

SAFETY DATA SHEET

according to Occupational Safety And Health
(Classification, Labelling And Safety Data Sheet Of
Hazardous Chemicals) Regulations 2013 (CLASS 2013)

Revision Date 24.04.2019

Version 1.5

SECTION 1. Identification of the substance/mixture and of the company/undertaking**1.1 Product identifier**

Catalogue No.	109218
Product name	Gram's crystal violet solution for the Gram staining method
REACH Registration Number	This product is a mixture. REACH Registration Number see section 3.

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

Identified uses	In vitro diagnostic reagent, Reagent for analysis For additional information on uses please refer to the Merck Chemicals portal (www.merckgroup.com).
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1.3 Details of the supplier of the safety data sheet

Company	Merck KGaA * 64271 Darmstadt *Germany* Telefon: +49 6151 72-0
Responsible Department	LS-QHC * e-mail: prodsafe@merckgroup.com
Regional representation	Merck Sdn. Bhd. (Co. No: 178145), No. 4, Jalan U1/26, Section U1, Hicom Glenmarie Industrial Park, 40150 Shah Alam, Selangor. Tel: 03-74943688 Fax: 03-74910850

1.4 Emergency telephone number Customer Call Centre: + 62 0800 140 1253 (Toll Free)**SECTION 2. Hazards identification****2.1 Classification of the substance or mixture****Classification according to CLASS regulations 2013**

Flammable liquid, Category 3, H226

Long-term (chronic) aquatic hazard, Category 3, H412

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

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2.2 Label elements

Labelling according to CLASS regulations 2013

Hazard pictograms



Signal word

Warning

Hazard statements

H226 Flammable liquid and vapour.

H412 Harmful to aquatic life with long lasting effects.

Precautionary statements

Prevention

P210 Keep away from heat.

P273 Avoid release to the environment.

Reduced labelling (≤ 125 ml)

Hazard pictograms



Signal word

Warning

Hazard statements

H412 Harmful to aquatic life with long lasting effects.

2.3 Other hazards

None known.

SECTION 3. Composition/information on ingredients

Chemical nature	Aqueous-ethanolic dye solution.
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3.1 Substance

Not applicable

3.2 Mixture

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Hazardous components according to CLASS regulations 2013

Chemical name (Concentration)

CAS-No.	Registration number	Classification
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etanol ($\geq 3\%$ - $< 10\%$)

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

64-17-5 *)

Flammable liquid, Category 2, H225
Eye irritation, Category 2, H319

hexamethylpararosaniline (crystal violet) ($\geq 0.25\%$ - $< 1\%$)

548-62-9 *)

Acute toxicity, Category 4, H302
Serious eye damage, Category 1, H318
Carcinogenicity, Category 2, H351
Short-term (acute) aquatic hazard, Category 1, H400
Long-term (chronic) aquatic hazard, Category 1, H410
M-Factor: 1

fenol ($< 1\%$)

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

108-95-2 *)

Germ cell mutagenicity, Category 2, H341
Acute toxicity, Category 3, H331
Acute toxicity, Category 3, H311
Acute toxicity, Category 3, H301
Specific target organ toxicity - repeated exposure, Category 2, H373
Skin corrosion, Category 1B, H314

*) A registration number is not available for this substance as the substance or its use are exempted from registration according to Article 2 REACH Regulation (EC) No 1907/2006, the annual tonnage does not require a registration or the registration is envisaged for a later registration deadline.

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

SECTION 4. First aid measures

4.1 Description of first aid measures

After inhalation: fresh air.

In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower.

After eye contact: rinse out with plenty of water. Remove contact lenses.

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

4.2 Most important symptoms and effects, both acute and delayed

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irritant effects, respiratory paralysis, Dermatitis, Dizziness, narcosis, inebriation, euphoria, Nausea, Vomiting
Drying-out effect resulting in rough and chapped skin.

4.3 Indication of any immediate medical attention and special treatment needed

No information available.

SECTION 5. Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media

Water, Foam, Carbon dioxide (CO₂), Dry powder

Unsuitable extinguishing media

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

5.2 Special hazards arising from the substance or mixture

Mixture with combustible ingredients.

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

Vapours are heavier than air and may spread along floors.

Forms explosive mixtures with air at elevated temperatures.

5.3 Advice for firefighters

Special protective equipment for firefighters

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

Further information

Remove container from danger zone and cool with water. Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Do not breathe vapours, 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.

6.2 Environmental precautions

Do not let product enter drains. Risk of explosion.

6.3 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.

6.4 Reference to other sections

Indications about waste treatment see section 13.

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SECTION 7. Handling and storage

7.1 Precautions for safe handling

Advice on 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.

Hygiene measures

Change contaminated clothing. Wash hands after working with substance.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions

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

Recommended storage temperature see product label.

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated.

SECTION 8. Exposure controls/personal protection

8.1 Control parameters

etanol (64-17-5)

MY OEL	Time Weighted	1,000 ppm
	Average (TWA):	1,880 mg/m ³

8.2 Exposure controls

Engineering measures

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

See section 7.1.

Individual protection measures

Protective clothing needs to be selected specifically for the workplace, depending on concentrations and quantities of the hazardous substances handled. The chemical resistance of the protective equipment should be enquired at the respective supplier.

Eye/face protection

Safety glasses

Hand protection

full contact:

Glove material:	butyl-rubber
Glove thickness:	0.7 mm

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Break through time: 480 min

splash contact:

Glove material: Nitrile rubber
Glove thickness: 0.40 mm
Break through time: 120 min

The protective gloves to be used must comply with the specifications of EC Directive 89/686/EEC and the related standard EN374, for example KCL 898 Butoject® (full contact), KCL 730 Camatril® -Velours (splash contact).

The breakthrough times stated above were determined by KCL in laboratory tests acc. to EN374 with samples of the recommended glove types.

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).

Other protective equipment

Flame retardant antistatic protective clothing.

Respiratory protection

required when vapours/aerosols are generated.

Recommended Filter type: filter ABEK

The entrepreneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer.

These measures have to be properly documented.

Environmental exposure controls

Do not let product enter drains.

Risk of explosion.

SECTION 9. Physical and chemical properties

9.1 Information on basic physical and chemical properties

Form	liquid
Colour	blue
Odour	phenol-like
Odour Threshold	No information available.
pH	No information available.
Melting point	No information available.
Boiling point	No information available.
Flash point	47 °C
Evaporation rate	No information available.

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Flammability (solid, gas)	No information available.
Lower explosion limit	No information available.
Upper explosion limit	No information available.
Vapour pressure	No information available.
Relative vapour density	No information available.
Density	0.99 g/cm ³ at 20 °C
Relative density	No information available.
Water solubility	at 20 °C soluble
Partition coefficient: n-octanol/water	No information available.
Auto-ignition temperature	No information available.
Decomposition temperature	No information available.
Viscosity, dynamic	No information available.
Explosive properties	Not classified as explosive.
Oxidizing properties	none

9.2 Other data

none

SECTION 10. Stability and reactivity

10.1 Reactivity

Vapour/air-mixtures are explosive at intense warming.

10.2 Chemical stability

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

10.3 Possibility of hazardous reactions

Violent reactions possible with:

The generally known reaction partners of water.

10.4 Conditions to avoid

Heating.

10.5 Incompatible materials

no information available

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10.6 Hazardous decomposition products

no information available

SECTION 11. Toxicological information

11.1 Information on toxicological effects

Mixture

Acute oral toxicity

Acute toxicity estimate: > 2,000 mg/kg

Calculation method

Symptoms: Nausea, Vomiting

Acute inhalation toxicity

Acute toxicity estimate: > 20 mg/l; 4 h ; vapour

Calculation method

Symptoms: Possible damages: mucosal irritations

Acute dermal toxicity

Acute toxicity estimate : > 2,000 mg/kg

Calculation method

Skin irritation

Possible damages: Drying-out effect resulting in rough and chapped skin.

Eye irritation

This information is not available.

Sensitisation

This information is not available.

Germ cell mutagenicity

This information is not available.

Carcinogenicity

This information is not available.

Reproductive toxicity

This information is not available.

Teratogenicity

This information is not available.

Specific target organ toxicity - single exposure

This information is not available.

Specific target organ toxicity - repeated exposure

This information is not available.

Aspiration hazard

This information is not available.

11.2 Further information

Property that must be anticipated on the basis from the components of the mixture:

Long-term feeding studies in rats and mice revealed an increased incidence of tumours in different target organs.

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The results of the long-term studies available suggest that exposure to crystal violet/gentian violet may lead to irreversible damage. The positive in-vitro genetic toxicity findings also point in a negative direction. However, the data available do not suffice to classify the dye as carcinogenic in humans.

Systemic effects:

euphoria

After absorption of large quantities:

Dizziness, inebriation, narcosis, respiratory paralysis

However, when the product is handled appropriately, hazardous effects are unlikely to occur.

Handle in accordance with good industrial hygiene and safety practice.

Components

ethanol

Acute oral toxicity

LD50 Rat: 10,470 mg/kg

OECD Test Guideline 401

Acute inhalation toxicity

LC50 Rat: 124.7 mg/l; 4 h ; vapour

OECD Test Guideline 403

Skin irritation

Rabbit

Result: No skin irritation

OECD Test Guideline 404

Eye irritation

Rabbit

Result: Eye irritation

OECD Test Guideline 405

Sensitisation

Local lymph node assay (LLNA) Mouse

Result: negative

Method: OECD Test Guideline 429

Germ cell mutagenicity

Genotoxicity in vitro

Ames test

Salmonella typhimurium

Result: negative

Method: OECD Test Guideline 471

In vitro mammalian cell gene mutation test

Mouse lymphoma test

Result: negative

Method: OECD Test Guideline 476

Reproductive toxicity

Application Route: Oral

Mouse

Method: OECD Test Guideline 416

hexamethylpararosaniline (crystal violet)

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Acute oral toxicity
LD50 Rat: 420 mg/kg
(RTECS)

fenol

Acute dermal toxicity
LD50 Rat: 660 mg/kg
OECD Test Guideline 402

Skin irritation
In vitro study
Result: Causes burns.
OECD Test Guideline 431

Eye irritation
Rabbit
Result: Corrosive
OECD Test Guideline 405

Sensitisation
Sensitisation test: Guinea pig
Result: negative

(IUCLID)

Germ cell mutagenicity
Genotoxicity in vitro
Mutagenicity (mammal cell test): chromosome aberration.
Result: positive
Method: OECD Test Guideline 473

Mutagenicity (mammal cell test): micronucleus.
Result: positive
Method: OECD Test Guideline 487

SECTION 12. Ecological information

Mixture

12.1 Toxicity

No information available.

12.2 Persistence and degradability

No information available.

12.3 Bioaccumulative potential

No information available.

12.4 Mobility in soil

No information available.

12.5 Results of PBT and vPvB assessment

Substance(s) in the mixture do(es) not meet the criteria for PBT or vPvB according to Regulation (EC) No 1907/2006, Annex XIII, or a PBT/vPvB assessment was not conducted.

12.6 Other adverse effects

Discharge into the environment must be avoided.

Components

etanol

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Toxicity to fish

flow-through test EC50 Pimephales promelas (fathead minnow): 15,300 mg/l; 96 h
Analytical monitoring: yes
US-EPA

Toxicity to daphnia and other aquatic invertebrates

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)

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)

semi-static test NOEC Daphnia magna (Water flea): 9.6 mg/l; 9 d

(ECHA)

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.)

Partition coefficient: n-octanol/water

log Pow: -0.31
(experimental)
(Lit.) Bioaccumulation is not expected.

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

hexamethylpararosaniline (crystal violet)

Toxicity to fish

LC50 S.gairdnerii: 0.7 mg/l; 96 h
(External MSDS)

Toxicity to daphnia and other aquatic invertebrates

static test EC50 Daphnia magna (Water flea): > 0.24 - < 0.5 mg/l; 48 h
OECD Test Guideline 202

Toxicity to algae

EC50 Pseudokirchneriella subcapitata (green algae): 0.42 mg/l; 72 h
OECD Test Guideline 201

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Toxicity to bacteria
EC50 Bacteria: 10 - 100 mg/l
(External MSDS)

Biodegradability
3.6 %; 28 d; aerobic
OECD Test Guideline 301F
Not readily biodegradable.

Partition coefficient: n-octanol/water
log Pow: 1.172 (25 °C)
OECD Test Guideline 107
Bioaccumulation is not expected.

M-Factor
1

fenol

Toxicity to fish
LC50 Oncorhynchus mykiss (rainbow trout): 5.0 mg/l; 96 h
(ECOTOX Database)

Toxicity to daphnia and other aquatic invertebrates
static test EC50 Ceriodaphnia dubia (water flea): 3.1 mg/l; 48 h
US-EPA

Toxicity to algae
IC5 Scenedesmus quadricauda (Green algae): 7.5 mg/l; 8 d
(IUCLID) (maximum permissible toxic concentration)

static test EC50 Pseudokirchneriella subcapitata (algae): 61.1 mg/l; 96 h
US-EPA

Toxicity to bacteria
EC50 activated sludge: 766 mg/l; 3 h
OECD Test Guideline 209

Toxicity to fish (Chronic toxicity)
semi-static test NOEC Poecilia reticulata (guppy): 4 mg/l; 14 d

OECD Test Guideline 204

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)
semi-static test EC10 Daphnia magna (Water flea): 0.46 mg/l; 16 d

(ECHA)

Biodegradability
100 %; 6 d
OECD Test Guideline 302B
Easily eliminable.

85 %; 14 d
OECD Test Guideline 301C
Readily biodegradable

Biochemical Oxygen Demand (BOD)
1,680 mg/g (5 d)
(IUCLID)

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Product name Gram's crystal violet solution for the Gram staining method

Chemical Oxygen Demand (COD)
2,300 mg/g
(IUCLID)

Partition coefficient: n-octanol/water
log Pow: 1.47 (30 °C)
(ECHA) Bioaccumulation is not expected.

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

Surface tension
71.3 mN/m
at 20 °C

SECTION 13. Disposal considerations

Waste treatment methods

Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself.

See www.retrologistik.com for processes regarding the return of chemicals and containers, or contact us there if you have further questions.

According to Quality Environment Regulation (Scheduled Waste) 2005, waste need to be sent to designated premise for recycle, treatment or disposal. Please contact Kualiti Alam for waste classification and correct disposal method.

SECTION 14. Transport information

Land transport (ADR/RID)

14.1 UN number	UN 1993
14.2 Proper shipping name	FLAMMABLE LIQUID, N.O.S. (ETHANOL)
14.3 Class	3
14.4 Packing group	III
14.5 Environmentally hazardous	--
14.6 Special precautions for user	yes
Tunnel restriction code	D/E

Inland waterway transport (ADN)

Not relevant

Air transport (IATA)

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14.1 UN number UN 1993
14.2 Proper shipping name FLAMMABLE LIQUID, N.O.S. (ETHANOL)
14.3 Class 3
14.4 Packing group III
14.5 Environmentally hazardous --
14.6 Special precautions for user no

Sea transport (IMDG)

14.1 UN number UN 1993
14.2 Proper shipping name FLAMMABLE LIQUID, N.O.S. (ETHANOL)
14.3 Class 3
14.4 Packing group III
14.5 Environmentally hazardous --
14.6 Special precautions for user yes
EmS F-E S-E

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Not relevant

SECTION 15. Regulatory information

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

All national and local regulations, including Occupational Safety and Health (Classification, Labelling and Safety Data Sheet of Hazardous Chemicals) Regulations 2013, if applicable to the use, should be observed.

National legislation

Storage class 3

15.2 Chemical safety assessment

For this product a chemical safety assessment was not carried out.

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SECTION 16. Other information

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

H225	Highly flammable liquid and vapour.
H226	Flammable liquid and vapour.
H301	Toxic if swallowed.
H302	Harmful if swallowed.
H311	Toxic in contact with skin.
H314	Causes severe skin burns and eye damage.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H331	Toxic if inhaled.
H341	Suspected of causing genetic defects.
H351	Suspected of causing cancer.
H373	May cause damage to organs through prolonged or repeated exposure.
H400	Very toxic to aquatic life.

Training advice

Provide adequate information, instruction and training for operators.

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.

Regional representation

Merck Sdn. Bhd. (Co. No: 178145), No. 4, Jalan U1/26, Section U1, Hicom Glenmarie Industrial Park, 40150 Shah Alam, Selangor. Tel: 03-74943688 Fax: 03-74910850

The information contained herein is based on the present state of our knowledge. It characterises the product with regard to the appropriate safety precautions. It does not represent a guarantee of any properties of the product.

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