

SAFETY DATA SHEET

(in accordance with Regulation (EU) 2020/878)

METHYLENE BLUE 1%

Version 1 Date of compilation: 2/02/2023



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Print date: 04/02/2023

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING.

1.1 Product identifier.

Product Name: **METHYLENE BLUE 1%**
Product Code: ALQ0055
Product type: Mixture, aqueous solution.

1.2 Relevant identified uses of the substance or mixture and uses advised against.

Colorant for industrial use.

Uses advised against:

All uses not specified in this section or in section 7.3. Due to lack of experience or data, the supplier cannot approve other unspecified use.

1.3 Details of the supplier of the safety data sheet.

Company: **ALQUERA CIENCIA SL**
Address: C/ Vilar de Donas 9
City: 28050 - Madrid
Province: Madrid (Spain)
Telephone: 0034 620 88 75 97
E-mail: info@alquera.com
Web: <https://www.alquera.com>

1.4 Emergency telephone number: 0034 620 88 75 97 (SDS) (Only available during office hours; Monday-Friday; 09:00-18:00)

SECTION 2: HAZARDS IDENTIFICATION.

2.1 Classification of the substance or mixture.

The product is not classified as hazardous within the meaning of Regulation (EC) No 1272/2008.

2.2 Label elements.

The product is not classified as hazardous within the meaning of Regulation (EC) No 1272/2008.

2.3 Other hazards.

The mixture does not contain substances with endocrine disrupting properties $\geq 0.1\%$.

The mixture does not meet the criteria to be considered PBT or vPvB according to Regulation (EC) No 1907/2006 (REACH), Annex XIII. Does not contain PBT or vPvB substances $\geq 0.1\%$.

PBT: Persistent Bioaccumulative and Toxic.

vPvB: very Persistent and very Bioaccumulative.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS.

3.1 Substances.

Not Applicable.

3.2 Mixtures.

Substances posing a danger to health or the environment in accordance with the Regulation (EC) No. 1272/2008, assigned a Community exposure limit in the workplace, and classified as PBT/vPvB or included in the Candidate List:

Identifiers	Name	Concentration	(*)Classification - Regulation (EC) No 1272/2008	
			Classification	Specifics concentration limits and Acute toxicity estimate
CAS No: 61-73-4 EC No: 200-515-2	methylthionium chloride, methylene blue	1 %	Acute Tox. 4, H302	-

(*) The complete text of the H phrases is given in section 16 of this Safety Data Sheet.

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SECTION 4: FIRST AID MEASURES.

4.1 Description of first aid measures.

In case of doubt or when symptoms of feeling unwell persist, get medical attention. Never administer anything orally to persons who are unconscious.

Inhalation.

Take the victim into open air; keep them warm and calm. If breathing is irregular or stops, perform artificial respiration.

Eye contact.

Remove contact lenses, if present and if it is easy to do. Wash eyes with plenty of clean and cool water for at least 20 minutes while pulling eyelids up, and seek medical assistance.

Skin contact.

Remove contaminated clothing. Wash skin vigorously with water and soap or a suitable skin cleaner. NEVER use solvents or thinners.

Ingestion.

If accidentally ingested, seek immediate medical attention. Keep calm. NEVER induce vomiting.

4.2 Most important symptoms and effects, both acute and delayed.

No known acute or delayed effects from exposure to the product.

4.3 Indication of any immediate medical attention and special treatment needed.

In case of doubt or when symptoms of feeling unwell persist, get medical attention. Never administer anything orally to persons who are unconscious. Do not induce vomiting. If the person vomits, clear the respiratory tract.

SECTION 5: FIREFIGHTING MEASURES.

The product is NOT classified as flammable, in case of fire the following measures should be taken:

5.1 Extinguishing media.

Suitable extinguishing media:

Extinguisher powder or CO₂. In case of more serious fires, also alcohol-resistant foam and water spray.

Unsuitable extinguishing media:

Do not use a direct stream of water to extinguish. In the presence of electrical voltage, you cannot use water or foam as extinguishing media.

5.2 Special hazards arising from the substance or mixture.

Special risks.

Exposure to combustion or decomposition products can be harmful to your health.

In case of fire: Nitrogen oxides (NO_x), Carbon monoxide (CO), Carbon dioxide (CO₂), Sulfur oxides (SO_x), Hydrogen chloride gas.

5.3 Advice for firefighters.

Use water to cool tanks, cisterns, or containers close to the heat source or fire. Take wind direction into account. Prevent the products used to fight the fire from going into drains, sewers, or waterways.

Fire protection equipment.

According to the size of the fire, it may be necessary to use protective suits against the heat, individual breathing equipment, gloves, protective goggles or facemasks, and boots. Minimum emergency facilities and equipment should be available (fire blankets, portable first aid kit,...) in accordance with Directive 89/654/EC.

SECTION 6: ACCIDENTAL RELEASE MEASURES.

6.1 Personal precautions, protective equipment and emergency procedures.

For exposure control and individual protection measures, see section 8.

6.2 Environmental precautions.

Product not classified as hazardous for the environment, avoid spillage as much as possible.

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6.3 Methods and material for containment and cleaning up.

Contain and collect spillage with inert absorbent material (earth, sand, vermiculite, Kieselguhr...) and clean the area immediately with a suitable decontaminant.

Deposit waste in closed and suitable containers for disposal, in compliance with local and national regulations (see section 13).

6.4 Reference to other sections.

For exposure control and individual protection measures, see section 8.

For later elimination of waste, follow the recommendations under section 13.

SECTION 7: HANDLING AND STORAGE.

7.1 Precautions for safe handling.

For personal protection, see section 8.

In the application area, smoking, eating, and drinking must be prohibited.

Follow legislation on occupational health and safety.

Never use pressure to empty the containers. They are not pressure-resistant containers. Keep the product in containers made of a material identical to the original.

Recommendations to prevent toxicological risks:

After handling, wash hands with soap and water.

7.2 Conditions for safe storage, including any incompatibilities.

Store according to local legislation. Observe indications on the label. Store the containers between 15 and 25 °C, in a dry and well-ventilated place, far from sources of heat and direct solar light. Keep far away from ignition points. Keep away from oxidising agents and from highly acidic or alkaline materials. Do not smoke. Prevent the entry of non-authorized persons. Once the containers are open, they must be carefully closed and placed vertically to prevent spills.

The product is not affected by Directive 2012/18/EU (SEVESO III).

7.3 Specific end use(s).

See section 1.2. Except for the instructions already specified it is not necessary to provide any special recommendation regarding the uses of this product.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION.

8.1 Control parameters.

The product does NOT contain substances with Professional Exposure Environmental Limit Values. The product does NOT contain substances with Biological Limit Values.

8.2 Exposure controls.

Measures of a technical nature:

Provide adequate ventilation, which can be achieved by using good local exhaust-ventilation and a good general exhaust system. Individual protection measures, such as personal protective equipment As a preventative measure it is recommended to use basic Personal Protective Equipment, in accordance with Regulation (EU) 2016/425. For more information on Personal Protective Equipment (storage, use, cleaning, maintenance, class of protection,...) consult the information leaflet provided by the manufacturer. For more information see subsection 7.1. All information contained herein is a recommendation which needs some specification from the labour risk prevention services as it is not known whether the company has additional measures at its disposal.

Respiratory protection

The use of protective equipment will be necessary in case of mist formation or in case of exceeding occupational exposure limits if they exist (see section 8.1). Wear respiratory protection in case of spray application/dust generation. Wear respiratory protection in case of prolonged exposure.

Specific protection for the hands

Replace the gloves at any sign of deterioration. Penetration time >480 min (permanent contact protection). The breakthrough time of the selected gloves should be in accordance with the intended period of use. Various factors (e.g. temperature) mean that in practice the breakthrough time of chemical-resistant protective gloves is significantly shorter than the EN374 standard. An increase in temperature due to hot substances, body heat, etc. and a weakening of the effective thickness due to expansion can

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lead to a significant shortening of the breakthrough time. For the selection of a specific type of glove for a given application, with a certain duration, should take into account (but not be limited to) relevant factors in the workplace, such as: other chemicals to be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential allergies to the glove material itself, etc.... Due to the wide variety of circumstances and possibilities, the instruction manual of the glove manufacturers should be taken into account. Gloves should be replaced immediately if signs of degradation are observed.

Additional emergency measures

Emergency shower: ANSI Z358-1, ISO 3864-1:2011, ISO 3864-4:2011

Eyewash stations: DIN 12 899, ISO 3864-1:2011, ISO 3864-4:2011

Recommendations to prevent toxicological risks:

Do not eat, drink or smoke during handling. After handling, wash hands with soap and water.

Advice on personal protection is valid for high levels of exposure.

Choose personal protection adapted to the risks of exposure.

Uses:	Colorant for industrial use.		
Breathing protection: If the recommended technical measures are observed, no individual protection equipment is necessary.			
Hand protection: If the product is handled correctly, no individual protection equipment is necessary.			
PPE:	Protective gloves against chemicals.		
Characteristics:	«CE» marking, category III.		
CEN standards:	EN 374-1, En 374-2, EN 374-3, EN 420		
Maintenance:	Keep in a dry place, away from any sources of heat, and avoid exposure to sunlight as much as possible. Do not make any changes to the gloves that may alter their resistance, or apply paints, solvents or adhesives.		
Observations:	Gloves should be of the appropriate size and fit the user's hand well, not being too loose or too tight. Always use with clean, dry hands.		
Material:	Nitrile	Breakthrough time (min.):	> 480
		Material thickness (mm):	0,11
Material:	PVC (polyvinyl chloride)	Breakthrough time (min.):	> 480
		Material thickness (mm):	0,35
Eye protection: Use if splashing is likely to occur. If the product is handled correctly, no individual protection equipment is necessary.			
PPE:	Protective goggles against particle impacts.		
Characteristics:	«CE» marking, category II. Eye protector against dust and smoke.		
CEN standards:	EN 165, EN 166, EN 167, EN 168		
Maintenance:	Visibility through lenses should be ideal. Therefore, these parts should be cleaned daily. Protectors should be disinfected periodically following the manufacturer's instructions.		
Observations:	Some signs of wear and tear include: yellow colouring of the lenses, superficial scratching of the lenses, scraping etc.		
Skin protection:			
PPE:	Protective clothing.		
Characteristics:	«CE» marking, category II. Protective clothing should not be too tight or loose in order not to obstruct the user's movements.		
CEN standards:	EN 340		
Maintenance:	In order to guarantee uniform protection, follow the washing and maintenance instructions provided by the manufacturer.		
Observations:	The protective clothing should offer a level of comfort in line with the level of protection provided in terms of the hazard against which it protects, bearing in mind environmental conditions, the user's level of activity and the expected time of use.		
PPE:	Work footwear.		
Characteristics:	«CE» marking, category II.		
CEN standards:	EN ISO 13287, EN 20347		
Maintenance:	This product adapts to the first user's foot shape. That is why, as well as for hygienic reasons, it should not be used by other people.		
Observations:	Work footwear for professional use includes protection elements aimed at protecting users against any injury resulting from an accident		



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SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES.

9.1 Information on basic physical and chemical properties.

Appearance:

Physical state (20°C): Liquid

Colour: blue

Odour: odorless

Odour threshold: Not applicable/Not available due to the nature/properties of the product

Volatility:

Boiling point or initial boiling point and boiling range: $\geq 100^{\circ}\text{C}$ (estimated)

Vapour pressure: negligible

Relative vapour density: N.A.

Evaporation rate: N.A.

Flammability:

Flammability: not readily flammable.

Lower explosion limit: N.A.

Upper explosion limit: N.A.

Flash point: N.A. (non-flammable $> 60^{\circ}\text{C}$).

Auto-ignition temperature: N.A.

Product description:

Melting point: > 100 (180-190) $^{\circ}\text{C}$ (methylthioninium chloride, methylene blue)

Decomposition temperature: $> 190^{\circ}\text{C}$ (methylthioninium chloride, methylene blue)

pH: 4-6 (10 g/L, 20 $^{\circ}\text{C}$) (methylthioninium chloride, methylene blue)

Kinematic viscosity (40 $^{\circ}\text{C}$): Not applicable, solid.

Dynamic viscosity (20 $^{\circ}\text{C}$): Not applicable, solid.

Solubility: soluble in water.

Water solubility: 50 g/L (20 $^{\circ}\text{C}$) (methylthioninium chloride, methylene blue)

Liposolubility: N.A.

Partition coefficient n-octanol/water (log value): N.A.

Density: N.A.

Particle characteristics:

N.A. This product does not contain nanoparticles.

N.A. = Not Available/Non- Applicable due to the nature of the product, not providing information property of its hazards

9.2 Other information:

Explosive properties: There are no chemical groups associated with explosive properties present, therefore, according to REACH, Annex VII, 7.11, column 2, the study is not necessary.

Oxidizing properties: non-oxidizing. Based on the chemical structure, the product is incapable of exothermically reacting with combustible materials. According to REACH, Annex VII, 7.13, column 2, the study does not need to be carried out.

Drop point: N.A.

Scintillation: N.A.

% Solids: 1%

N.A. = Not Available/Non- Applicable due to the nature of the product, not providing information property of its hazards

The data corresponding to the product specifications can be found in the product technical data sheet. For further data on physical and chemical properties related to safety and environment, see sections 7 and 12.

SECTION 10: STABILITY AND REACTIVITY.

10.1 Reactivity.

The product does not present hazards by their reactivity.

10.2 Chemical stability.

Unstable in contact with:

- Bases.

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10.3 Possibility of hazardous reactions.

Neutralization can occur on contact with bases.

10.4 Conditions to avoid.

Keep away from heat. Decomposition starts at temperatures of: >190 °C

10.5 Incompatible materials.

Avoid the following materials:

Strong acids
Strong oxidizing agents
Bases
Strong reducing agents
Alkaline compounds
iodides
potassium dichromate

10.6 Hazardous decomposition products.

Depending on conditions of use, can be generated the following products:

In case of fire: Nitrogen oxides (NOx), Carbon monoxide (CO), Carbon dioxide (CO₂), Sulfur oxides (SOx), Hydrogen chloride gas.

SECTION 11: TOXICOLOGICAL INFORMATION.

Product classification has been carried out using the conventional calculation method of Regulation (EC) No 1272/2008(CLP)/ extrapolation with similar products.

11.1 Information on hazard classes as defined in Regulation (EC) N° 1272/2008.

Toxicological information.

Name	Acute toxicity			
	Type	Test	Kind	Value
methylthionium chloride, methylene blue CAS No: 61-73-4 EC No: 200-515-2	Oral	LD50	Rat	1180 mg/kg [1]
		[1] RTECS		
	Dermal			
	Inhalation			

a) acute toxicity;

Not conclusive data for classification.

Acute Toxicity Estimate (ATE):

Mixtures:

ATE (Oral): >5000 mg/kg

b) skin corrosion/irritation;

Not conclusive data for classification.

c) serious eye damage/irritation;

Not conclusive data for classification.

d) respiratory or skin sensitisation;

Not conclusive data for classification.

e) germ cell mutagenicity;

Not conclusive data for classification.

f) carcinogenicity;

Not conclusive data for classification.

g) reproductive toxicity;

Not conclusive data for classification.

h) STOT-single exposure;

Not conclusive data for classification.

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i) STOT-repeated exposure;
Not conclusive data for classification.

j) aspiration hazard;
Not conclusive data for classification.

11.2 Information on other hazards.

Endocrine disrupting properties

The mixture does not contain components with endocrine-disrupting properties with effects on human health. according to REACH Article 57(f) or Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Other information (methylthioninium chloride, 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, Nausea, Dizziness, Headache (Methylene blue)

SECTION 12: ECOLOGICAL INFORMATION.

Product classification has been carried out using the conventional calculation method of Regulation (EC) No 1272/2008(CLP)/ extrapolation with similar products.

12.1 Toxicity.

No information is available regarding the ecotoxicity.

12.2 Persistence and degradability.

No information is available regarding the biodegradability of the substances present.

Soluble in water, Persistence is unlikely, based on the information provided.

No information is available on the degradability

The mixture does not meet the criteria to be considered PBT or vPvB according to Regulation (EC) No 1907/2006 (REACH), Annex XIII. Does not contain PBT or vPvB substances $\geq 0.1\%$.

12.3 Bioaccumulative potential.

No information is available regarding the bioaccumulation of the substances present.

Bioaccumulation is unlikely.

12.4 Mobility in soil.

No information is available about the mobility in soil.

The product must not be allowed to go into sewers or waterways.

Prevent penetration into the ground.

The product is soluble in water and may spread in aqueous systems. It is likely to be mobile in the environment due to its solubility in water. Highly mobile in soils

12.5 Results of PBT and vPvB assessment.

The mixture does not meet the criteria to be considered PBT or vPvB according to Regulation (EC) No 1907/2006 (REACH), Annex XIII. Does not contain PBT or vPvB substances $\geq 0.1\%$.

12.6 Endocrine disrupting properties.

This product doesn't contain components with environmental endocrine disrupting properties.

12.7 Other adverse effects.

No information is available about other adverse effects for the environment.

SECTION 13: DISPOSAL CONSIDERATIONS.

13.1 Waste treatment methods.

Do not dump into sewers or waterways. Waste and empty containers must be handled and eliminated according to current, local/national legislation.

Waste management (disposal and evaluation):

Consult the authorized waste service manager on the assessment and disposal operations. In case the container has been in direct contact with the product, it will be processed the same way as the actual product. Otherwise, it will be processed as non-dangerous residue. We do not recommended disposal down the drain. See section 6.2.

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Regulations related to waste management:

In accordance with Annex II of Regulation (EC) No 1907/2006 (REACH) the community or state provisions related to waste management are stated Community legislation:

Follow the provisions of Directive 2008/98/EC, Decision 2014/955/UE, Directive (UE) 2018/851, Directive (UE) 2019/904 regarding waste management. EU-legislation: Regulation (EU) No. 1357/2014 and modifications.

It is not possible to assign a specific code, as it depends on the user's intended use.

SECTION 14: TRANSPORT INFORMATION.

Transportation is not dangerous. In case of road accident causing the product's spillage, proceed in accordance with point 6.

14.1 UN number or ID number.

Transportation is not dangerous.

14.2 UN proper shipping name.

Description:

ADR/RID: Not classified as hazardous for transport.

IMDG: Not classified as hazardous for transport.

ICAO/IATA: Not classified as hazardous for transport.

14.3 Transport hazard class(es).

Transportation is not dangerous.

14.4 Packing group.

Transportation is not dangerous.

14.5 Environmental hazards.

Transportation is not dangerous.

Transport by ship, FEM – Emergency sheets (F – Fire, S - Spills): Not applicable.

14.6 Special precautions for user.

Transportation is not dangerous.

14.7 Maritime transport in bulk according to IMO instruments.

Transportation is not dangerous.

SECTION 15: REGULATORY INFORMATION.

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture.

The product is not affected by the Regulation (EC) No 1005/2009 of the European Parliament and of the Council of 16 September 2009 on substances that deplete the ozone layer.

Volatile organic compound (VOC)

VOC content (p/p): 0 %

VOC content: 0 g/l

The product is not affected by Directive 2012/18/EU (SEVESO III).

The product is not affected by Regulation (EU) No 528/2012 concerning the making available on the market and use of biocidal products.

The product is not affected by the procedure established Regulation (EU) No 649/2012, concerning the export and import of dangerous chemicals.

Kind of pollutant to water (Germany): nwg: Non-hazardous to water. (Autoclassified according to the AwSV Regulations)

Substances included in Annex XIV of REACH (authorisation list) and expiry date: Not relevant.

SVHC substances candidate for inclusion in Annex XIV of Regulation (EC) No 1907/2006: Not relevant.

This product does not contain substances restricted by the REACH regulation.

Special provisions for the protection of humans or the environment:

It is recommended to use the information compiled in this safety data sheet as input data in a risk assessment of the local circumstances to establish the necessary risk prevention measures for the handling, use, storage and disposal of the product.

15.2 Chemical safety assessment.

No Chemical Safety Assessment has been carried out for this substance/mixture by the supplier.

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SECTION 16: OTHER INFORMATION.

Legislation related to safety data sheets:

The Safety Data Sheet shall be supplied in an official language of the country where the product is placed on the market. This safety data sheet has been designed in accordance with ANNEX II-Guide to the compilation of safety data sheets of Regulation (EC) No 1907/2006 (COMMISSION REGULATION (EU) 2020/878).

Complete text of the H phrases that appear in section 3:
H302 Harmful if swallowed.

Classification codes:

Acute Tox. 4 : Acute toxicity (Oral), Category 4

Classification and procedure used to derive the classification for mixtures according to Regulation (EC) 1272/2008 [CLP]:

Physical hazards	On basis of test data/ calculation method 2.6.4.3
Health hazards	Calculation method
Environmental hazards	Calculation method

It is advisable to carry out basic training with regard to health and safety at work in order to handle this product correctly.

Abbreviations and acronyms used:

AwSV: Facility Regulations for handling substances that are hazardous for the water.
CEN: European Committee for Standardization.
EC50: Half maximal effective concentration.
PPE: Personal protection equipment.
LC50: Lethal concentration, 50%.
LD50: Lethal dose, 50%.
WGK: Water hazard classes.

Key literature references and sources for data:

<http://eur-lex.europa.eu/homepage.html>

<http://echa.europa.eu/>

Regulation (EU) 2020/878.

Regulation (EC) No 1907/2006.

Regulation (EC) No 1272/2008.

The information given in this Safety Data Sheet has been drafted in accordance with COMMISSION REGULATION (EU) 2020/878 of 18 June 2020 amending Annex II to Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemical substances and mixtures (REACH).

The information in this Safety Data Sheet on the Preparation is based on current knowledge and on current EC and national laws, as far as the working conditions of the users is beyond our knowledge and control. The product must not be used for purposes other than those that are specified without first having written instructions on how to handle. It is always the responsibility of the user to take the appropriate measures in order to comply with the requirements established by current legislation. The information contained in this Safety Sheet only states a description of the safety requirements for the preparation, and it must not be considered as a guarantee of its properties.