



# MATERIAL SAFETY DATA SHEET

according to the (US) Hazard Communication Standard (29 CFR 1910.1200)

Revision Date 08/21/2013

Version 1.2

## SECTION 1. Identification

### Product identifier

Product number 101287  
Product name Löffler's methylene blue solution for microscopy

### Relevant identified uses of the substance or mixture and uses advised against

Identified uses In vitro diagnostic reagent, Reagent for analysis

### Details of the supplier of the safety data sheet

Company EMD Millipore Corporation | 290 Concord Road, Billerica, MA 01821, United States of America | SDS Phone Support: +1-978-715-1335 | General Inquiries: +1-978-715-4321 | Monday to Friday, 9:00 AM to 4:00 PM Eastern Time (GMT-5)

Emergency telephone 800-424-9300 CHEMTREC (USA)  
+1-703-527-3887 CHEMTREC (International)  
24 Hours/day; 7 Days/week

## SECTION 2. Hazards identification

### GHS Classification

Flammable liquid, Category 3, H226

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

### GHS-Labeling

*Hazard pictograms*



*Signal Word*  
Warning

*Hazard Statements*  
H226 Flammable liquid and vapor.

*Precautionary Statements*  
P210 Keep away from heat.

### OSHA Hazards

This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR

# MATERIAL SAFETY DATA SHEET

according to the (US) Hazard Communication Standard (29 CFR 1910.1200)

Product number  
Product name

101287  
Löffler's methylene blue solution for microscopy

Version 1.2

1910.1200).

## Other hazards

None known.

---

## SECTION 3. Composition/information on ingredients

Chemical nature                      Mixture of inorganic and organic compounds

### Hazardous ingredients

*Chemical Name ( Concentration)*

CAS-No.

*ethanol ( >= 10 % - < 30 % )*

64-17-5

*ethyl methyl ketone ( >= 0.1 % - < 1 % )*

78-93-3

---

## SECTION 4. First aid measures

### Description of first-aid measures

*Inhalation*

After inhalation: fresh air.

*Skin contact*

After skin contact: wash off with plenty of water. Remove contaminated clothing.

*Eye contact*

After eye contact: rinse out with plenty of water.

*Ingestion*

After swallowing: make victim drink water (two glasses at most). Consult doctor if feeling unwell.

Never give anything by mouth to an unconscious person.

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

irritant effects, respiratory paralysis, Dizziness, narcosis, inebriation, euphoria, Nausea, Vomiting

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

No information available.

---

## SECTION 5. Fire-fighting measures

### Extinguishing media

*Suitable extinguishing media*

Water, Carbon dioxide (CO<sub>2</sub>), Foam, Dry powder

*Unsuitable extinguishing media*

For this substance/mixture no limitations of extinguishing agents are given.

### Special hazards arising from the substance or mixture

Combustible.

Vapors are heavier than air and may spread along floors.

Forms explosive mixtures with air at elevated temperatures.

Pay attention to flashback.

## MATERIAL SAFETY DATA SHEET

according to the (US) Hazard Communication Standard (29 CFR 1910.1200)

Product number

101287

Version 1.2

Product name

Löffler's methylene blue solution for microscopy

---

Development of hazardous combustion gases or vapors possible in the event of fire.

### **Advice for firefighters**

*Special protective equipment for fire-fighters*

In the event of fire, wear self-contained breathing apparatus.

*Further information*

Cool closed containers exposed to fire with water spray. Prevent fire extinguishing water from contaminating surface water or the ground water system.

---

## **SECTION 6. Accidental release measures**

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

Advice for non-emergency personnel: Avoid substance contact. Do not breathe vapors, aerosols. Ensure adequate ventilation. Keep away from heat and sources of ignition. Evacuate the danger area, observe emergency procedures, consult an expert.

Advice for emergency responders: Protective equipment see section 8.

### **Environmental precautions**

Do not let product enter drains. Risk of explosion.

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

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up with liquid-absorbent material (e.g. Chemizorb®). Dispose of properly. Clean up affected area.

---

## **SECTION 7. Handling and storage**

### **Precautions for safe handling**

Observe label precautions.

*Advice on protection against fire and explosion*

Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static discharge.

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

Keep container tightly closed in a dry and well-ventilated place. Keep away from heat and sources of ignition.

Store at +15°C to +25°C (+59°F to +77°F).

# MATERIAL SAFETY DATA SHEET

according to the (US) Hazard Communication Standard (29 CFR 1910.1200)

Product number

101287

Version 1.2

Product name

Löffler's methylene blue solution for microscopy

## SECTION 8. Exposure controls/personal protection

### Exposure limit(s)

#### *Ingredients*

Basis	Value	Threshold limits	Remarks
<i>ethanol 64-17-5</i>			
ACGIH	Short Term Exposure Limit (STEL):	1,000 ppm	
NIOSH/GUIDE	Recommended exposure limit (REL):	1,000 ppm 1,900 mg/m <sup>3</sup>	
OSHA_TRANS	PEL:	1,000 ppm 1,900 mg/m <sup>3</sup>	
Z1A	Time Weighted Average (TWA):	1,000 ppm 1,900 mg/m <sup>3</sup>	

### Engineering measures

Technical measures and appropriate working operations should be given priority over the use of personal protective equipment.

### Individual protection measures

Protective clothing should be selected specifically for the workplace, depending on concentration and quantity of the hazardous substances handled. The chemical resistance of the protective equipment should be inquired at the respective supplier.

#### *Hygiene measures*

Change contaminated clothing. Application of skin- protective barrier cream recommended.  
Wash hands after working with substance.

#### *Eye/face protection*

Safety glasses

#### *Hand protection*

Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

#### *Other protective equipment:*

Flame retardant antistatic protective clothing

#### *Respiratory protection*

required when vapors/aerosols are generated.

Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

## SECTION 9. Physical and chemical properties

Physical state	liquid
Color	blue
Odor	odorless

MATERIAL SAFETY DATA SHEET  
according to the (US) Hazard Communication Standard (29 CFR 1910.1200)

Version 1.2

Product number 101287  
Product name Löffler's methylene blue solution for microscopy

---

Odor Threshold	not applicable
pH	7.0 - 7.5 at 68 °F ( 20 °C)
Melting point	No information available.
Boiling point	No information available.
Flash point	104 °F ( 40 °C)
Evaporation rate	No information available.
Flammability (solid, gas)	No information available.
Lower explosion limit	No information available.
Upper explosion limit	No information available.
Vapor pressure	No information available.
Relative vapor density	No information available.
Relative density	0.97 g/cm <sup>3</sup> at 68 °F ( 20 °C)
Water solubility	at 68 °F ( 20 °C) soluble
Partition coefficient: n-octanol/water	No information available.
Autoignition temperature	No information available.
Decomposition temperature	No information available.
Viscosity, dynamic	No information available.
Explosive properties	Not classified as explosive.

---

**SECTION 10. Stability and reactivity**

**Reactivity**

Vapor/air-mixtures are explosive at intense warming.

**Chemical stability**

The product is chemically stable under standard ambient conditions (room temperature) .

**Possibility of hazardous reactions**

Risk of explosion/exothermic reaction with:

## MATERIAL SAFETY DATA SHEET

according to the (US) Hazard Communication Standard (29 CFR 1910.1200)

Product number

101287

Version 1.2

Product name

Löffler's methylene blue solution for microscopy

---

hydrogen peroxide, perchlorates, perchloric acid, Nitric acid, mercury(II) nitrate, permanganic acid, Nitriles, peroxi compounds, Strong oxidizing agents, nitrosyl compounds, Peroxides, sodium, Potassium, halogen oxides, calcium hypochlorite, nitrogen dioxide, metallic oxides, uranium hexafluoride, iodides, Chlorine, Alkali metals, Alkaline earth metals, alkali oxides, Ethylene oxide

silver, with, Nitric acid

silver compounds, with, Ammonia

potassium permanganate, with, conc. sulfuric acid

Risk of ignition or formation of inflammable gases or vapors with:

halogen-halogen compounds, chromium(VI) oxide, chromyl chloride, Fluorine, hydrides, Oxides of phosphorus, platinum

Nitric acid, with, potassium permanganate

### Conditions to avoid

Heating.

### Incompatible materials

rubber, various plastics

### Hazardous decomposition products

no information available

---

## SECTION 11. Toxicological information

### Information on toxicological effects

#### *Likely route of exposure*

Eye contact, Skin contact

#### *Target Organs*

Eyes

Skin

Respiratory system

Central nervous system

Liver

Blood

reproductive system

#### *Acute oral toxicity*

Symptoms: Nausea, Vomiting

#### *Acute inhalation toxicity*

absorption

Symptoms: slight mucosal irritations

#### *Skin irritation*

Drying-out effect resulting in rough and chapped skin. Dermatitis

#### *Eye irritation*

slight irritation

#### *Carcinogenicity*

Carcinogen classifications of IARC, NTP, California proposition 65 for Ethanol CAS 64-17-5 apply to beverage use only. This product is NOT intended for this use.

#### *Specific target organ systemic toxicity - single exposure*

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

---

# MATERIAL SAFETY DATA SHEET

according to the (US) Hazard Communication Standard (29 CFR 1910.1200)

Product number

101287

Version 1.2

Product name

Löffler's methylene blue solution for microscopy

---

### *Specific target organ systemic toxicity - repeated exposure*

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

### *Aspiration hazard*

Regarding the available data the classification criteria are not fulfilled.

## **Carcinogenicity**

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

## **Further information**

Systemic effects:

euphoria

After absorption of large quantities:

Possible damages:

Dizziness, inebriation, narcosis, respiratory paralysis

Other dangerous properties can not be excluded.

Handle in accordance with good industrial hygiene and safety practice.

## **Ingredients**

### *ethanol*

#### *Acute oral toxicity*

LD50 rat: 6,200 mg/kg (IUCLID)

#### *Acute inhalation toxicity*

LC50 rat: 95.6 mg/l; 4 h (RTECS)

#### *Skin irritation*

rabbit

Result: No irritation

OECD Test Guideline 404

#### *Sensitization*

Sensitization test (Magnusson and Kligman):

Result: negative

(IUCLID)

#### *Germ cell mutagenicity*

## MATERIAL SAFETY DATA SHEET

according to the (US) Hazard Communication Standard (29 CFR 1910.1200)

Product number

101287

Version 1.2

Product name

Löffler's methylene blue solution for microscopy

---

### *Genotoxicity in vitro*

Ames test

Salmonella typhimurium

Result: negative

(National Toxicology Program)

### *ethyl methyl ketone*

#### *Acute oral toxicity*

LD50 rat: 3,400 mg/kg

OECD Test Guideline 401

LD50 rat: > 2,600 mg/kg (IUCLID)

#### *Acute dermal toxicity*

LD50 rabbit: > 8,000 mg/kg (Lit.)

#### *Skin irritation*

rabbit

Result: slight irritation

(IUCLID)

#### *Eye irritation*

rabbit

Result: Severe irritations

(IUCLID)

#### *Sensitization*

Sensitization test: guinea pig

Result: negative

(IUCLID)

#### *Germ cell mutagenicity*

##### *Genotoxicity in vitro*

Ames test

Result: negative

(IUCLID)

Mutagenicity (mammal cell test): chromosome aberration.

Result: negative

(National Toxicology Program)

---

## SECTION 12. Ecological information

### **Ecotoxicity**

No information available.

### **Persistence and degradability**

No information available.

### **Bioaccumulative potential**

No information available.

### **Mobility in soil**

No information available.

## **Ingredients**

### *ethanol*

#### *Toxicity to fish*

LC50 *Leuciscus idus* (Golden orfe): 8,140 mg/l; 48 h (IUCLID)

---



# MATERIAL SAFETY DATA SHEET

according to the (US) Hazard Communication Standard (29 CFR 1910.1200)

Product number

101287

Version 1.2

Product name

Löffler's methylene blue solution for microscopy

---

*Toxicity to daphnia and other aquatic invertebrates*

EC5 *E.sulcatum*: 65 mg/l; 72 h (Lit.)

EC50 *Daphnia magna* (Water flea): 9,268 - 14,221 mg/l; 48 h (IUCLID)

*Toxicity to algae*

IC5 *Scenedesmus quadricauda* (Green algae): 5,000 mg/l; 7 d (Lit.)

*Toxicity to bacteria*

EC5 *Pseudomonas putida*: 6,500 mg/l; 16 h (IUCLID)

*Biodegradability*

94 %

OECD Test Guideline 301E

Readily biodegradable.

*Biochemical Oxygen Demand (BOD)*

930 - 1,670 mg/g (5 d)

(Lit.)

*Theoretical oxygen demand (ThOD)*

2,100 mg/g

(Lit.)

*Ratio COD/ThBOD*

90 %

(Lit.)

Substance does not meet the criteria for PBT or vPvB according to Regulation (EC) No 1907/2006, Annex XIII.

## *ethyl methyl ketone*

*Toxicity to fish*

LC50 *Pimephales promelas* (fathead minnow): 3,220 mg/l; 96 h (IUCLID)

*Toxicity to daphnia and other aquatic invertebrates*

EC50 *Daphnia magna* (Water flea): 5,091 mg/l; 48 h (IUCLID)

*Toxicity to algae*

IC5 *Scenedesmus quadricauda* (Green algae):  $\geq$  4,300 mg/l; 7 d (IUCLID)

*Toxicity to bacteria*

EC5 *Pseudomonas putida*: 1,150 mg/l; 16 h (IUCLID)

*Biodegradability*

Readily biodegradable.

*Theoretical oxygen demand (ThOD)*

2,440 mg/g

(Lit.)

*Ratio BOD/ThBOD*

BOD5 76 %

(IUCLID)

*Ratio COD/ThBOD*

95 %

(IUCLID)

# MATERIAL SAFETY DATA SHEET

according to the (US) Hazard Communication Standard (29 CFR 1910.1200)

Product number  
Product name

101287  
Löffler's methylene blue solution for microscopy

Version 1.2

Substance does not meet the criteria for PBT or vPvB according to Regulation (EC) No 1907/2006, Annex XIII.

## SECTION 13. Disposal considerations

The information presented only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations. Disposal should be in accordance with applicable regional, national and local laws and regulations.

## SECTION 14. Transport information

### Land transport (DOT)

UN number	UN 1993
Proper shipping name	FLAMMABLE LIQUID, N.O.S. ( CONT. ETHANOL, ETHYL METHYL KETONE)
Class	3
Packing group	III
Environmentally hazardous	--

### Air transport (IATA)

UN number	UN 1993
Proper shipping name	FLAMMABLE LIQUID, N.O.S. ( CONT. ETHANOL, ETHYL METHYL KETONE)
Class	3
Packing group	III
Environmentally hazardous	--
Special precautions for user	no

### Sea transport (IMDG)

UN number	UN 1993
Proper shipping name	FLAMMABLE LIQUID, N.O.S. ( CONT. ETHANOL, ETHYL METHYL KETONE)
Class	3
Packing group	III
Environmentally hazardous	--
Special precautions for user	yes
EmS	F-E S-D

## SECTION 15. Regulatory information

### United States of America

#### OSHA Hazards

Combustible Liquid  
Target organ effects

This information is based on 29 CFR 1910.1200 criteria prior to adoption of the GHS, and may deviate from the GHS information on the label and in section 2.

# MATERIAL SAFETY DATA SHEET

according to the (US) Hazard Communication Standard (29 CFR 1910.1200)

Product number

101287

Version 1.2

Product name

Löffler's methylene blue solution for microscopy

---

## SARA 311/312 Hazards

Fire Hazard

Chronic Health Hazard

## SARA 313

SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

## SARA 302

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

## Clean Water Act

The following Hazardous Substances are listed under the U.S. CleanWater Act, Section 311, Table 116.4A:

### *Ingredients*

disodium hydrogen orthophosphate

potassium hydroxide

The following Hazardous Chemicals are listed under the U.S. CleanWater Act, Section 311, Table 117.3:

### *Ingredients*

disodium hydrogen orthophosphate

potassium hydroxide

## DEA List I

Not listed

## DEA List II

Listed

### *Ingredients*

ethyl methyl ketone

78-93-3

## US State Regulations

### Massachusetts Right To Know

#### *Ingredients*

ethanol

### Pennsylvania Right To Know

#### *Ingredients*

water

ethanol

### New Jersey Right To Know

#### *Ingredients*

water

ethanol

### California Prop 65 Components

WARNING: This product contains a chemical known in the State of California to cause birth defects or other reproductive harm.

#### *Ingredients*

ethanol

MATERIAL SAFETY DATA SHEET  
according to the (US) Hazard Communication Standard (29 CFR 1910.1200)

Product number 101287  
Product name Löffler's methylene blue solution for microscopy

---

Version 1.2

**Notification status**

TSCA: All components of the product are listed in the TSCA-inventory.

DSL: All components of this product are on the Canadian DSL.

---

**SECTION 16. Other information**

**Training advice**

Provide adequate information, instruction and training for operators.

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

H226 Flammable liquid and vapor.

**Key or legend to abbreviations and acronyms used in the safety data sheet**

Used abbreviations and acronyms can be looked up at [www.wikipedia.org](http://www.wikipedia.org).

Revision Date 08/21/2013

---

The information contained herein is based on the present state of our knowledge. It characterizes the product with regard to appropriate safety precautions. It does not represent a warranty of any product properties and we assume no liability for any loss or injury which may result from the use of this information. Users should conduct their own investigations to determine the suitability of the information.

*All rights reserved. Millipore and the "M" Mark are registered trademarks of Merck KGaA, Darmstadt, Germany.*