

Product code	Description
1662701 1662701EDU	Protein Profiler Components
Components:	
1610375	Precision Plus™ Kaleidoscope Protein Standards
1660010	Actin / Myosin Standard
1610610	Dithiothreitol (DTT)

Printing date 02/03/2015

Reviewed on 01/27/2015

1 Identification

- **Product identifier**
- **Trade name:** Precision Plus™ Kaleidoscope Protein Standards
- **Catalog or product number:** 1610375, 1610375S, 1610375EDU, 1610395, 10022172
- **Relevant identified uses of the substance or mixture and uses advised against**
No further relevant information available.
- **Application of the substance / the mixture:** Laboratory chemicals
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**
Bio-Rad Laboratories, Life Science Group
2000 Alfred Nobel Drive
Hercules, California 94547
- **Information department:**
Technical services, customer support
lsg_techserv_us@bio-rad.com
- **Emergency telephone number:**
1(800)424-9300 Use only in the event of a CHEMICAL EMERGENCY involving a SPILL, LEAK, FIRE, EXPLOSION or ACCIDENT.
510-741-1000

2 Hazard(s) identification

- **Classification of the substance or mixture**
The product is not classified according to the Globally Harmonized System (GHS).
- **Classification according to Directive 67/548/EEC or Directive 1999/45/EC not applicable**
- **Information concerning particular hazards for human and environment:**
The product does not have to be labelled due to the calculation procedure of the "General Classification guideline for preparations of the EU" in the latest valid version.
- **Classification system:**
The classification was made according to the latest editions of the EU-lists, and expanded upon from company and literature data.
The classification was made according to OSHA 29CFR 1910.1200 and 1910.1030, and is expanded upon from company and/or literature information.
- **Label elements**
- **GHS label elements:** Void
- **Hazard pictograms:** Void
- **Signal word:** Void
- **Hazard statements:** Void
- **Additional information:** Contact with acids may cause release of toxic gases
- **Other hazards**
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.

3 Composition/information on ingredients

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

Trade name: Precision Plus™ Kaleidoscope Protein Standards

(Contd. of page 1)

· Listing of dangerous and non-hazardous components:	
56-81-5 glycerol	20-35%
151-21-3 sodium dodecyl sulphate	Xn R21/22 Xi R36/38 1,0-2,5%
77-32-18-5 water	50-100%

· Additional information For the wording of the listed risk phrases refer to section 15.

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.
- After eye contact Rinse opened eye for several minutes under running water.
- After swallowing Induce vomiting and call for medical help.
- 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
CO₂; 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.
- 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:
Do not allow to enter sewers/ surface or ground water.
Dilute with plenty of water.
- Methods and material for containment and cleaning up:
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Dispose contaminated material as waste according to item 13.
- 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

- Precautions for safe handling No special measures required.
- Information about protection against explosions and fires: No special measures required.

(Contd. on page 3) USA

Trade name: Precision Plus™ Kaleidoscope Protein Standards

- (Contd. of page 2)
- 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.
- Control parameters
- Components with limit values that require monitoring at the workplace:

56-81-5 glycerol	PEL () 15 ^{**} -5 ^{**} mg/m ³ *total dust **respirable fraction
	TLV () 10 [*] ppm *Mist
26628-22-8 sodium azide	
REL ()	Short-term value: C 0.3 ^{**} mg/m ³ ; C 0.1 [*] ppm *as HN ₃ ; **as NaN ₃ ; Skin
TLV ()	Short-term value: C 0.29 ^{**} mg/m ³ ; C 0.11 [*] ppm *as HN ₃ vapor **as NaN ₃

- 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
Not determined.
- Odour threshold:
pH-value at 20 °C: 6.8

(Contd. on page 4) USA

Trade name: Precision Plus™ Kaleidoscope Protein Standards

(Contd. of page 3)	
· Change in condition	undetermined
· Melting point/Melting range:	undetermined
· Boiling point/Boiling range:	Not applicable
· Flash point:	Not applicable.
· Flammability (solid, gaseous)	Not applicable.
· Ignition temperature:	400 °C
· Decomposition temperature:	Not determined.
· Auto igniting:	Product is not selfigniting.
· Danger of explosion:	Product does not present an explosion hazard.
· Explosion limits:	
· Lower:	0.9 Vol %
· Upper:	Not determined.
· Vapor pressure at 20 °C:	23 hPa
· Density:	Not determined
· Relative density	Not determined.
· Vapour 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**
- **Chemical stability**
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Possibility of hazardous reactions**
This product contains sodium azide. Sodium azide can react with copper, brass, lead, and solder in piping systems to form explosive compounds of lead azide and copper azide.
- **Conditions to avoid** No further relevant information available.
- **Incompatible materials:**
This product contains sodium azide. Sodium azide can react with copper, brass, lead, and solder in piping systems to form explosive compounds of lead azide and copper azide.

(Contd. on page 5) USA

Trade name: Precision Plus™ Kaleidoscope Protein Standards

(Contd. of page 4)	
· Hazardous decomposition products: No dangerous decomposition products known	
11 Toxicological information	
· Information on toxicological effects	
· Acute toxicity.	
· Primary irritant effect:	
· on the skin: No irritant effect.	
· on the eye:	
No irritant effect.	
Irritant effect.	
· Sensitization: No sensitizing effects known.	
· Additional toxicological information: The product is not subject to classification according to the calculation method of the General EU Classification Guidelines for Preparations as issued in the latest version: 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.	
· OSHA-Ca (Occupational Safety & Health Administration)	
None of the ingredients is listed.	
· Target organs: Not applicable.	

12 Ecological information

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

(Contd. on page 6) USA

Trade name: Precision Plus™ Kaleidoscope Protein Standards

(Contd. of page 5)

13 Disposal considerations

- **Waste treatment methods**
- **Recommendation**
Hand over to hazardous waste disposers.
Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
- **Uncleaned packagings:**
- **Recommendation:** Disposal must be made according to official regulations.
- **Recommended cleansing agent:** Water, if necessary with cleansing agents.

14 Transport information

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

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):	26628-22-8 sodium azide
· Section 313 (40CFR372.65):	26628-22-8 sodium azide
· TSCA (Toxic Substances Control Act):	56-81-5 glycerol 151-21-3 sodium dodecyl sulphate

(Contd. on page 7) USA

Trade name: Precision Plus™ Kaleidoscope Protein Standards

(Contd. of page 6)

27565-41-9 (R*,R*)-(±)-1,4-dimercapto-butane-2,3-diol
77-86-1 Tris(hydroxymethyl)aminomethane
26628-22-8 sodium azide
115-39-9 tetrabromophenol blue
7732-18-5 water

· **Carcinogenic categories**

· EPA (Environmental Protection Agency)

None of the ingredients is listed.

· TLV (Threshold Limit Value established by ACGIH)

26628-22-8 sodium azide	A4
-------------------------	----

· MAK (German Maximum Workplace Concentration)

None of the ingredients is listed.

· NIOSH-Ca (National Institute for Occupational Safety and Health)

None of the ingredients is listed.

· **National regulations**

· **Technical instructions (air):**

Class	20-35
NK	

- **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 preparation / last revision** 02/03/2015 / -

· **Abbreviations and acronyms:**

- ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
- IMDG: International Maritime Code for Dangerous Goods
- DOT: US Department of Transportation
- ATA: International Air Transport Association
- ACGIH: American Conference of Governmental Industrial Hygienists
- 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)

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

USA

1 Identification

- **Product identifier**
- **Trade name:** Actin / Myosin Standard
- **Catalog or product number:** 1660010, 1660010EDU, 9703865
- **Relevant identified uses of the substance or mixture and uses advised against**
No further relevant information available.
- **Application of the substance / the mixture** Laboratory chemicals
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**
Bio-Rad Laboratories, Life Science Group
2000 Alfred Nobel Drive
Hercules, California 94547
- **Information department:**
Technical services, customer support
lsq_techserv_us@bio-rad.com
- **Emergency telephone number:**
1 (800) 424-9300 Use only in the event of a CHEMICAL EMERGENCY involving a SPILL, LEAK, FIRE, EXPLOSION or ACCIDENT.
510-741-1000

2 Hazard(s) identification

- **Classification of the substance or mixture**
The product is not classified according to the Globally Harmonized System (GHS).
- **Classification according to Directive 67/548/EEC or Directive 1999/45/EC not applicable**
- **Information concerning particular hazards for human and environment:**
The product does not have to be labelled due to the calculation procedure of the "General Classification guideline for preparations of the EU" in the latest valid version.
- **Classification system:**
The classification was made according to the latest editions of the EU-lists, and expanded upon from company and literature data.
- **Label elements**
The classification was made according to OSHA 29CFR 1910.1200 and 1910.1030, and is expanded upon from company and/or literature information.
- **GHS label elements** Void
- **Hazard pictograms** Void
- **Signal word** Void
- **Hazard statements** Void
- **Additional information:** Contact with acids may cause release of toxic gases
- **Other hazards**
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.

3 Composition/information on ingredients

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

(Contd. on page 2) USA

Trade name: Actin / Myosin Standard

(Contd. of page 1)

· Listing of dangerous and non-hazardous components:	
57-50-1	sucrose, pure 50-100%
3483-12-3	Dithiothreitol 10-20%
71119-22-7	3-(N-Morpholino)propanesulfonic acid (MOPS, Sodium Salt) 5-10%
7447-40-7	potassium chloride 5-10%
	Mixture of rabbit muscle proteins 1.0-2.5%

· **Additional information** For the wording of the listed risk phrases refer to section 15.

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.
- **After eye contact** Rinse opened eye for several minutes under running water.
- **After swallowing** Induce vomiting and call for medical help.
- **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**
CO2, 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.
- **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:** 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.

7 Handling and storage

- **Precautions for safe handling** No special measures required.
- **Information about protection against explosions and fires:** No special measures required.

(Contd. on page 3) USA

Trade name: Actin / Myosin Standard

(Contd. of page 2)

- **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.
- **Control parameters**

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

PEL ()	15* 5** mg/m ³
	*total dust **respirable fraction
REL ()	10* 5** mg/m ³
	*total dust **respirable fraction
TLV ()	10 mg/m ³

· **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.
- **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:	Solid
· Form:	White
· Color:	Odorless
· Odor:	Not determined.
· Odour threshold:	Not applicable.
· pH-value:	Not applicable.
· Change in condition	
· Melting point/Melting range:	undetermined
· Boiling point/Boiling range:	undetermined
· Flash point:	Not applicable
· Flammability (solid, gaseous)	Not determined.

(Contd. on page 4) USA

Trade name: Actin / Myosin Standard

(Contd. of page 3)

· Ignition temperature:	
· Decomposition temperature:	Not determined.
· Auto igniting:	Product is not selfigniting.
· Danger of explosion:	Product does not present an explosion hazard.
· Explosion limits:	
· Lower:	Not determined.
· Upper:	Not determined.
· Vapor pressure:	Not applicable.
· Density:	Not determined
· Relative density	Not determined.
· Vapour density	Not applicable.
· Evaporation rate	Not applicable.
· Solubility in / Miscibility with	
· Water:	Fully miscible
· Partition coefficient (n-octanol/water):	Not determined.
· Viscosity:	
· dynamic:	Not applicable.
· kinematic:	Not applicable.
· Solvent content:	
· Organic solvents:	0.0 %
· Other information	No further relevant information available.

10 Stability and reactivity

- **Reactivity**
- **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:**
- **Primary irritant effect:**
- **on the skin:** No irritant effect.
- **on the eye:**
- **No irritant effect.**
- **Irritant effect.**
- **Sensitization:** No sensitizing effects known.

(Contd. on page 5) USA

Trade name: Actin / Myosin Standard

(Contd. of page 4)	
<ul style="list-style-type: none"> · Additional toxicological information: The product is not subject to classification according to the calculation method of the General EU Classification Guidelines for Preparations as issued in the latest version; 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. · OSHA-Ca (Occupational Safety & Health Administration) None of the ingredients is listed. · Target organs: Not applicable. 	

12 Ecological information

<ul style="list-style-type: none"> · Toxicity · Aquatic toxicity: No further relevant information available. · Persistence and degradability: No further relevant information available. · 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. 	
--	--

13 Disposal considerations

<ul style="list-style-type: none"> · Waste treatment methods · Recommendation Hand over to hazardous waste disposers. Must not be disposed of together with household garbage. Do not allow product to reach sewage system. · Uncleaned packagings: · Recommendation: Disposal must be made according to official regulations. 	
--	--

14 Transport information

<ul style="list-style-type: none"> · UN-Number · DOT, ADR, ADN, IMDG, IATA · UN proper shipping name · DOT, ADR, ADN, IMDG, IATA 		Void	Void
--	--	------	------

(Contd. on page 6) USA

Trade name: Actin / Myosin Standard

(Contd. of page 5)	
<ul style="list-style-type: none"> · Transport hazard class(es) · DOT, ADR, ADN, IMDG, IATA · Class Void · Packing group · DOT, ADR, IMDG, IATA · Environmental hazards: · Marine pollutant: No · Special precautions for user Not applicable. · Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Not applicable. · Transport/Additional information: · UN "Model Regulation": 	

15 Regulatory information

<ul style="list-style-type: none"> · 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): 57-50-1 sucrose, pure 3483-12-3 Dithiothreitol 71119-22-7 3-[N-Morpholino]propanesulfonic acid (MOPS, Sodium Salt) 7447-40-7 potassium chloride 67-42-5 ethylenedis(oxyethylenimino)tetra(acetic acid) · Carcinogenic categories · EPA (Environmental Protection Agency) None of the ingredients is listed. · TLV (Threshold Limit Value established by ACGIH) 57-50-1 sucrose, pure A4 · MAK (German Maximum Workplace Concentration) None of the ingredients is listed. · NIOSH-Ca (National Institute for Occupational Safety and Health) None of the ingredients is listed. · National regulations · Water hazard class: Generally not hazardous for water. 	
--	--

(Contd. on page 7) USA

Trade name: **Actin / Myosin Standard**

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

(Contd. of page 6)

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 preparation / last revision: 02/03/2015 / -

Abbreviations and acronyms:
ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
DGD: Dangerous Goods Declaration
IMDG: International Maritime Code for Dangerous Goods
IATA: International Air Transport Association
ACGIH: American Conference of Governmental Industrial Hygienists
EINECS: European Inventory of Existing Commercial Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)

* Data compared to the previous version altered.

USA

1 Identification

- Product identifier
- Trade name: **Dithiothreitol (DTT)**
- Catalog or product number: 1610610, 1610611, 1610610EDU, 1610611EDU, 10005243, 10005526
- CAS Number: 27665-41-9
- EC number: 248-531-9
- Relevant identified uses of the substance or mixture and uses advised against
No further relevant information available.
- Application of the substance / the mixture Laboratory chemicals
- Details of the supplier of the safety data sheet
- Manufacturer/Supplier: Bio-Rad Laboratories, Life Science Group
2000 Alfred Nobel Drive
Hercules, California 94547
(510)741-1000
- Information department: Technical services, customer support
lsg_technserv_us@bio-rad.com
- Emergency telephone number: 1(800)424-9300 Use only in the event of a CHEMICAL EMERGENCY involving a SPILL, LEAK, FIRE, EXPLOSION or ACCIDENT.
510-741-1000

2 Hazard(s) identification

- Classification of the substance or mixture
- Acute Tox. 3 H301 Toxic if swallowed.
- Acute Tox. 3 H311 Toxic in contact with skin.
- Acute Tox. 4 H332 Harmful if inhaled.
- Classification according to Directive 67/548/EEC or Directive 1999/45/EC
- Irritant to skin.
- Xn: Harmful
- R20/21/22: Harmful by inhalation, in contact with skin and if swallowed.
- Information concerning particular hazards for human and environment: not applicable
- Classification system: The classification was made according to OSHA 29CFR 1910.1200 and 1910.1030, and is expanded upon from company and/or literature information.
- Label elements
- GHS label elements The substance is classified and labeled according to the Globally Harmonized System (GHS).
- Hazard pictograms



GHS06

Signal word Danger

(Contd. on page 2)

USA

Trade name: Dithiothreitol (DTT)

(Contd. of page 1)

- **Hazard-determining components of labeling:**
(R*, R*)-(+)-1,4-dimercaptobutane-2,3-diol
- **Hazard statements**
H301+H311 Toxic if swallowed or in contact with skin.
H332 Harmful if inhaled.
- **Precautionary statements**
P261 Avoid breathing dust/fume/gas/mist/vapors/spray
P280 Wear protective gloves / protective clothing.
P301+P310 If swallowed: Immediately call a poison center/doctor.
P361 Remove/Take off immediately all contaminated clothing.
P405 Store locked up.
- **Additional information:** Dispose of contents/container in accordance with local/regional/national/international regulations.
· **Emergency overview:** Contact with acids may cause release of toxic gases
- **Routes of exposure:**
Ingestion
Inhalation
Skin
- **Other hazards**
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.

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 15.

4 First-aid measures

- **Description of first-aid measures**
- **General Information**
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. If required, provide artificial respiration. Keep patient warm. Consult doctor if symptoms persist.
In case of unconsciousness place patient stably in side position for transportation.
- **After skin contact** Generally the product does not irritate the skin.
- **After eye contact** Rinse opened eye for several minutes under running water.
- **After swallowing** Immediately call a doctor.
- **Most important symptoms and effects, both acute and delayed** Breathing difficulty
- **Indication of any immediate medical attention and special treatment needed** No further relevant information available.

(Contd. on page 3)

Trade name: Dithiothreitol (DTT)

(Contd. of page 2)

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:** Mount 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

- **Precautions for safe handling**
Thorough dusting.
- **Ensure good ventilation/exhaustion 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:** 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:** 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.
Wash hands before breaks and at the end of work.
Avoid contact with the eyes and skin.

(Contd. on page 4)

USA

Trade name: **Dithiothreitol (DTT)**

(Contd. of page 3)

- **Breathing equipment:**
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.
- **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:	Solid
· Form:	Whitish
· Color:	Sublurous
· Odor:	Not determined.
· Odour threshold:	Not applicable.
· pH-value:	42-44 °C
· Change in condition	undetermined
· Melting point/Melting range:	> 100 °C
· Boiling point/Boiling range:	Product is not flammable.
· Flash point:	Not determined.
· Flammability (solid, gaseous)	Not determined.
· Ignition temperature:	Product does not present an explosion hazard.
· Decomposition temperature:	Not determined.
· Auto igniting:	Not determined.
· Danger of explosion:	Not determined.
· Explosion limits:	Not determined.
· Lower:	Not determined.
· Upper:	Not determined.
· Vapor pressure:	Not applicable.
· Density:	Not determined.
· Relative density	Not determined.
· Vapour density	Not applicable.
· Evaporation rate	Not applicable.
· Solubility in / Miscibility with	Fully miscible
· Water:	Not determined.
· Partition coefficient (n-octanol/water):	Not applicable.
· Viscosity:	Not applicable.
· dynamic:	Not applicable.
· kinematic:	Not applicable.

(Contd. on page 5) USA

Trade name: **Dithiothreitol (DTT)**

(Contd. of page 4)

· Organic solvents:	0,0 %
· Solids content:	100,0 %
· Other information	No further relevant information available.

10 Stability and reactivity

- **Reactivity**
- **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:**
- **Primary irritant effect:**
- **on the skin:** No irritant effect.
- **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.
- **OSHA-Ca (Occupational Safety & Health Administration)**
Substance is not listed.
- **Target organs:**
Skin,
Respiratory tract.

12 Ecological information

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

(Contd. on page 6) USA

Trade name: **Dithiothreitol (DTT)**

- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **Other adverse effects** No further relevant information available.

(Contd. of page 5)

13 Disposal considerations

- **Waste treatment methods**
- **Recommendation**
Hand over to hazardous waste disposers.
Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
- **Uncleaned packagings:**
- **Recommendation:** Disposal must be made according to official regulations.
- **Recommended cleansing agent:** Water, if necessary with cleansing agents.

14 Transport information

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

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.

(Contd. on page 7)

USA

Trade name: **Dithiothreitol (DTT)**

- **TSCA (Toxic Substances Control Act):**
Substance is listed.
- **Carcinogenic categories**
- **EPA (Environmental Protection Agency)**
Substance is not listed.
- **TLV (Threshold Limit Value established by ACGIH)**
Substance is not listed.
- **MAK (German Maximum Workplace Concentration)**
Substance is not listed.
- **NIOSH-Ca (National Institute for Occupational Safety and Health)**
Substance is not listed.
- **National 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.

(Contd. of page 6)

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
 - **Date of preparation / last revision:** 02/03/2015 / -
 - **Abbreviations and acronyms:**
ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
DOT: US Department of Transportation
ATA: International Air Transport Association
ACGIH: American Conference of Governmental Industrial Hygienists
EINECS: European Inventory of Existing Commercial Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
Acute Tox. 3: Acute toxicity, Hazard Category 3
Acute Tox. 4: Acute toxicity, Hazard Category 4
 - *** Data compared to the previous version altered.**

USA