °F) - closed cup   |
| h) Evaporation rate                             | No data available   |
| i) Flammability (solid, gas)                    | No data available   |
| j) Upper/lower flammability or explosive limits | Upper explosion limit : 36 %(V)<br>Lower explosion limit : 6 %(V)   |
| k) Vapor pressure                               | 130.3 hPa (97.7 mmHg) at 20.0 °C (68.0 °F)<br>546.6 hPa (410.0 mmHg) at 50.0 °C (122.0 °F)<br>169.27 hPa (126.96 mmHg) at 25.0 °C (77.0 °F) |
| l) Vapor density                                | 1.11  |
| m) Relative density                             | 0.791 g/mL at 25 °C (77 °F)   |
| n) Water solubility                             | completely miscible   |
| o) Partition coefficient: n-octanol/water       | log Pow : -0.77   |

Product Code(s) RE2331

Methylene blue in methanol

Revision Date 12/10/15

## 9. PHYSICAL AND CHEMICAL PROPERTIES

- p) Auto-ignition temperature 455.0 °C (851.0 °F) at 1,013 hPa (760 mmHg)
- q) Decomposition temperature No data available
- r) Viscosity No data available
- s) Explosive properties Not explosive
- t) Oxidizing properties The substance or mixture is not classified as oxidizing.

### Other safety information

Minimum ignition energy	0.14 mJ
Conductivity	< 1 µS/cm
Relative vapor density	1.11

## 10. STABILITY AND REACTIVITY

### Reactivity

No data available

### Chemical stability

Stable under recommended storage conditions.

### Possibility of hazardous reactions

Vapors may form explosive mixture with air.

### Conditions to avoid

Heat, flames and sparks.

### Incompatible materials

Acid chlorides, Acid anhydrides, Oxidizing agents, Alkali metals, Reducing agents, Acids

### Hazardous decomposition products

Other decomposition products - No data available

In the event of fire: see section 5

## 11. TOXICOLOGICAL INFORMATION

### Information on toxicological effects

#### Acute toxicity

LDLO Oral - Human - 143 mg/kg

Remarks: Lungs, Thorax, or Respiration: Dyspnea. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.

LD50 Oral - Rat - 1,187 - 2,769 mg/kg

LC50 Inhalation - Rat - 4 h - 128.2 mg/l

LC50 Inhalation - Rat - 6 h - 87.6 mg/l

LD50 Dermal - Rabbit - 17,100 mg/kg

No data available

#### Skin corrosion/irritation

Skin - Rabbit

Result : No skin irritation

#### Serious eye damage/eye irritation

Eyes - Rabbit

Result : No eye irritation

#### Respiratory or skin sensitisation

Maximisation Test (GPMT) - Guinea pig

Does not cause skin sensitisation.

(OECD Test Guideline 406)

#### Germ cell mutagenicity

Ames test

S. typhimurium

Result : negative

in vitro assay

fibroblast

Result : negative

Mutation in mammalian somatic cells.

Mutagenicity (in vivo mammalian bone-marrow cytogenetic test, chromosomal analysis)

Mouse - male and female

Result : negative

**11. TOXICOLOGICAL INFORMATION****Carcinogenicity**

- IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
- ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.
- NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
- OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

**Reproductive toxicity**

Damage to fetus not classifiable

Fertility classification not possible from current data.

**Specific target organ toxicity - single exposure**

Causes damage to organs.

**Specific target organ toxicity - repeated exposure**

The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

**Aspiration hazard**

No aspiration toxicity classification

**Additional Information**

RTECS : PC1400000/SP5740000

Methyl alcohol may be fatal or cause blindness if swallowed.

Effects due to ingestion may include:, Headache, Dizziness, Drowsiness, metabolic acidosis, Coma, Seizures.

Symptoms may be delayed., Damage of the:, Liver, Kidney

Methylene blue-Absorption into the body leads to the formation of methemoglobin which in sufficient concentration causes cyanosis.

Onset may be delayed 2 to 4 hours or longer, vomiting diarrhea. To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Stomach - Irregularities - Based on Human Evidence

Stomach - Irregularities - Based on Human Evidence

**12. ECOLOGICAL INFORMATION****Toxicity**

- |   |  |                    |         |
|---|--|--------------------|---------|
| Toxicity to fish                                    | mortality LC50 - Lepomis macrochirus (Bluegill)                        | - 15,400.0 mg/l    | - 96 h  |
|   | NOEC - Oryzias latipes   | - 7,900 mg/l       | - 200 h |
| Toxicity to daphnia and other aquatic invertebrates | EC50 - Daphnia magna (Water flea)                                      | - > 10,000.00 mg/l | - 48 h  |
| Toxicity to algae                                   | Growth inhibition EC50 - Scenedesmus capricornutum (fresh water algae) | - 22,000.0 mg/l    | - 96 h  |

**Persistence and degradability**

- |                                 |                                       |
|---------------------------------|---------------------------------------|
| Biodegradability                | aerobic - Exposure time 5 d           |
|                                 | Result : 72 % - rapidly biodegradable |
| Biochemical Oxygen Demand (BOD) | 600 - 1,120 mg/g                      |
| Chemical Oxygen Demand (COD)    | 1,420 mg/g                            |
| Theoretical oxygen demand       | 1,500 mg/g                            |

**Bioaccumulative potential**

- |                 |                               |          |
|-----------------|-------------------------------|----------|
| Bioaccumulation | Cyprinus carpio (Carp)        | - 72 d   |
|                 | at 20 °C                      | - 5 mg/l |
|                 | Bioconcentration factor (BCF) | : 1.0    |

**Mobility in soil**

Will not adsorb on soil.

**Results of PBT and vPvB assessment**

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

**Other adverse effects**

Additional ecological information Avoid release to the environment.

Stability in water at 19 °C 83 - 91 % - 72 h

Remarks : Hydrolyses on contact with water.Hydrolyses readily.

Product Code(s) RE2331

Methylene blue in methanol

Revision Date 12/10/15

**13. DISPOSAL CONSIDERATIONS**

**Waste treatment methods**

**Product**

Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

**Contaminated packaging**

Dispose of as unused product.

**14. TRANSPORT INFORMATION**

**DOT (US)**

UN number: 1230      Class : 3      Packing group : II  
Proper shipping name : Methanol  
Reportable Quantity (RQ): 5000 lbs  
Poison Inhalation Hazard : No

**IMDG**

UN number : 1230      Class : 3 (6.1)      Packing group : II      EMS-No: F-E , S-D  
Proper shipping name : METHANOL

**IATA**

UN number: 1230      Class : 3 (6.1)      Packing group : II  
Proper shipping name : Methanol

**15. REGULATORY INFORMATION**

**SARA 302 Components**

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

**SARA 313 Components**

The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS -No.	Revision Date
Methanol	67-56-1	2007 -07 -01

**SARA 311/312 Hazards**

Fire Hazard, Acute Health Hazard, Chronic Health Hazard

**Massachusetts Right To Know Components**

	CAS -No.	Revision Date
Methanol	67-56-1	2007 -07 -01

**Pennsylvania Right To Know Components**

	CAS -No.	Revision Date
Methanol	67-56-1	2007 -07 -01

**New Jersey Right To Know Components**

	CAS -No.	Revision Date
Methanol	67-56-1	2007 -07 -01

**California Prop. 65 Components**

	CAS -No.	Revision Date
WARNING: This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.	67-56-1	2012 -03 -16

Methanol

**16. OTHER INFORMATION**

**Full text of H-Statements referred to under sections 2 and 3.**

Acute Tox.	Acute toxicity
Flam. Liq.	Flammable liquids
H225	Highly flammable liquid and vapour.
H301	Toxic if swallowed.
H301 + H311 + H331	Toxic if swallowed, in contact with skin or if inhaled
H311	Toxic in contact with skin.
H331	Toxic if inhaled.
H370	Causes damage to organs.

**HMIS Rating**

Health hazard :	2
Chronic Health Hazard :	*
Flammability :	3
Physical Hazard	0

**NFPA Rating**

Health hazard :	2
Fire Hazard :	3
Reactivity Hazard :	0

**Revision Date:** 12/10/2015

**Prepared by:** HazTech Systems, Inc.

*This information is based on HazTech Systems, Inc.'s, current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.*