



Tri Stains

# SAFETY DATA SHEET

Effective Date: 01-Jan-2021

Version: 1.0

## SECTION 1. Identification of the substance/mixture and of the company/undertaking

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### 1.1 Product identifier

Catalogue No. SS10270

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

#### **Recommended use of the chemical and restrictions on use**

For research use only. Not intended for diagnostic or therapeutic use.

### 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 our website

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

#### **Company**

DAWN SCIENTIFIC  
121 Liberty Street, Metuchen,  
NJ1-800-DAWN-SCI | 732-902-6300

#### **Emergency telephone number**

Chemtrec  
1.800.424.9300 (Within USA)  
+1.703.527.3887 (Outside USA)

## SECTION 2. Hazards identification

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### 2.1 Classification of the substance or mixture

#### **Classification (REGULATION (EC) No 1272/2008)**

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.

## 2.2 Label elements

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### Labelling (REGULATION (EC) No 1272/2008)

#### *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

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Chemical nature

Aqueous-ethanolic dye solution.

### 3.1 Substance

Not applicable

### 3.2 Mixture

### **Hazardous components (REGULATION (EC) No 1272/2008)**

*Chemical name (Concentration)*

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

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

64-17-5	*)	
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Flammable liquid, Category 2, H225  
Eye irritation, Category 2, H319

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

548-62-9	*)	
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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

Phenol ( $< 1\%$ )

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

108-95-2	*)	
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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**

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### **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**

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**

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#### **5.1 Extinguishing media**

*Suitable extinguishing media*

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

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#### **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. Chemisorb® ). Dispose of properly. Clean up affected area.

#### **6.4 Reference to other sections**

Indications about waste treatment see section 13.

## SECTION 7. Handling and storage

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### 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

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### 8.1 Control parameters

#### *ethanol (64-17-5)*

IN OEL	Time Weighted	1,000 ppm
	Average (TWA):	1,900 mg/m <sup>3</sup>

### 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

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](http://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**

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### **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.

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 <sup>3</sup> 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

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### 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

## 10.6 Hazardous decomposition products

no information available

## SECTION 11. Toxicological information

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### 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.



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

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

### *Phenol*

*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**

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### **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**

*ethanol*

*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 chloride (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

*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

## *Phenol*

*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)

*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

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### *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](http://www.retrologistik.com) for processes regarding the return of chemicals and containers, or contact us there if you have further questions.

## SECTION 14. Transport information

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### **Land transport (ADR/RID)**

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

### **Inland waterway transport (ADN)**

Not relevant

### **Air transport (IATA)**

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

#### Sea transport (IMDG)

<b>14.1 UN number</b>	-
<b>14.2 Proper shipping name</b>	FLAMMABLE LIQUID, N.O.S. (ETHANOL)
<b>14.3 Class</b>	3
<b>14.4 Packing group</b>	III
<b>14.5 Environmentally hazardous</b>	--
<b>14.6 Special precautions for user</b>	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

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

*National legislation*

Storage class 3

### 15.2 Chemical safety assessment

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

## SECTION 16. Other information

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### 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.

### Disclaimer:

The information provided in this Material Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality the specific material designated and may not be valid for such material used in combination with any other materials or in any specification. The information relates only to process, unless specified in the text.