

Product: Gram Stain Set; Crystal Violet, Decolorizer,  
Article number: 4312524 Iodine 100X, Safrin  
MAY 28 1999

Date: 05/21/98

B12524

Substance no.	description	qty.	symbols
4312524a	Gram Crystal Violet	1	Xn
4312524b	Gram Decolorizer	1	Xi F
4312524c	Gram Iodine 100X	1	Xn
4312524d	Gram Safrin	1	Xn F

Printing date 05/21/98

Reviewed on 05/14/98

**1 Identification of substance:**• **Product details:**• **Trade name:** Gram Crystal Violet  
(Gram Stain Kit)• **Article number:**

4312524

Formerly BDMS #12293

Formerly Difco #3329-76

• **Manufacturer/Supplier:**In the Continental United States call:  
Becton Dickinson Microbiology Systems  
250 Schilling Circle  
Cockeysville, Maryland 21030  
Tel: 410-771-0101Outside the United States call:  
Becton Dickinson Europe  
5 chemin des Sources  
38241 Meylan Cedex France  
Tel: 33 476 41 64 64• **Information department:** Technical Service Representative**2 Composition/Data on components:**• **Chemical characterization:**• **Identification number(s):**• **EINECS Number:** 2089536• **Chemical characterization**• **Description:**

Mixture of the substances listed below with nonhazardous additions.

**Dangerous components:**

67-63-0 isopropyl alcohol	5.0 %
64-17-5 ethanol	4.8 %
548-62-9 crystal violet	0.4 %

**3 Hazards identification**• **Hazard description:**

Xn Harmful

• **Information pertaining to particular dangers for man and environment**

R 36/37/38 Irritating to eyes, respiratory system and skin.

R 40 Possible risks of irreversible effects.

R 20 Harmful by inhalation.

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USA

**Material Safety Data Sheet**  
acc. to ISO/DIS 11014

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**Trade name: Gram Crystal Violet**  
**(Gram Stain Kit)**

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R 22 Harmful if swallowed.

- **Classification system**

The classification was made according to the latest editions of international substances lists, and expanded upon from company and literature data.

- **NFPA ratings (scale 0-4)**

Health = 2

Fire = 0

Reactivity = 0

#### 4 First aid measures

- **After inhalation**

Supply fresh air. If required, provide artificial respiration. Keep patient warm. Consult doctor if symptoms persist.

In case of unconsciousness place patient on side position for transportation.

- **After skin contact** Immediately rinse with water.

- **After eye contact**

Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.

- **After swallowing** If symptoms persist consult doctor.

#### 5 Fire fighting measures

- **Suitable extinguishing agents**

CO<sub>2</sub>, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.

- **Protective equipment:**

Wear self-contained respiratory protective device.

Wear fully protective suit.

#### 6 Accidental release measures

- **Person-related safety precautions:**

Wear protective equipment. Keep unprotected persons away.

- **Measures for environmental protection:**

Do not allow to enter sewers/ surface or ground water.

- **Measures for cleaning/collecting:**

Dispose contaminated material as waste according to item 13.

Ensure adequate ventilation.

#### 7 Handling and storage

- **Handling**

- **Information for safe handling:**

Ensure good ventilation/exhaustion at the workplace.

- **Information about protection against explosions and fires:**

Keep ignition sources away - Do not smoke.

- **Storage**

- **Requirements to be met by storerooms and receptacles:**

Store at 15 - 30 C

- **Information about storage in one common storage facility:**

Store away from oxidizing agents.

Do not store together with acids.

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USA

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acc. to ISO/DIS 11014

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Reviewed on 05/14/98

**Trade name: Gram Crystal Violet**  
(Gram Stain Kit)

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- **Further information about storage conditions:**  
Keep receptacle tightly sealed.
- **Class according to regulation on flammable liquids:** Void

**8 Exposure controls and personal protection**

- **Additional information about design of technical systems:**  
No further data; see item 7.

Components with limit values that require monitoring at the workplace:

67-63-0 isopropyl alcohol  
TLV: Short-term value: 1230 mg/m<sup>3</sup>, 500 ppm  
Long-term value: 985 mg/m<sup>3</sup>, 400 ppm

64-17-5 ethanol  
TLV: 1880 mg/m<sup>3</sup>, 1000 ppm

- **Additional information:**  
The lists that were valid during the creation were used as basis.
- **Personal protective equipment**
- **General protective and hygienic measures**  
Keep away from foodstuffs, beverages and feed.  
Immediately remove all soiled and contaminated clothing  
Wash hands before breaks and at the end of work.  
Avoid contact with the eyes and skin.
- **Breathing equipment:**  
In case of brief exposure or low pollution use NIOSH/MSHA-approved respirator. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.
- **Protection of hands:**



Protective gloves.

- **Eye protection:** Safety glasses
- **Body protection:** Protective work clothing.

**9 Physical and chemical properties:**

- **Form:** Liquid
- **Color:** Violet
- **Odor:** Characteristic

• **Change in condition**

- **Melting point/Melting range:** Undetermined
- **Boiling point/Boiling range:** Undetermined

- **Flash point:** Not applicable

- **Auto igniting:** Product is not selfigniting.

- **Danger of explosion:**  
Product does not present an explosion hazard.

	<u>Value/Range</u>	<u>Unit</u>	<u>Method</u>
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**Trade name: Gram Crystal Violet**  
(Gram Stain Kit)

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- **Density:** Not determined
- **Solubility in / Miscibility with Water:** Slightly soluble
- **Solvent content:** 9.8 %
- **Organic solvents:**

**10 Stability and reactivity**

- **Thermal decomposition / conditions to be avoided:**  
No decomposition if used according to specifications.
- **Dangerous reactions** No dangerous reactions known
- **Dangerous products of decomposition:**  
Nitrogen oxides  
Carbon monoxide and carbon dioxide  
Ammonia

**11 Toxicological information**

- **Acute toxicity:**  
LD/Lc50 values that are relevant for classification:
- 64-17-5 ethanol  
Oral: LD50: 7060 mg/kg (rat)  
Inhalative: LC50/4 h: 20000 mg/l (rat)
- 548-62-9 crystal violet  
Oral: LD50: 96 mg/kg (mou)
- 67-63-0 isopropyl alcohol  
Oral: LD50: 4570 mg/kg (rat)  
Dermal: LD50: 13400 mg/kg (rab)  
Inhalative: LC50/4 h: 30 mg/l (rat)
- **Primary irritant effect:**
  - on the skin: Irritant to skin and mucous membranes.
  - on the eye: Irritating effect.
- **Sensitization:** No sensitizing effects known.
- **Additional toxicological information:**  
The product shows the following dangers according to internally approved calculation methods for preparations:  
Irritant

**12 Ecological information:**

- **General notes:**  
Water hazard class 2 (Self-assessment): hazardous for water.  
Do not allow product to reach ground water, water course or sewage system.  
Danger to drinking water if even small quantities leak into the ground.

**13 Disposal considerations**

- **Product:**
- **Recommendation**  
Must not be disposed of together with solid waste. Do not allow product

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(Gram Stain Kit)

to reach sewage system.

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- Uncleaned packagings:
- Recommendation:  
Disposal must be made according to regulations found in 40 CFR 261
- Recommended cleansing agent: Water, if necessary with cleansing agents.

#### 14 Transport information

- DOT regulations:
- Hazard class: -
- Land transport ADR/RID (cross-border)
- ADR/RID class: -
- Maritime transport IMDG:
- IMDG Class: -
- Marine pollutant: No
- Air transport ICAO-TI and IATA-DGR:
- ICAO/IATA Class: -

#### 15 Regulations

- Product related hazard informations:  
The product has been classified and marked in accordance with regulations on hazardous materials.
- Hazard symbols: Xn Harmful
- Hazard-determining components of labelling: ethanol
- Risk phrases:  
36/37/38 Irritating to eyes, respiratory system and skin.  
40 Possible risks of irreversible effects.  
20 Harmful by inhalation.  
22 Harmful if swallowed.
- Safety phrases:  
7 Keep container tightly closed.  
16 Keep away from sources of ignition - No smoking.  
23 Do not breathe gas/fumes/vapour/spray.  
36/37 Wear suitable protective clothing and gloves.
- National regulations
- Additional classification according to Decree on Hazardous Materials:  
CERCLA: This product contains no Reporting Quantity (RQ) substances.  
SARA 311/312: May be subject to reporting.  
313: Not subject to reporting.  
TSCA: This product is exempt under TSCA.
- Technical instructions (air):  
Class Share in %  
III 9.8

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Trade name: Gram Crystal Violet  
(Gram Stain Kit)

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- **Water hazard class:**  
Water hazard class 2 (Self-assessment): hazardous for water.

**16 Other information:**

To the best of our knowledge, the information contained herein is accurate. However, neither Becton Dickinson or any of its subsidiaries assumes any liabilities whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

- **Department issuing MSDS:** Safety & Environment Department
- **Contact:** Technical Service Representative

USA

Material Safety Data Sheet  
acc. to ISO/DIS 11014

Printing date 05/21/98

Reviewed on 04/24/98

**1 Identification of substance:**

## • Product details:

• Trade name: Gram Decolorizer  
(Gram Stain Set)• Article number:  
4312524  
Formerly BDMS #12403  
Formerly Difco #3330-76• Manufacturer/Supplier:  
In the Continental United States call:  
Becton Dickinson Microbiology Systems  
250 Schilling Circle  
Cockeysville, Maryland 21030  
Tel: 410-771-0101Outside the United States call:  
Becton Dickinson Europe  
5 chemin des Sources  
38241 Meylan Cedex France  
Tel: 33 476 41 64 64

• Information department: Technical Service Representative

**2 Composition/Data on components:**

## • Chemical characterization

## • Description:

Mixture of the substances listed below with nonhazardous additions.

Dangerous components:

67-63-0 isopropyl alcohol	75.0 %
67-64-1 acetone	25.0 %

**3 Hazards identification**

## • Hazard description:

Xi Irritant  
F Highly flammable• Information pertaining to particular dangers for man and environment  
R 11 Highly flammable.

R 36/37/38 Irritating to eyes, respiratory system and skin.

## • Classification system

The classification was made according to the latest editions of international substances lists, and expanded upon from company and literature data.

## • NFPA ratings (scale 0-4)

Health = 2  
Fire = 4

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**Trade name: Gram Decolorizer**  
**(Gram Stain Set)**

Reactivity = 0

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**4 First aid measures**

- **After inhalation**  
Supply fresh air. If required, provide artificial respiration. Keep patient warm. Consult doctor if symptoms persist.  
Call a doctor immediately.
- **After skin contact** Immediately rinse with water.
- **After eye contact**  
Rinse opened eye for several minutes under running water. Then consult a doctor.
- **After swallowing** Immediately call a doctor.

**5 Fire fighting measures**

- **Suitable extinguishing agents**  
CO<sub>2</sub>, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- **Protective equipment:**  
Wear self-contained respiratory protective device.  
Wear fully protective suit.

**6 Accidental release measures**

- **Person-related safety precautions:**  
Wear protective equipment. Keep unprotected persons away.
- **Measures for environmental protection:**  
Prevent seepage into sewage system, workpits and cellars.  
Dilute with plenty of water.  
Do not allow to enter sewers/ surface or ground water.
- **Measures for cleaning/collecting:**  
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).  
Ensure adequate ventilation.
- **Additional information:**  
See Section 7 for information on safe handling  
See Section 8 for information on personal protection equipment.  
See Section 13 for disposal information.

**7 Handling and storage**

- **Handling**
- **Information for safe handling:**  
Ensure good ventilation/exhaustion at the workplace.  
Prevent formation of aerosols.
- **Information about protection against explosions and fires:**  
Keep ignition sources away - Do not smoke.  
Protect against electrostatic charges.
- **Storage**
- **Requirements to be met by storerooms and receptacles:**  
Store at 15 - 30 C

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**Trade name: Gram Decolorizer  
(Gram Stain Set)**

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- **Information about storage in one common storage facility:**  
Do not store together with oxidizing and acidic materials.  
Do not store with halogens.  
Do not store with chloroform.
- **Further information about storage conditions:**  
Store in cool, dry conditions in well sealed receptacles.
- **Class according to regulation on flammable liquids: B**

**8 Exposure controls and personal protection**

- **Additional information about design of technical systems:**  
No further data; see item 7.

**Components with limit values that require monitoring at the workplace:**

67-63-0 isopropyl alcohol  
TLV: Short-term value: 1230 mg/m<sup>3</sup>, 500 ppm  
Long-term value: 985 mg/m<sup>3</sup>, 400 ppm

67-64-1 acetone  
TLV: Short-term value: 2380 mg/m<sup>3</sup>, 1000 ppm  
Long-term value: 1780 mg/m<sup>3</sup>, 750 ppm

- **Additional information:**  
The lists that were valid during the creation were used as basis.

- **Personal protective equipment**
- **General protective and hygienic measures**  
Keep away from foodstuffs, beverages and feed.  
Immediately remove all soiled and contaminated clothing  
Wash hands before breaks and at the end of work.  
Avoid contact with the eyes and skin.

- **Breathing equipment:**  
In case of brief exposure or low pollution use NIOSH/MSHA-approved respirator. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.  
Use suitable respiratory protective device in case of insufficient ventilation.

- **Protection of hands:**



Protective gloves.

- **Eye protection:** Safety glasses
- **Body protection:** Protective work clothing.

**9 Physical and chemical properties:**

- **Form:** Liquid
- **Color:** Colorless
- **Odor:** Characteristic

- **Change in condition**

- **Melting point/Melting range:**
- **Boiling point/Boiling range:**

	<u>Value/Range</u>	<u>Unit</u>	<u>Method</u>
	Undetermined		
	56.1 - 82	° C	

- **Flash point:**

-6.7 ° C

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**Trade name: Gram Decolorizer**  
**(Gram Stain Set)**

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- **Ignition temperature:** 425.0 ° C
- **Auto igniting:** Product is not selfigniting.
- **Danger of explosion:**  
Product is not explosive. However, formation of explosive air/vapor mixtures are possible.
- **Explosion limits:**
- **Lower:** 3.5 Vol %
- **Upper:** 18.0 Vol %
- **Vapor pressure:** at 20 ° C 186.0 hPa
- **Density:** at 20 ° C 2.0 - 2.1 g/cm3
- **Solubility in / Miscibility with**
- **Water:** Soluble
- **Solvent content:**
- **Organic solvents:** 100.0 %

**10 Stability and reactivity**

- **Thermal decomposition / conditions to be avoided:**  
No decomposition if used according to specifications.
- **Dangerous reactions** No dangerous reactions known
- **Dangerous products of decomposition:** Carbon monoxide and carbon dioxide

**11 Toxicological information**

- **Acute toxicity:**  
LD/Lc50 values that are relevant for classification:
- 67-63-0 isopropyl alcohol
- Oral: LD50: 4570 mg/kg (rat)
- Dermal: LD50: 13400 mg/kg (rab)
- Inhalative: LC50/4 h: 30 mg/l (rat)
- 67-64-1 acetone
- Oral: LD50: 5800 mg/kg (rat)
- Dermal: LD50: 20000 mg/kg (rbt)
- **Primary irritant effect:**
- **on the skin:** Irritant to skin and mucous membranes.
- **on the eye:** Irritating effect.
- **Sensitization:** No sensitizing effects known.
- **Additional toxicological information:**  
The product shows the following dangers according to internally approved calculation methods for preparations:  
Irritant

USA

**Material Safety Data Sheet**  
acc. to ISO/DIS 11014

Printing date 05/21/98

Reviewed on 04/24/98

**Trade name: Gram Decolorizer**  
**(Gram Stain Set)**

**12 Ecological information:**• **General notes:**

Water hazard class 1 (Self-assessment): slightly hazardous for water.  
Do not allow undiluted product or large quantities of it to reach  
ground water, water course or sewage system.

**13 Disposal considerations**• **Product:**• **Recommendation**

Must not be disposed of together with solid waste. Do not allow product  
to reach sewage system.

• **Uncleaned packagings:**• **Recommendation:**

Disposal must be made according to regulations found in 40 CFR 261  
RCRA # D001, F003

• **Recommended cleansing agent:** Water, if necessary with cleansing agents.**14 Transport information**• **DOT regulations:**• **Hazard class:**

3

• **Identification number:**

UN1993

• **Packing group:**

II

• **Proper shipping name (technical name):**

Flammable liquid, n.o.s., isopropanol  
(Isopropyl alcohol)

• **Land transport ADR/RID (cross-border)**• **ADR/RID class:**

3 Flammable liquids

• **Item:**

3b

• **Danger code (Kemler):**

33

• **UN-Number:**

1993

• **Description of goods:**

1993 Flammable liquid, n.o.s., isopropanol  
(Isopropyl alcohol)

• **Maritime transport IMDG:**• **IMDG Class:**

3.2

• **Page:**

3230

• **UN Number:**

1993

• **Packaging group:**

II

• **EMS Number:**3-07• **MFAG:**

310

• **Marine pollutant:**

No

• **Proper shipping name:**

Flammable liquid, n.o.s., isopropanol  
(Isopropyl alcohol)

• **Air transport ICAO-TI and IATA-DGR:**• **ICAO/IATA Class:**

3

• **UN/ID Number:**

1993

• **Packaging group:**

II

• **Proper shipping name:**

Flammable liquid, n.o.s., isopropanol

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Trade name: Gram Decolorizer  
(Gram Stain Set)

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(Isopropyl alcohol)

**15 Regulations**

- **Product related hazard informations:**  
The product has been classified and marked in accordance with regulations on hazardous materials.
- **Hazard symbols:**  
Xi Irritant  
F Highly flammable
- **Risk phrases:**  
11 Highly flammable.  
36/37/38 Irritating to eyes, respiratory system and skin.
- **Safety phrases:**  
7/9 Keep container tightly closed and in a well-ventilated place.  
16 Keep away from sources of ignition - No smoking.  
23 Do not breathe gas/fumes/vapour/spray.  
24/25 Avoid contact with skin and eyes.
- **National regulations**
- **Additional classification according to Decree on Hazardous Materials:**  
CERCLA: This product contains Acetone which has a Reporting Quantity (RQ) of 5000#.  
SARA 311/312: Subject to reporting.  
313: Acetone and Isopropyl Alcohol are subject to reporting.  
TSCA: This product is exempt under TSCA.
- **Technical instructions (air):**  
Class Share in %  
III 100.0
- **Water hazard class:**  
Water hazard class 1 (Self-assessment): slightly hazardous for water.

**16 Other information:**

To the best of our knowledge, the information contained herein is accurate. However, neither Becton Dickinson or any of its subsidiaries assumes any liabilities whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

- **Department issuing MSDS:** Safety & Environment Department
- **Contact:** Technical Service Representative

USA

Printing date 05/21/98

Reviewed on 04/24/98


**1 Identification of substance:**

- Product details:
- Trade name: Gram Iodine 100X  
(Gram Stain Set)
- Article number:  
4312524  
Formerly BDMS #12308  
Formerly Difco #3331-76
- Manufacturer/Supplier:  
In the Continental United States call:  
Becton Dickinson Microbiology Systems  
250 Schilling Circle  
Cockeysville, Maryland 21030  
Tel: 410-771-0101  
  
Outside the United States call:  
Becton Dickinson Europe  
5 chemin des Sources  
38241 Meylan Cedex France  
Tel: 33 476 41 64 64
- Information department: Technical Service Representative

**2 Composition/Data on components:**

- Chemical characterization
  - Description:  
Mixture of the substances listed below with nonhazardous additions.
- | <u>Dangerous components:</u> |        |
|------------------------------|--------|
| 7681-11-0 potassium iodide   | 53.0 % |
| 7553-56-2 iodine             | 27.0 % |

**3 Hazards identification**

- Hazard description:  
 Xn Harmful
- Information pertaining to particular dangers for man and environment  
R 20/21/22 Harmful by inhalation, in contact with skin and if  
swallowed.  
R 61 May cause harm to the unborn child
- Classification system  
The classification was made according to the latest editions of  
international substances lists, and expanded upon from company and  
literature data.
- NFPA ratings (scale 0-4)  
Health = 2

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**Trade name: Gram Iodine 100X**  
**(Gram Stain Set)**

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Fire = 0  
Reactivity = 0

**4 First aid measures**

- **General information**  
Immediately remove any clothing soiled by the product.  
Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.
- **After inhalation**  
Supply fresh air or oxygen; call for doctor.  
In case of unconsciousness place patient on side position for transportation.
- **After skin contact** Immediately rinse with water.
- **After eye contact**  
Rinse opened eye for several minutes under running water. Then consult a doctor.
- **After swallowing** If symptoms persist consult doctor.
- **Information for doctor**
- **The following symptoms may occur:**  
Nausea  
Gastric or intestinal disorders.
- **Danger** Danger of impaired breathing.

**5 Fire fighting measures**

- **Suitable extinguishing agents**  
CO<sub>2</sub>, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- **Special hazards caused by the material, its products of combustion or resulting gases:**  
In certain fire conditions, traces of other toxic gases cannot be excluded.
- **Protective equipment:**  
Wear self-contained respiratory protective device.  
Wear fully protective suit.

**6 Accidental release measures**

- **Person-related safety precautions:**  
Wear protective equipment. Keep unprotected persons away.
- **Measures for environmental protection:**  
Do not allow to penetrate the ground/soil.  
Do not allow to enter sewers/ surface or ground water.
- **Measures for cleaning/collecting:**  
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
- **Additional information:**  
See Section 7 for information on safe handling  
See Section 8 for information on personal protection equipment.  
See Section 13 for disposal information.

**7 Handling and storage**

- **Handling**

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Trade name: Gram Iodine 100X  
(Gram Stain Set)

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- **Information for safe handling:**  
Ensure good ventilation/exhaustion at the workplace.
- **Information about protection against explosions and fires:**  
No special measures required.
- **Storage**
- **Requirements to be met by storerooms and receptacles:**  
Store at 15 - 30 C
- **Information about storage in one common storage facility:**  
Store away from oxidizing agents.  
Store away from reducing agents.  
Do not store with ammonia and salts, aluminum, bromine trifluorides and trichlorides, chemically active metals, and carbides.
- **Further information about storage conditions:** Store in a cool place.
- **Class according to regulation on flammable liquids:** Void

**8 Exposure controls and personal protection**

- **Additional information about design of technical systems:**  
No further data; see item 7.

Components with limit values that require monitoring at the workplace:

7553-56-2 iodine

TLV: 1 mg/m<sup>3</sup>, 0.1 ppm

- **Additional information:**

The lists that were valid during the creation were used as basis.

- **Personal protective equipment**

- **General protective and hygienic measures**

The usual precautionary measures for handling chemicals should be followed.

- **Breathing equipment:**

In case of brief exposure or low pollution use NIOSH/MSHA-approved respirator. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.

- **Protection of hands:**



Protective gloves.

- **Eye protection:** Safety glasses
- **Body protection:** Protective work clothing.

**9 Physical and chemical properties:**

- **Form:** Liquid
- **Color:** Dark brown
- **Odor:** Characteristic

- **Change in condition**
- **Melting point/Melting range:**
- **Boiling point/Boiling range:**

Value/Range	Unit	Method
Undetermined		
Undetermined		
184	° C	

- **Flash point:** Not applicable

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USA



**Material Safety Data Sheet**  
acc. to ISO/DIS 11014

Printing date 05/21/98

Reviewed on 04/24/98

**Trade name: Gram Iodine 100X**  
**(Gram Stain Set)**

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- **Auto igniting:** Product is not selfigniting.
- **Danger of explosion:**  
Product does not present an explosion hazard.
- **Vapor pressure:** at 20 ° C 0.4 hPa
- **Density:** Not determined
- **Solubility in / Miscibility with**
- **Water:** Soluble
- **pH-value:** at 25 ° C 2.275 +/- 0.2
- **Solvent content:**
- **Organic solvents:** 0.0 %

**10 Stability and reactivity**

- **Thermal decomposition / conditions to be avoided:**  
No decomposition if used according to specifications.
- **Dangerous reactions** No dangerous reactions known
- **Dangerous products of decomposition:**  
Iodine compounds  
Sulfur oxides (SOx)  
Carbon monoxide and carbon dioxide  
Nitrogen oxides (NOx)

**11 Toxicological information**

- **Acute toxicity:**
- **LD/Lc50 values that are relevant for classification:**  
7681-11-0 potassium iodide  
Oral: LD50: 1862 mg/kg (rat)
- **Primary irritant effect:**
- **on the skin:** Irritant to skin and mucous membranes.
- **on the eye:** Irritating effect.
- **Sensitization:** No sensitizing effects known.
- **Subacute to chronic toxicity:**  
Target organs: lung, thyroid, bladder damage and central nervous system depression.
- **Additional toxicological information:**  
The product is not subject to classification according to internally approved calculation methods for preparations:  
Harmful

**12 Ecological information:**

- **General notes:**  
Water hazard class 1 (Self-assessment): slightly hazardous for water.  
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

USA

Printing date 05/21/98

Reviewed on 04/24/98

Trade name: Gram Iodine 100X  
(Gram Stain Set)

**13 Disposal considerations**

- **Product:**
- **Recommendation** Smaller quantities can be disposed of with solid waste.
- **Uncleaned packagings:**
- **Recommendation:**  
Disposal must be made according to regulations found in 40 CFR 261  
This product is not a hazardous considered a RCRA hazardous waste.  
Follow State and Federal regulations.
- **Recommended cleansing agent:** Water, if necessary with cleansing agents.

**14 Transport information**

- **DOT regulations:**
- **Hazard class:** -
- **Land transport ADR/RID (cross-border)**
- **ADR/RID class:** -
- **Maritime transport IMDG:**
- **IMDG Class:** -
- **Marine pollutant:** No
- **Air transport ICAO-TI and IATA-DGR:**
- **ICAO/IATA Class:** -

**15 Regulations**

- **Product related hazard informations:**  
Observe the general safety regulations when handling chemicals  
The product is not subject to identification regulations pertaining to regulations on hazardous materials.
- **Hazard symbols:** Xn Harmful
- **Risk phrases:**  
20/21/22 Harmful by inhalation, in contact with skin and if swallowed.  
61 May cause harm to the unborn child
- **Safety phrases:**  
24/25 Avoid contact with skin and eyes.  
23 Do not breathe gas/fumes/vapour/spray.  
36 Wear suitable protective clothing.  
7 Keep container tightly closed.
- **National regulations**
- **Additional classification according to Decree on Hazardous Materials:**  
CERCLA: This product does not contain chemicals having a reportable quantity.  
SARA 311/312: Not subject to reporting.  
313: Not subject to reporting.  
TSCA: This product is exempt under TSCA.

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USA

**Material Safety Data Sheet**  
acc. to ISO/DIS 11014

Printing date 05/21/98

Reviewed on 04/24/98

**Trade name: Gram Iodine 100X**  
**(Gram Stain Set)**

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- **Water hazard class:**  
Water hazard class 1 (Self-assessment): slightly hazardous for water.

**16 Other information:**

To the best of our knowledge, the information contained herein is accurate. However, neither Becton Dickinson or any of its subsidiaries assumes any liabilities whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

- **Department issuing MSDS:** Safety & Environment Department
- **Contact:** Technical Service Representative

USA

Printing date 05/21/98

Reviewed on 05/13/98

**1 Identification of substance:**

## • Product details:

• Trade name: Gram Safranin  
(Gram Stain Set)• Article number:  
4312524  
Formerly BDMS #12296  
Formerly Difco #3332-76• Manufacturer/Supplier:  
In the Continental United States call:  
Becton Dickinson Microbiology Systems  
250 Schilling Circle  
Cockeysville, Maryland 21030  
Tel: 410-771-0101Outside the United States call:  
Becton Dickinson Europe  
5 chemin des Sources  
38241 Meylan Cedex France  
Tel: 33 476 41 64 64

• Information department: Technical Service Representative

**2 Composition/Data on components:**

## • Chemical characterization

## • Description:

Mixture of the substances listed below with nonhazardous additions.

Dangerous components:

64-17-5 ethanol	19.0 %
67-56-1 methanol	1.0 %

**3 Hazards identification**

## • Hazard description:

F Highly flammable  
Xn Harmful

## • Information pertaining to particular dangers for man and environment

R 10 Flammable.  
R 20/22 Harmful by inhalation and if swallowed.  
R 36/37/38 Irritating to eyes, respiratory system and skin.  
R 45 Can cause cancer - Group III (hazardous)  
R 61 May cause harm to the unborn child  
R 40 Possible risks of irreversible effects.

## • Classification system

The classification was made according to the latest editions of  
international substances lists, and expanded upon from company and

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**Trade name: Gram Safranin**  
**(Gram Stain Set)**

(Contd. of page 1)

literature data.

- **NFPA ratings (scale 0-4)**  
Health = 2  
Fire = 2  
Reactivity = 0

**4 First aid measures**

- **After inhalation**  
Supply fresh air or oxygen; call for doctor.  
In case of unconsciousness place patient on side position for transportation.
- **After skin contact** Immediately rinse with water.
- **After eye contact**  
Rinse opened eye for several minutes under running water. Then consult a doctor.
- **After swallowing** Call a doctor immediately.

**5 Fire fighting measures**

- **Suitable extinguishing agents**  
CO<sub>2</sub>, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- **Protective equipment:**  
Wear self-contained respiratory protective device.  
Wear fully protective suit.

**6 Accidental release measures**

- **Person-related safety precautions:**  
Wear protective equipment. Keep unprotected persons away.
- **Measures for environmental protection:**  
Prevent seepage into sewage system, workpits and cellars.  
Dilute with plenty of water.
- **Measures for cleaning/collecting:**  
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
- **Additional information:**  
See Section 7 for information on safe handling  
See Section 8 for information on personal protection equipment.  
See Section 13 for disposal information.

**7 Handling and storage**

- **Handling**
- **Information for safe handling:**  
Ensure good ventilation/exhaustion at the workplace.
- **Information about protection against explosions and fires:**  
Keep ignition sources away - Do not smoke.  
Protect against electrostatic charges.
- **Storage**
- **Requirements to be met by storerooms and receptacles:**  
Store at 15 - 30 C
- **Information about storage in one common storage facility:**  
Store away from oxidizing agents.

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Reviewed on 05/13/98

**Trade name: Gram Safranin**  
**(Gram Stain Set)**

(Contd. of page 2)

- **Further information about storage conditions:**  
Store in cool, dry conditions in well sealed receptacles.
- **Class according to regulation on flammable liquids: B**

**8 Exposure controls and personal protection**

- **Additional information about design of technical systems:**  
No further data; see item 7.

**Components with limit values that require monitoring at the workplace:**

64-17-5 ethanol

TLV: 1880 mg/m<sup>3</sup>, 1000 ppm

67-56-1 methanol

TLV: Short-term value: 328 mg/m<sup>3</sup>, 250 ppmLong-term value: 262 mg/m<sup>3</sup>, 200 ppm

- **Additional information:**  
The lists that were valid during the creation were used as basis.
- **Personal protective equipment**
- **General protective and hygienic measures**  
Wash hands before breaks and at the end of work.
- **Breathing equipment:**  
In case of brief exposure or low pollution use NIOSH/MSHA-approved respirator. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.
- **Protection of hands:**



Protective gloves.

- **Eye protection: Safety glasses**
- **Body protection: Protective work clothing.**

**9 Physical and chemical properties:**

- **Form:** Liquid
- **Color:** Red
- **Odor:** Characteristic

• **Change in condition**

- **Melting point/Melting range:**
- **Boiling point/Boiling range:**

	<u>Value/Range</u>	<u>Unit</u>	<u>Method</u>
	Undetermined		
		79 ° C	

- **Flash point:**

39 ° C

- **Ignition temperature:**

425.0 ° C

- **Auto igniting:**

Product is not selfigniting.

- **Danger of explosion:**

Product is not explosive. However, formation of explosive air/vapor mixtures are possible.

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**Material Safety Data Sheet**  
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Printing date 05/21/98

Reviewed on 05/13/98

Trade name: Gram Safranin  
(Gram Stain Set)

(Contd. of page 3)

- Explosion limits:
- Lower: 6.5 Vol %
- Upper: 22 Vol %
- Vapor pressure: at 25 ° C 59.0 hPa
- Density: Not determined
- Solubility in / Miscibility with
- Water: Soluble
- Solvent content:
- Organic solvents: 20.0 %

**10 Stability and reactivity**

- Thermal decomposition / conditions to be avoided:  
No decomposition if used according to specifications.
- Dangerous reactions No dangerous reactions known
- Dangerous products of decomposition:  
Carbon monoxide and carbon dioxide  
Nitrogen oxides  
Hydrogen chloride (HCl)

**11 Toxicological information**

- Acute toxicity:  
LD/Lc50 values that are relevant for classification:
- 67-56-1 methanol  
Oral: LD50: 5628 mg/kg (rat)
- 64-17-5 ethanol  
Oral: LD50: 7060 mg/kg (rat)  
Inhalative: LC50/4 h: 20000 mg/l (rat)
- Primary irritant effect:
- on the skin: Irritant to skin and mucous membranes.
- on the eye: Irritating effect.
- Sensitization: No sensitizing effects known.
- Subacute to chronic toxicity:  
Target organs: eyes, kidneys, tumor formation, reproductive disorders
- Additional toxicological information:  
The product shows the following dangers according to internally approved calculation methods for preparations:  
Irritant  
Carcinogenic  
Product is suspected to cause birth defects.

**12 Ecological information:**

- General notes:  
Water hazard class 0 (Self-assessment): generally not hazardous for water.

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Reviewed on 05/13/98

**Trade name: Gram Safranin**  
**(Gram Stain Set)**

**13 Disposal considerations**

- **Product:**
- **Recommendation**  
Must not be disposed of together with solid waste. Do not allow product to reach sewage system.
- **Uncleaned packagings:**
- **Recommendation:**  
Disposal must be made according to regulations found in 40 CFR 261 RCRA # D001
- **Recommended cleansing agent:** Water, if necessary with cleansing agents.

**14 Transport information**

- **DOT regulations:**
- **Hazard class:** 3
- **Identification number:** UN1993
- **Packing group:** III
- **Proper shipping name (technical name):**  
Flammable liquid, n.o.s., ethanol (Ethyl alcohol)
- **Land transport ADR/RID (cross-border)**
- **ADR/RID class:** 3 Flammable liquids
- **Item:** 31c
- **Danger code (Kemler):** 30
- **UN-Number:** 1993
- **Description of goods:** 1993 Flammable liquid, n.o.s., ethanol (Ethyl alcohol)
- **Maritime transport IMDG:**
- **IMDG Class:** 3.3
- **Page:** 3345
- **UN Number:** 1993
- **Packaging group:** III
- **EMS Number:** 3-07
- **MFAG:** 310
- **Marine pollutant:** No
- **Proper shipping name:** Flammable liquid, n.o.s., ethanol (Ethyl alcohol)
- **Air transport ICAO-TI and IATA-DGR:**
- **ICAO/IATA Class:** 3
- **UN/ID Number:** 1993
- **Packaging group:** III
- **Proper shipping name:** Flammable liquid, n.o.s., ethanol (Ethyl alcohol)

**15 Regulations**

- **Product related hazard informations:**  
The product has been classified and marked in accordance with regulations on hazardous materials.

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**Trade name: Gram Safranin**  
**(Gram Stain Set)**

(Contd. of page 5)

- **Hazard symbols:**  
F Highly flammable  
Xn Harmful
- **Risk phrases:**  
10 Flammable.  
20/22 Harmful by inhalation and if swallowed.  
36/37/38 Irritating to eyes, respiratory system and skin.  
45 Can cause cancer - Group III (hazardous)  
61 May cause harm to the unborn child  
40 Possible risks of irreversible effects.
- **Safety phrases:**  
7 Keep container tightly closed.  
16 Keep away from sources of ignition - No smoking.  
24/25 Avoid contact with skin and eyes.  
23 Do not breathe gas/fumes/vapour/spray.  
36 Wear suitable protective clothing.
- **National regulations**
- **Additional classification according to Decree on Hazardous Materials:**  
CERCLA: This product contains methanol which has reporting quantity (RQ) 5000 lbs.  
SARA 311/312: Maybe subject to reporting.  
313: Methanol is subject to reporting.  
TSCA: This product is exempt under TSCA.
- **Technical instructions (air):**  
Class Share in %  
III 20.0
- **Water hazard class:**  
Water hazard class 0 (Self-assessment): generally not hazardous for water.

**16 Other information:**

To the best of our knowledge, the information contained herein is accurate. However, neither Becton Dickinson or any of its subsidiaries assumes any liabilities whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

- **Department issuing MSDS:** Safety & Environment Department
- **Contact:** Technical Service Representative

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