



08/29/2020

### Kit Components

Product code	Description
<b>1662701</b> <b>1662701EDU</b>	<b>Protein Profiler Module Kit</b>

#### Components:

1610375	Precision Plus Protein Kaleidoscope Standards
1660010	Actin / Myosin Standard
1610610	Dithiothreitol (DTT)

# Safety Data Sheet

according to HPR, Schedule 1

Printing date 08/29/2020

Reviewed on 07/25/2020

## 1 Identification

- **Product identifier**
- **Trade name:** *Precision Plus Protein Kaleidoscope Standards*
- **Catalog or product number:** 1610375, 1610375S, 1610375EDU, 1610395, 10022172
- **Application of the substance / the mixture** Laboratory chemicals

- **Details of the supplier of the safety data sheet**

- **Manufacturer/Supplier:**

Bio-Rad Laboratories (Canada) Ltd.  
1329 Meyerside Drive  
Mississauga, Ontario  
L5T 1C9  
Canada

phone: 1-800-268-0213 Fax: 1-888-913-9779

- **Information department:** sales\_canada@bio-rad.com
- **Emergency telephone number:** 1-800-424-6723 option 2

## 2 Hazard identification

- **Classification of the substance or mixture**  
The product is not classified, according to the Globally Harmonized System (GHS).

- **Label elements**
- **GHS label elements** Not Applicable
- **Hazard pictograms** Not Applicable
- **Signal word** Not Applicable
- **Hazard statements** Not Applicable

## 3 Composition/Information on ingredients

- **Chemical characterization: Mixtures**
- **Description:** Mixture of the substances listed below with non-hazardous additions.

- **Listing of dangerous and non-hazardous components:**

56-81-5	glycerol	10-30% w/w *
151-21-3	sodium dodecyl sulphate	1-5% w/w *
	Flammable Solids - Category 2, H228 Acute Toxicity (Oral) - Category 3, H301; Acute Toxicity (Dermal) – Category 3, H311 Skin Irritation - Category 2, H315; Eye Irritation - Category 2A, H319; Specific Target Organ Toxicity - Single Exposure - Category 3, H335	

\* Actual concentration ranges are withheld as a trade secret.

- **Additional information** For the wording of the listed hazard phrases refer to section 16.

## 4 First-aid measures

- **Description of first aid measures**
- **General information** No special measures required.
- **After inhalation** Supply fresh air; consult doctor in case of complaints.
- **After skin contact** Generally the product does not irritate the skin.

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**Trade name: Precision Plus Protein Kaleidoscope Standards**

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- **After eye contact** Rinse opened eye for several minutes under running water.
- **After swallowing** Rinse mouth with water. Seek medical attention and appropriate follow-up.
- **Information for doctor**
- **Most important symptoms and effects, both acute and delayed** No further relevant information available.
- **Indication of any immediate medical attention and special treatment needed** No further relevant information available.

### 5 Fire-fighting measures

- **Extinguishing media**
- **Suitable extinguishing agents** Use fire fighting measures that suit the environment.
- **Special hazards arising from the substance or mixture** No further relevant information available.
- **Advice for firefighters**
- **Protective equipment:** No special measures required.

### 6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures** Wear protective clothing.
- **Environmental precautions:**  
Dilute with plenty of water.  
Do not allow to enter sewers/ surface or ground water.
- **Methods and material for containment and cleaning up:**  
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
- **Reference to other sections**  
No dangerous substances are released.  
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**
- **Precautions for safe handling** No special measures required.
- **Information about protection against explosions and fires:** No special measures required.
- **Conditions for safe storage, including any incompatibilities**
- **Storage**
- **Requirements to be met by storerooms and receptacles:** According to product specification
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:** None.
- **Specific end use(s)** No further relevant information available.

### 8 Exposure controls/ Personal protection

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

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**Trade name: Precision Plus Protein Kaleidoscope Standards**

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**Control parameters**
**Components with limit values that require monitoring at the workplace:**
**56-81-5 glycerol**

EL TWA: 10\* 3\*\* mg/m<sup>3</sup>  
 \*mist, total; \*\*mist, respirable

EV TWA: 10 mg/m<sup>3</sup>

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

**Exposure controls**
**Personal protective equipment**

**General protective and hygienic measures** The usual precautionary measures for handling chemicals should be followed.

**Breathing equipment:** Not required.

**Protection of hands:** Protective gloves.

**Material of gloves** Synthetic gloves

**Penetration time of glove material**

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

**Eye protection:** Safety glasses

## 9 Physical and chemical properties

**Information on basic physical and chemical properties**
**General Information**
**Appearance:**

**Form:** Liquid

**Color:** Violet

**Odor:** Rotten

**Odor threshold:** Not determined.

**pH-value at 20 °C:** 6.8

**Change in condition**

**Melting point/Melting range:** undetermined

**Boiling point/Boiling range:** 100 °C

**Flash point:** > 100 °C

**Flammability (solid, gaseous)** Not applicable.

**Ignition temperature:** 400 °C

**Decomposition temperature:** Not determined.

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

**Danger of explosion:** Not determined.

**Explosion limits:**

**Lower:** 0.9 Vol %

**Upper:** Not determined.

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Trade name: Precision Plus Protein Kaleidoscope Standards

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· Vapor pressure at 20 °C:	23 hPa
· Density:	Not determined
· Relative density	Not determined.
· Vapor density	Not determined.
· Evaporation rate	Not determined.
· Solubility in / Miscibility with Water:	Fully miscible
· Partition coefficient (n-octanol/water):	Not determined.
· Viscosity:	
dynamic:	Not determined.
kinematic:	Not determined.
· Solvent content:	
Organic solvents:	30.0 %
Water:	66.2 %
· Solids content:	3.8 %
· Other information	No further relevant information available.

### 10 Stability and reactivity

- **Reactivity** No further relevant information available.
- **Chemical stability**
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Possibility of hazardous reactions** No dangerous reactions known
- **Conditions to avoid** No further relevant information available.
- **Incompatible materials:** No further relevant information available.
- **Hazardous decomposition products:** No dangerous decomposition products known

### 11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:**

· **LD/LC50 values for hazardous components per OSHA criteria:**

#### 56-81-5 glycerol

Oral	LD50	4,090 mg/kg (mouse) 12,600 mg/kg (rat)
Dermal	LD50	10,000 mg/kg (Rabbit)
Inhalative	LC50/4 h	>30 mg/l (Rat)

#### 151-21-3 sodium dodecyl sulphate

Oral	LD50	1,288 mg/kg (rat)
Dermal	LD50	580 mg/kg (Rabbit)

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**Trade name: Precision Plus Protein Kaleidoscope Standards**

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- **Primary irritant effect:**

- **on the skin:** No irritant effect.

- **on the eye:** No irritant effect.

- **Sensitization:** No sensitizing effects known.

- **Additional toxicological information:**

When used and handled according to specifications, the product does not have any harmful effects according to our experience and the information provided to us.

- **Carcinogenic categories**

- **IARC (International Agency for Research on Cancer)**

None of the ingredients is listed.

- **NTP (National Toxicology Program)**

None of the ingredients is listed.

## 12 Ecological information

- **Toxicity**

- **Aquatic toxicity:** No further relevant information available.

- **Persistence and degradability** No further relevant information available.

- **Behavior in environmental systems:**

- **Bioaccumulative potential** No further relevant information available.

- **Mobility in soil** No further relevant information available.

- **Additional ecological information:**

- **General notes:**

Water hazard class 1 (German Regulation) (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.

- **Results of PBT and vPvB assessment**

- **PBT:** Not applicable.

- **vPvB:** Not applicable.

- **Other adverse effects** No further relevant information available.

## 13 Disposal considerations

- **Waste treatment methods**

- **Recommendation**

Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

Dispose of waste in accordance to applicable national, regional, or local regulations.

- **Uncleaned packagings:**

- **Recommendation:** Disposal must be made according to official regulations.

- **Recommended cleansing agent:** Water, if necessary with cleansing agents.

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Trade name: Precision Plus Protein Kaleidoscope Standards

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### 14 Transport information

· <b>UN-Number</b>	
· <b>DOT/TDG, ADR, ADN, IMDG, IATA</b>	Not Regulated
· <b>UN proper shipping name</b>	
· <b>DOT/TDG, ADN, IMDG, IATA</b>	Not Regulated
· <b>ADR</b>	Not Regulated
· <b>Transport hazard class(es)</b>	
· <b>DOT, ADR, ADN, IMDG, IATA</b>	
· <b>Class</b>	Not Regulated
· <b>Packing group</b>	
· <b>DOT/TDG, ADR, IMDG, IATA</b>	Not Regulated
· <b>Environmental hazards:</b>	
· <b>Marine pollutant:</b>	No
· <b>Special precautions for user</b>	Not applicable.
· <b>Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code</b>	Not applicable.
· <b>Transport/Additional information:</b>	Not dangerous according to the above specifications.
· <b>UN "Model Regulation":</b>	Not Regulated

### 15 Regulatory information

- **Safety, health and environmental regulations/legislation specific for the substance or mixture**
- **SARA (Superfund Amendments and Reauthorization Act of 1986 - USA)**

· **Section 302/304 (40CFR355.30 / 40CFR355.40):**

None of the ingredients is listed.

· **Section 313 (40CFR372.65):**

None of the ingredients is listed.

· **TSCA (Toxic Substances Control Act):**

7732-18-5	water	ACTIVE
56-81-5	glycerol	ACTIVE
151-21-3	sodium dodecyl sulphate	ACTIVE
77-86-1	Tris(hydroxymethyl)aminomethane	ACTIVE
6381-92-6	Ethylenediaminetetraacetic acid disodium salt dihydrate	ACTIVE
26628-22-8	sodium azide	ACTIVE
115-39-9	tetrabromophenol blue	ACTIVE

· **MAK (German Maximum Workplace Concentration)**

None of the ingredients is listed.

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**Trade name: Precision Plus Protein Kaleidoscope Standards**

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**· National regulations**

*This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations*

**· Technical instructions (air):**

Class	Share in %
NK	10-30

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

**· Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

## 16 Other information

*This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.*

**· Department issuing SDS:** Environmental Health and Safety.

**· Contact:**

Life Science Group, Environmental Health and Safety, 2000 Alfred Nobel Drive, Hercules, California, 94547: 1(510) 741-1000

Diagnostic Group, Environmental Health and Safety, 4000 Alfred Nobel Drive, Hercules, California, 94547: 1(510) 724-7000

**· Date of the latest revision of the safety data sheet** 08/29/2020 / -

**· Abbreviations and acronyms:**

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

**· \* Data compared to the previous version altered.**



## Safety Data Sheet

### according to HPR, Schedule 1

Printing date 08/29/2020

Reviewed on 07/24/2020

### 1 Identification

- **Product identifier**
- **Trade name:** Actin / Myosin Standard
- **Catalog or product number:** 1660010, 1660010EDU, 9703865
- **Application of the substance / the mixture** Laboratory chemicals
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**  
Bio-Rad Laboratories (Canada) Ltd.  
1329 Meyerside Drive  
Mississauga, Ontario  
L5T 1C9  
Canada
- **Information department:** sales\_canada@bio-rad.com
- **Emergency telephone number:** 1-800-424-6723 option 2

phone: 1-800-268-0213 Fax: 1-888-913-9779

### 2 Hazard identification

- **Classification of the substance or mixture**  
Skin Irritation - Category 2 H315 Causes skin irritation.  
Eye Irritation - Category 2A H319 Causes serious eye irritation.
- **Label elements**
- **GHS label elements** The product is classified and labeled according to the Globally Harmonized System (GHS).
- **Hazard pictograms**



GHS07

- **Signal word** Warning
- **Hazard statements**  
H315 Causes skin irritation.  
H319 Causes serious eye irritation.
- **Precautionary statements**  
P264 Wash thoroughly after handling.  
P280 Wear protective gloves/protective clothing/eye protection/face protection.  
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
P332+P313 If skin irritation occurs: Get medical advice/attention.  
P362+P364 Take off contaminated clothing and wash it before reuse.  
P337+P313 If eye irritation persists: Get medical advice/attention.

### 3 Composition/Information on ingredients

- **Chemical characterization:** Mixtures
- **Description:** Mixture of the substances listed below with non-hazardous additions.

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## Safety Data Sheet

### according to HPR, Schedule 1

Printing date 08/29/2020

Reviewed on 07/24/2020

Trade name: Actin / Myosin Standard

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**Listing of dangerous and non-hazardous components:**

57-50-1	sucrose, pure	60-80% w/w *
3483-12-3	Dithiothreitol Acute Toxicity (Oral) - Category 4, H302; Skin Irritation - Category 2, H315; Eye Irritation - Category 2A, H319; Specific Target Organ Toxicity - Single Exposure - Category 3, H335	10-<13% w/w *

\* Actual concentration ranges are withheld as a trade secret.

**Additional information** For the wording of the listed hazard phrases refer to section 16.

#### 4 First-aid measures

**Description of first aid measures**
**General information** Immediately remove any clothing soiled by the product.

**After inhalation** Supply fresh air; consult doctor in case of complaints.

**After skin contact**

Generally the product does not irritate the skin.

Immediately wash with water and soap and rinse thoroughly.

Immediately rinse with water.

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

**After swallowing** Rinse mouth with water. Seek medical attention and appropriate follow-up.

**Information for doctor**
**Most important symptoms and effects, both acute and delayed** No further relevant information available.

**Indication of any immediate medical attention and special treatment needed** No further relevant information available.

#### 5 Fire-fighting measures

**Extinguishing media**
**Suitable extinguishing agents** Use fire fighting measures that suit the environment.

**Special hazards arising from the substance or mixture** No further relevant information available.

**Advice for firefighters**
**Protective equipment:** Wear self-contained respiratory protective device.

#### 6 Accidental release measures

**Personal precautions, protective equipment and emergency procedures** Wear protective clothing.

**Environmental precautions:** No special measures required.

**Methods and material for containment and cleaning up:** Pick up mechanically.

**Reference to other sections**

No dangerous substances are released.

See Section 7 for information on safe handling

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

CA

(Contd. on page 3)

## Safety Data Sheet

### according to HPR, Schedule 1

Printing date 08/29/2020

Reviewed on 07/24/2020

Trade name: Actin / Myosin Standard

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## 7 Handling and storage

- **Handling**
- **Precautions for safe handling** No special measures required.
- **Information about protection against explosions and fires:** No special measures required.
- **Conditions for safe storage, including any incompatibilities**
- **Storage**
- **Requirements to be met by storerooms and receptacles:** According to product specification
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:** Keep receptacle tightly sealed.
- **Specific end use(s)** No further relevant information available.

## 8 Exposure controls/ Personal protection

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

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

### 57-50-1 sucrose, pure

EL	TWA: 10* 3** mg/m <sup>3</sup> *total dust; **respirable fraction
EV	TWA: 10 mg/m <sup>3</sup> total dust

- **Additional information:** The lists that were valid during the creation were used as basis.
- **Exposure controls**
- **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.
  - Avoid contact with the eyes and skin.
- **Protection of hands:** Protective gloves.
- **Material of gloves** Synthetic gloves
- **Penetration time of glove material**
  - The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
- **Eye protection:**
  - Safety glasses
  - Tightly sealed goggles.

CA

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## Safety Data Sheet

### according to HPR, Schedule 1

Printing date 08/29/2020

Reviewed on 07/24/2020

Trade name: Actin / Myosin Standard

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## 9 Physical and chemical properties

### · Information on basic physical and chemical properties

#### · General Information

#### · Appearance:

Form:	Solid
Color:	White
Odor:	Odorless
Odor threshold:	Not determined.

· pH-value: Not applicable.

#### · Change in condition

Melting point/Melting range:	undetermined
Boiling point/Boiling range:	1,500 °C

· Flash point: > 100 °C

· Flammability (solid, gaseous) Not determined.

· Decomposition temperature: Not determined.

· Auto igniting: Product is not selfigniting.

· Danger of explosion: Not determined.

#### · Explosion limits:

Lower:	Not determined.
Upper:	Not determined.

· Vapor pressure: Not applicable.

Density:	Not determined
Relative density	Not determined.
Vapor density	Not applicable.
Evaporation rate	Not applicable.

#### · Solubility in / Miscibility with

Water:	Soluble
--------	---------

· Partition coefficient (n-octanol/water): Not determined.

#### · Viscosity:

dynamic:	Not applicable.
kinematic:	Not applicable.

#### · Solvent content:

Solids content:	78.8 %
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· Other information No further relevant information available.

## 10 Stability and reactivity

· Reactivity No further relevant information available.

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## Safety Data Sheet

### according to HPR, Schedule 1

Printing date 08/29/2020

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Trade name: Actin / Myosin Standard

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- **Chemical stability**
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Possibility of hazardous reactions** No dangerous reactions known
- **Conditions to avoid** No further relevant information available.
- **Incompatible materials:** No further relevant information available.
- **Hazardous decomposition products:** No dangerous decomposition products known

## 11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:**

· <b>LD/LC50 values for hazardous components per OSHA criteria:</b>		
3483-12-3 Dithiothreitol		
Oral	LD50	400 mg/kg (rat)

- **Primary irritant effect:**

- **on the skin:** Irritant to skin and mucous membranes.

- **on the eye:** Irritant effect.

- **Sensitization:** No sensitizing effects known.

- **Additional toxicological information:**

The product shows the following dangers according to the calculation method of the General EU Classification Guidelines for Preparations as issued in the latest version:

Irritant

- **Carcinogenic categories**

- **IARC (International Agency for Research on Cancer)**

None of the ingredients is listed.

- **NTP (National Toxicology Program)**

None of the ingredients is listed.

## 12 Ecological information

- **Toxicity**
- **Aquatic toxicity:** No further relevant information available.
- **Persistence and degradability** No further relevant information available.
- **Behavior in environmental systems:**
- **Bioaccumulative potential** No further relevant information available.
- **Mobility in soil** No further relevant information available.
- **Additional ecological information:**
- **General notes:** Generally not hazardous for water.
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **Other adverse effects** No further relevant information available.

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## Safety Data Sheet

### according to HPR, Schedule 1

Printing date 08/29/2020

Reviewed on 07/24/2020

Trade name: Actin / Myosin Standard

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### 13 Disposal considerations

- **Waste treatment methods**
- **Recommendation**  
Must not be disposed of together with household garbage. Do not allow product to reach sewage system.  
Dispose of waste in accordance to applicable national, regional, or local regulations.
- **Uncleaned packagings:**
- **Recommendation:** Disposal must be made according to official regulations.
- **Recommended cleansing agent:** Water, if necessary with cleansing agents.

### 14 Transport information

- |   |  |
|---|--|
| <ul style="list-style-type: none"> <li>· <b>UN-Number</b></li> <li>· <b>DOT/TDG, ADR, ADN, IMDG, IATA</b></li> </ul>                                      | Not Regulated  |
| <ul style="list-style-type: none"> <li>· <b>UN proper shipping name</b></li> <li>· <b>DOT/TDG, ADN, IMDG, IATA</b></li> <li>· <b>ADR</b></li> </ul>       | Not Regulated<br>Not Regulated<br>Not Regulated      |
| <ul style="list-style-type: none"> <li>· <b>Transport hazard class(es)</b></li> <li>· <b>DOT, ADR, ADN, IMDG, IATA</b></li> <li>· <b>Class</b></li> </ul> | Not Regulated  |
| <ul style="list-style-type: none"> <li>· <b>Packing group</b></li> <li>· <b>DOT/TDG, ADR, IMDG, IATA</b></li> </ul>                                       | Not Regulated  |
| <ul style="list-style-type: none"> <li>· <b>Environmental hazards:</b></li> <li>· <b>Marine pollutant:</b></li> </ul>                                     | No   |
| <ul style="list-style-type: none"> <li>· <b>Special precautions for user</b></li> </ul>   | Not applicable.                                      |
| <ul style="list-style-type: none"> <li>· <b>Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code</b></li> </ul>                        | Not applicable.                                      |
| <ul style="list-style-type: none"> <li>· <b>Transport/Additional information:</b></li> </ul>  | Not dangerous according to the above specifications. |
| <ul style="list-style-type: none"> <li>· <b>UN "Model Regulation":</b></li> </ul>   | Not Regulated  |

### 15 Regulatory information

- **Safety, health and environmental regulations/legislation specific for the substance or mixture**
  - **SARA (Superfund Amendments and Reauthorization Act of 1986 - USA)**
- |   |                                    |
|---|------------------------------------|
| <ul style="list-style-type: none"> <li>· <b>Section 302/304 (40CFR355.30 / 40CFR355.40):</b></li> </ul> | None of the ingredients is listed. |
| <ul style="list-style-type: none"> <li>· <b>Section 313 (40CFR372.65):</b></li> </ul>                   | None of the ingredients is listed. |

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### according to HPR, Schedule 1

Printing date 08/29/2020

Reviewed on 07/24/2020

Trade name: Actin / Myosin Standard

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**TSCA (Toxic Substances Control Act):**

57-50-1	sucrose, pure	ACTIVE
3483-12-3	Dithiothreitol	ACTIVE
71119-22-7	3-[N-Morpholino]propanesulfonic acid (MOPS, Sodium Salt)	ACTIVE
7447-40-7	potassium chloride	ACTIVE
7791-18-6	magnesium chloride hexahydrate	ACTIVE
67-42-5	ethylenebis(oxyethylenenitrilo)tetra(acetic acid)	ACTIVE

**MAK (German Maximum Workplace Concentration)**

None of the ingredients is listed.

**National regulations**

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations

• **Water hazard class:** Generally not hazardous for water.

• **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

## 16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

• **Department issuing SDS:** Environmental Health and Safety.

**Contact:**

Life Science Group, Environmental Health and Safety, 2000 Alfred Nobel Drive, Hercules, California, 94547: 1(510) 741-1000

Diagnostic Group, Environmental Health and Safety, 4000 Alfred Nobel Drive, Hercules, California, 94547: 1(510) 724-7000

• **Date of the latest revision of the safety data sheet** 08/29/2020 / -

**Abbreviations and acronyms:**

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

• **\* Data compared to the previous version altered.**



## Safety Data Sheet

### according to HPR, Schedule 1

Printing date 08/29/2020

Reviewed on 07/30/2020

## 1 Identification

- **Product identifier**
- **Trade name:** *Dithiothreitol (DTT)*
- **Catalog or product number:** 1610610, 1610611, 1610610EDU, 1610611EDU
- **CAS Number:**  
27565-41-9
- **EC number:**  
248-531-9
- **Application of the substance / the mixture** Laboratory chemicals
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**  
Bio-Rad Laboratories (Canada) Ltd.  
1329 Meyerside Drive  
Mississauga, Ontario  
L5T 1C9  
Canada  
phone: 1-800-268-0213 Fax: 1-888-913-9779
- **Information department:** sales\_canada@bio-rad.com
- **Emergency telephone number:** 1-800-424-6723 option 2

## 2 Hazard identification

- **Classification of the substance or mixture**

Acute Toxicity (Oral) - Category 4	H302 Harmful if swallowed.
Skin Irritation - Category 2	H315 Causes skin irritation.
Eye Irritation - Category 2A	H319 Causes serious eye irritation.
Specific Target Organ Toxicity - Single Exposure - Category 3	H335 May cause respiratory irritation.
- **Label elements**
- **GHS label elements** The substance is classified and labeled according to the Globally Harmonized System (GHS).
- **Hazard pictograms**



GHS07

- **Signal word** Warning
- **Hazard-determining components of labeling:**  
(R\*,R\*)-(±)-1,4-dimercaptobutane-2,3-diol
- **Hazard statements**  
H302 Harmful if swallowed.  
H315 Causes skin irritation.  
H319 Causes serious eye irritation.  
H335 May cause respiratory irritation.
- **Precautionary statements**  
P261 Avoid breathing dust/fume/gas/mist/vapours/spray.  
P280 Wear protective gloves/protective clothing/eye protection/face protection.

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P301+P312 If swallowed: Call a poison center/doctor if you feel unwell.

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P405 Store locked up.

P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

### 3 Composition/Information on ingredients

- **Chemical characterization: Substances**
- **CAS No. Description:**  
27565-41-9 (R\*,R\*)-(±)-1,4-dimercaptobutane-2,3-diol
- **Identification number(s):**
- **EC number:** 248-531-9
- **Additional information:** For the wording of the listed risk phrases refer to section 16.

### 4 First-aid measures

- **Description of 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; consult doctor in case of complaints.
- **After skin contact**  
Immediately wash with water and soap and rinse thoroughly.  
Immediately rinse with water.
- **After eye contact** Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
- **After swallowing**  
Immediately call a doctor.  
Rinse mouth with water. Seek medical attention and appropriate follow-up.
- **Information for doctor**
- **Most important symptoms and effects, both acute and delayed**  
Nausea  
Disorientation
- **Indication of any immediate medical attention and special treatment needed** No further relevant information available.

### 5 Fire-fighting measures

- **Extinguishing media**
- **Suitable extinguishing agents**  
Use fire fighting measures that suit the environment.  
CO<sub>2</sub>, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- **Special hazards arising from the substance or mixture** No further relevant information available.

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- **Advice for firefighters**
- **Protective equipment:** Wear self-contained respiratory protective device.

## 6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures** Wear protective clothing.
- **Environmental precautions:** Do not allow to enter sewers/ surface or ground water.
- **Methods and material for containment and cleaning up:**  
Dispose contaminated material as waste according to item 13.  
Ensure adequate ventilation.
- **Reference to other sections**  
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**
- **Precautions for safe handling** Ensure good ventilation/exhaust at the workplace.
- **Information about protection against explosions and fires:** No special measures required.
- **Conditions for safe storage, including any incompatibilities**
- **Storage**
- **Requirements to be met by storerooms and receptacles:** Store in a cool location.
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:** Store in cool, dry conditions in well sealed receptacles.
- **Specific end use(s)** No further relevant information available.

## 8 Exposure controls/ Personal protection

- **Additional information about design of technical systems:** No further data; see item 7.
- **Control parameters**
- **Components with limit values that require monitoring at the workplace:** Not required.
- **Additional information:** The lists that were valid during the creation were used as basis.
- **Exposure controls**
- **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.  
Avoid contact with the eyes and skin.
- **Breathing equipment:**  
Filter P1.  
In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.

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Trade name: Dithiothreitol (DTT)

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- **Protection of hands:** Protective gloves.
- **Material of gloves**  
Recommended thickness of the material:  $\geq 0.11$  mm  
Nitrile rubber, NBR  
Synthetic gloves
- **Penetration time of glove material**  
The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
- **For the permanent contact gloves made of the following materials are suitable:** Nitrile rubber, NBR
- **As protection from splashes gloves made of the following materials are suitable:** Nitrile rubber, NBR
- **Eye protection:**  
Safety glasses  
Tightly sealed goggles.

## 9 Physical and chemical properties

### · Information on basic physical and chemical properties

#### · General Information

#### · Appearance:

Form:	Solid
Color:	Whitish
Odor:	Sulphurous
Odor threshold:	Not determined.

· **pH-value:** Not applicable.

#### · Change in condition

Melting point/Melting range:	42-44 °C
Boiling point/Boiling range:	undetermined

· **Flash point:** 110 °C

· **Flammability (solid, gaseous)** Product is not flammable.

· **Decomposition temperature:** Not determined.

· **Auto igniting:** Not determined.

· **Danger of explosion:** Product does not present an explosion hazard.  
Not determined.

#### · Explosion limits:

Lower:	Not determined.
Upper:	Not determined.

· **Vapor pressure:** Not applicable.

Density:	Not determined
Relative density	Not determined.
Vapor density	Not applicable.
Evaporation rate	Not applicable.

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- |   |  |
|---|--|
| · <b>Solubility in / Miscibility with Water at 25 °C:</b> | 0.5 g/l                                    |
| · <b>Partition coefficient (n-octanol/water):</b>         | Not determined.                            |
| · <b>Viscosity:</b>                                       |  |
| dynamic:  | Not applicable.                            |
| kinematic:  | Not applicable.                            |
| · <b>Solids content:</b>                                  | 100.0 %                                    |
| · <b>Other information</b>                                | No further relevant information available. |

### 10 Stability and reactivity

- **Reactivity** No further relevant information available.
- **Chemical stability**
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Possibility of hazardous reactions** No dangerous reactions known
- **Conditions to avoid** No further relevant information available.
- **Incompatible materials:** No further relevant information available.
- **Hazardous decomposition products:** No dangerous decomposition products known

### 11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:**
- **LD/LC50 values for hazardous components per OSHA criteria:**

27565-41-9 (R\*,R\*)-(±)-1,4-dimercaptobutane-2,3-diol

Oral LD50 400 mg/kg (rat)

- **Primary irritant effect:**
- **on the skin:** Irritant to skin and mucous membranes.
- **on the eye:** Irritant effect.
- **Sensitization:** No sensitizing effects known.
- **Additional toxicological information:**

- **Carcinogenic categories**

- **IARC (International Agency for Research on Cancer)**

Substance is not listed.

- **NTP (National Toxicology Program)**

Substance is not listed.

### 12 Ecological information

- **Toxicity**
- **Aquatic toxicity:** No further relevant information available.

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- **Persistence and degradability** No further relevant information available.
- **Behavior in environmental systems:**
- **Bioaccumulative potential** No further relevant information available.
- **Mobility in soil** No further relevant information available.
- **Additional ecological information:**
- **General notes:**  
Water hazard class 1 (German Regulation) (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.
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **Other adverse effects** No further relevant information available.

### 13 Disposal considerations

- **Waste treatment methods**
- **Recommendation** Dispose of waste in accordance to applicable national, regional, or local regulations.
- **Uncleaned packagings:**
- **Recommendation:** Disposal must be made according to official regulations.
- **Recommended cleansing agent:** Water, if necessary with cleansing agents.

### 14 Transport information

- |  |                 |
|--|-----------------|
| · <b>UN-Number</b>   |                 |
| · <b>DOT/TDG, ADR, ADN, IMDG, IATA</b>   | Not Regulated   |
| · <b>UN proper shipping name</b>   |                 |
| · <b>DOT/TDG</b>   | Not Regulated   |
| · <b>ADR, ADN, IMDG, IATA</b>  | Not Regulated   |
| · <b>Transport hazard class(es)</b>  |                 |
| · <b>DOT, ADR, ADN, IMDG, IATA</b>   |                 |
| · <b>Class</b>   | Not Regulated   |
| · <b>Packing group</b>   |                 |
| · <b>DOT/TDG, ADR, IMDG, IATA</b>  | Not Regulated   |
| · <b>Environmental hazards:</b>  | Not applicable. |
| · <b>Special precautions for user</b>  | Not applicable. |
| · <b>Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code</b> | Not applicable. |
| · <b>UN "Model Regulation":</b>  | Not Regulated   |

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### 15 Regulatory information

- **Safety, health and environmental regulations/legislation specific for the substance or mixture**
- **SARA (Superfund Amendments and Reauthorization Act of 1986 - USA)**

- **Section 302/304 (40CFR355.30 / 40CFR355.40):**

Substance not listed.

- **Section 313 (40CFR372.65):**

Substance is not listed.

- **TSCA (Toxic Substances Control Act):**

Substance is not listed.

- **MAK (German Maximum Workplace Concentration)**

Substance is not listed.

- **National regulations**

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations

- **Water hazard class:** Water hazard class 1 (Self-assessment): slightly hazardous for water.
- **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

### 16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

- **Department issuing SDS:** Environmental Health and Safety.
- **Contact:**

Life Science Group, Environmental Health and Safety, 2000 Alfred Nobel Drive, Hercules, California, 94547: 1(510) 741-1000

Diagnostic Group, Environmental Health and Safety, 4000 Alfred Nobel Drive, Hercules, California, 94547: 1(510) 724-7000

- **Date of the latest revision of the safety data sheet** 08/29/2020 / -

- **Abbreviations and acronyms:**

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

EINECS: European Inventory of Existing Commercial Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

- **\* Data compared to the previous version altered.**