



09/29/2011

## Kit Components

| Product code                        | Description                         |
|-------------------------------------|-------------------------------------|
| <b>1662700</b><br><b>1662700EDU</b> | <b>Comparative Proteomics Kit I</b> |

### Components:

|         |  |
|---------|--|
| 1610375 | Precision Plus™ Kaleidoscope Protein Standards |
| 1660010 | Actin / Myosin Standard                        |
| 1610732 | 10X Tris/Glycine/SDS Buffer                    |
| 1610737 | Laemmli Sample Buffer                          |
| 1610786 | Bio-Safe™ Coomassie Stain                      |
| 1610610 | Dithiothreitol (DTT)                           |

## Material Safety Data Sheet

Printing date 09/29/2011

Reviewed on 09/29/2011

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

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

|           |                         |                        |          |
|-----------|-------------------------|------------------------|----------|
| 7732-18-5 | water                   |                        | 50-100%  |
| 56-81-5   | glycerol                |                        | 20-35%   |
| 151-21-3  | sodium dodecyl sulphate | Xn R21/22<br>Xi R36/38 | 1.0-2.5% |

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

## 3 Hazards identification

- **Classification of the substance or mixture**
- **Classification according to Directive 67/548/EEC or Directive 1999/45/EC** Void
- **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**
- **Labelling according to EU guidelines:**  
Observe the general safety regulations when handling chemicals  
The product is not subject to identification regulations under EU Directives and the Ordinance on Hazardous Materials (GefStoffV).

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Trade name: Precision Plus™ Kaleidoscope Protein Standards

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• **Safety phrases:**

35 This material and its container must be disposed of in a safe way.

\* **4 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.

\* **5 Firefighting measures**

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

\* **6 Accidental release measures**

- **Personal precautions, protective equipment and emergency procedures**  
Wear protective equipment (See section 8). Keep unprotected persons away.
- **Environmental precautions:** 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).  
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**

- **Handling**
- **Precautions for safe handling** No special measures required.
- **Information about protection against explosions and fires:** No special measures required.
- **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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## Material Safety Data Sheet

Printing date 09/29/2011

Reviewed on 09/29/2011

Trade name: Precision Plus™ Kaleidoscope Protein Standards

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

**56-81-5 glycerol**

PEL () 15\* 5\*\* mg/m<sup>3</sup>  
 \*total dust \*\*respirable fraction  
 TLV () 10\* ppm  
 \*Mist

**26628-22-8 sodium azide**

REL () Short-term value: C 0.3\*\* mg/m<sup>3</sup>, C 0.1\* ppm  
 \*as HN<sub>3</sub> vapor; \*\*as NaN<sub>3</sub>; Skin  
 TLV () Short-term value: C 0.29\*\* mg/m<sup>3</sup>, C 0.11\* ppm  
 \*as HN<sub>3</sub> vapor \*\*as NaN<sub>3</sub>

· **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:** 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**· **General Information**· **Appearance:**

**Form:** liquid  
**Color:** Violet  
**Odor:** Rotten  
**Odour 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:** Product does not present an explosion hazard.· **Explosion limits:**

**Lower:** 0.9 Vol %  
**Upper:** Not determined.

· **Vapor pressure at 20°C:** 23 hPa

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## Material Safety Data Sheet

Printing date 09/29/2011

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Trade name: Precision Plus™ Kaleidoscope Protein Standards

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|   |  |
|---|--|
| · <b>Density:</b>                                   | Not determined                             |
| · <b>Relative density</b>                           | Not determined.                            |
| · <b>Vapour density</b>                             | Not determined.                            |
| · <b>Evaporation rate</b>                           | Not determined.                            |
| · <b>Solubility in / Miscibility with Water:</b>    | Fully miscible                             |
| · <b>Segregation coefficient (n-octanol/water):</b> | Not determined.                            |
| · <b>Viscosity:</b>                                 |  |
| <b>dynamic:</b>                                     | Not determined.                            |
| <b>kinematic:</b>                                   | Not determined.                            |
| · <b>Solvent content:</b>                           |  |
| <b>Organic solvents:</b>                            | 30.0 %                                     |
| <b>Water:</b>                                       | 66.2 %                                     |
| <b>Solids content:</b>                              | 3.8 %                                      |
| · <b>Other information</b>                          | No further relevant information available. |

## 10 Stability and reactivity

- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Incompatible materials:** No further relevant information available.
- **Hazardous decomposition products:** No dangerous decomposition products known

## 11 Toxicological information

- **Acute toxicity:**
- **Primary irritant effect:**
- **on the skin:** No irritant effect.
- **on the eye:** No 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.
- **Target organs:** Not applicable.

## 12 Ecological information

- **Acquatic 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.
- **Additional ecological information:**
- **General notes:**  
Water hazard class 1 (German Regulation) (Self-assessment): slightly hazardous for water.

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Printing date 09/29/2011

Reviewed on 09/29/2011

Trade name: Precision Plus™ Kaleidoscope Protein Standards

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Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

## 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.

## 14 Transport information

## · UN-Number

· DOT, ADR, ADN, IMDG, IATA

Void

## · UN proper shipping name

· DOT, ADR, ADN, IMDG, IATA

Void

## · Transport hazard class(es)

· DOT, ADR, ADN, IMDG, IATA

· Class

Void

## · Packing group

· DOT, ADR, IMDG, IATA

Void

## · Environmental hazards:

· Marine pollutant:

No

## · 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.

## 15 Regulatory information

## · 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

56-81-5 glycerol

151-21-3 sodium dodecyl sulphate

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

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Trade name: Precision Plus™ Kaleidoscope Protein Standards

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|            |                                 |
|------------|---------------------------------|
| 77-86-1    | Tris(hydroxymethyl)aminomethane |
| 26628-22-8 | sodium azide                    |
| 115-39-9   | tetrabromophenol blue           |

· **Carcinogenic categories**· **EPA (Environmental Protection Agency)**

None of the ingredients is listed.

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

None of the ingredients is listed.

· **NTP (National Toxicology Program)**

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.

· **OSHA-Ca (Occupational Safety & Health Administration)**

None of the ingredients is listed.

· **National regulations**· **Technical instructions (air):**

| Class | Share in % |
|-------|------------|
| NK    | 20-35      |

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

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

## Material Safety Data Sheet

Printing date 09/29/2011

Reviewed on 09/29/2011

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

- **Product identifier**
- **Trade name:** Actin / Myosin Standard
- **Catalog or product number:** 1660010, 1660010EDU, 9703865
- **Application of the substance / the preparation** 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.
- **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 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:**

|            |  |          |
|------------|--|----------|
| 57-50-1    | sucrose, pure  | 50-100%  |
| 3483-12-3  | (R*,R*)-1,4-dimercaptobutane-2,3-diol                    | 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.

## 3 Hazards identification

- **Classification of the substance or mixture**
- **Classification according to Directive 67/548/EEC or Directive 1999/45/EC** Void
- **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**
- **Labelling according to EU guidelines:**  
Observe the general safety regulations when handling chemicals  
The product is not subject to identification regulations under EU Directives and the Ordinance on Hazardous Materials (GefStoffV).

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USA



## Material Safety Data Sheet

Printing date 09/29/2011

Reviewed on 09/29/2011

Trade name: Actin / Myosin Standard

(Contd. of page 1)

· **Safety phrases:**

60 This material and its container must be disposed of as hazardous waste.

\* **4 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.

\* **5 Firefighting 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 arising from the substance or mixture** No further relevant information available.
- **Protective equipment:** No special measures required.

\* **6 Accidental release measures**

- **Personal precautions, protective equipment and emergency procedures**  
Wear protective equipment (See section 8). Keep unprotected persons away.
- **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**

- **Handling**
- **Precautions for safe handling** No special measures required.
- **Information about protection against explosions and fires:** No special measures required.
- **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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## Material Safety Data Sheet

Printing date 09/29/2011

Reviewed on 09/29/2011

Trade name: Actin / Myosin Standard

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· **Components with limit values that require monitoring at the workplace:****57-50-1 sucrose, pure**

|        |  |
|--------|--|
| PEL () | 15* 5** mg/m <sup>3</sup><br>*total dust **respirable fraction |
| REL () | 10* 5** mg/m <sup>3</sup><br>*total dust **respirable fraction |
| TLV () | 10 mg/m <sup>3</sup>   |

· **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.· **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**· **General Information**· **Appearance:**

|                         |                                    |
|-------------------------|------------------------------------|
| <b>Form:</b>            | Solid.                             |
| <b>Color:</b>           | According to product specification |
| <b>Odor:</b>            | Odorless                           |
| <b>Odour threshold:</b> | Not determined.                    |

· **pH-value:** Not applicable.· **Change in condition**

|                                     |              |
|-------------------------------------|--------------|
| <b>Melting point/Melting range:</b> | undetermined |
| <b>Boiling point/Boiling range:</b> | undetermined |

· **Flash point:** Not applicable· **Flammability (solid, gaseous)** Not determined.· **Ignition temperature:****Decomposition temperature:** Not determined.· **Auto igniting:** Product is not selfigniting.· **Danger of explosion:** Product does not present an explosion hazard.· **Explosion limits:**

|               |                 |
|---------------|-----------------|
| <b>Lower:</b> | Not determined. |
| <b>Upper:</b> | Not determined. |

· **Vapor pressure:** Not applicable.

|                         |                 |
|-------------------------|-----------------|
| <b>Density:</b>         | Not determined  |
| <b>Relative density</b> | Not determined. |
| <b>Vapour density</b>   | Not applicable. |
| <b>Evaporation rate</b> | Not applicable. |

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## Material Safety Data Sheet

Printing date 09/29/2011

Reviewed on 09/29/2011

Trade name: Actin / Myosin Standard

(Contd. of page 3)

- |   |  |
|---|--|
| · <b>Solubility in / Miscibility with Water:</b>    | Fully miscible                             |
| · <b>Segregation coefficient (n-octanol/water):</b> | Not determined.                            |
| · <b>Viscosity:</b>                                 |  |
| dynamic:  | Not applicable.                            |
| kinematic:  | Not applicable.                            |
| · <b>Solvent content:</b>                           |  |
| Organic solvents:                                   | 0.0 %                                      |
| · <b>Other information</b>                          | No further relevant information available. |

## 10 Stability and reactivity

- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Incompatible materials:** No further relevant information available.
- **Hazardous decomposition products:** No dangerous decomposition products known

## 11 Toxicological information

- **Acute toxicity:**
- **Primary irritant effect:**
- **on the skin:** No irritant effect.
- **on the eye:** No 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.
- **Target organs:** Not applicable.

## 12 Ecological information

- **Acquatic 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.
- **Additional ecological information:**
- **General notes:** Generally not hazardous for water.

## 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.

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USA

## Material Safety Data Sheet

Printing date 09/29/2011

Reviewed on 09/29/2011

Trade name: Actin / Myosin Standard

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

## 14 Transport information

- |   |  |
|---|--|
| · <b>UN-Number</b><br>· <b>DOT, ADR, ADN, IMDG, IATA</b>                                    | Void   |
| · <b>UN proper shipping name</b><br>· <b>DOT, ADR, ADN, IMDG, IATA</b>                      | Void   |
| · <b>Transport hazard class(es)</b><br>· <b>DOT, ADR, ADN, IMDG, IATA</b><br>· <b>Class</b> | Void   |
| · <b>Packing group</b><br>· <b>DOT, ADR, IMDG, IATA</b>                                     | Void   |
| · <b>Environmental hazards:</b><br>· <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. |

## 15 Regulatory information

- **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  | (R*,R*)-1,4-dimercaptobutane-2,3-diol                    |
| 71119-22-7 | 3-[N-Morpholino]propanesulfonic acid (MOPS, Sodium Salt) |
| 7447-40-7  | potassium chloride                                       |
| 67-42-5    | ethylenebis(oxyethylenenitrilo)tetra(acetic acid)        |

- **Carcinogenic categories**

- **EPA (Environmental Protection Agency)**

None of the ingredients is listed.

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

None of the ingredients is listed.

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USA

## Material Safety Data Sheet

Printing date 09/29/2011

Reviewed on 09/29/2011

Trade name: Actin / Myosin Standard

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· **NTP (National Toxicology Program)**

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.

· **OSHA-Ca (Occupational Safety & Health Administration)**

None of the ingredients is listed.

· **National regulations**· **Water hazard class:** Generally not hazardous for water.**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 MSDS:** 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

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

## Material Safety Data Sheet

Printing date 09/29/2011

Reviewed on 09/29/2011

**1 Identification of the substance/mixture and of the company/undertaking**

- **Product identifier**
- **Trade name:** 10X Tris/Glycine/SDS Buffer
- **Catalog or product number:** 1610732, 9701906, 1610772, 1610732EDU, 1610772EDU, 10021723
- **Application of the substance / the preparation** 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.
- **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  
1(800)424-9300 Use only in the event of a CHEMICAL EMERGENCY involving a SPILL, LEAK, FIRE, EXPLOSION or ACCIDENT.

**2 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:**

|           |                                 |                  |         |
|-----------|---------------------------------|------------------|---------|
| 7732-18-5 | water                           |                  | 50-100% |
| 56-40-6   | glycine                         | Xn R22<br>Xi R36 | 10-20%  |
| 77-86-1   | Tris(hydroxymethyl)aminomethane | Xn R22<br>Xi R36 | 2.5-5%  |

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

**3 Hazards identification**

- **Classification of the substance or mixture**
- **Classification according to Directive 67/548/EEC or Directive 1999/45/EC** Void
- **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**
- **Labelling according to EU guidelines:**  
Observe the general safety regulations when handling chemicals  
The product is not subject to identification regulations under EU Directives and the Ordinance on Hazardous Materials (GefStoffV).

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USA

## Material Safety Data Sheet

Printing date 09/29/2011

Reviewed on 09/29/2011

Trade name: 10X Tris/Glycine/SDS Buffer

(Contd. of page 1)

· **Safety phrases:**

60 This material and its container must be disposed of as hazardous waste.

**4 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.

**5 Firefighting 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 arising from the substance or mixture** No further relevant information available.
- **Protective equipment:** No special measures required.

**6 Accidental release measures**

- **Personal precautions, protective equipment and emergency procedures**  
Wear protective equipment (See section 8). Keep unprotected persons away.
- **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.
- **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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## Material Safety Data Sheet

Printing date 09/29/2011

Reviewed on 09/29/2011

Trade name: 10X Tris/Glycine/SDS Buffer

(Contd. of page 2)

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

The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.

· **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:** Not required.

· **Protection of hands:** Protective gloves.

· **Material of gloves**

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

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

· **General Information**· **Appearance:**

|                  |                 |
|------------------|-----------------|
| Form:            | liquid          |
| Color:           | Light yellow    |
| Odor:            | Odorless        |
| Odour threshold: | Not determined. |

· **pH-value at 20°C:** 8.3

· **Change in condition**

|                              |              |
|------------------------------|--------------|
| Melting point/Melting range: | undetermined |
| Boiling point/Boiling range: | 100°C        |

· **Flash point:** Not applicable

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

· **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 at 20°C:** 23 hPa

· **Density at 20°C:** 0.989 g/cm<sup>3</sup>

· **Relative density** Not determined.

· **Vapour density** Not determined.

· **Evaporation rate** Not determined.

(Contd. on page 4)

USA



## Material Safety Data Sheet

Printing date 09/29/2011

Reviewed on 09/29/2011

Trade name: 10X Tris/Glycine/SDS Buffer

(Contd. of page 3)

|   |  |
|---|--|
| · <b>Solubility in / Miscibility with Water:</b>    | Fully miscible                             |
| · <b>Segregation coefficient (n-octanol/water):</b> | Not determined.                            |
| · <b>Viscosity:</b>                                 |  |
| dynamic:  | Not determined.                            |
| kinematic:  | Not determined.                            |
| · <b>Solvent content:</b>                           |  |
| Organic solvents:                                   | 0.0 %                                      |
| Water:  | 81.4 %                                     |
| Solids content:                                     | 18.6 %                                     |
| · <b>Other information</b>                          | No further relevant information available. |

## 10 Stability and reactivity

- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Incompatible materials:** No further relevant information available.
- **Hazardous decomposition products:** No dangerous decomposition products known

## 11 Toxicological information

- **Acute toxicity:**
- **LD/LC50 values for hazardous components per OSHA criteria:**

## 56-40-6 glycine

|        |      |                  |
|--------|------|------------------|
| Oral   | LD50 | 7930 mg/kg (rat) |
| Dermal | LD50 | 5200 mg/kg (rat) |

## 77-86-1 Tris(hydroxymethyl)aminomethane

|      |      |                  |
|------|------|------------------|
| Oral | LD50 | 5900 mg/kg (rat) |
|------|------|------------------|

## 151-21-3 sodium dodecyl sulphate

|        |      |                  |
|--------|------|------------------|
| Oral   | LD50 | 1288 mg/kg (rat) |
| Dermal | LD50 | 580 mg/kg (rab)  |

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

- **Target organs:** Not applicable.

USA

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## Material Safety Data Sheet

Printing date 09/29/2011

Reviewed on 09/29/2011

Trade name: 10X Tris/Glycine/SDS Buffer

(Contd. of page 4)

## \* 12 Ecological information

- **Acquatic 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.
- **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.

## \* 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

- |  |  |
|--|--|
| · <b>UN-Number</b>   |  |
| · <b>DOT, ADR, ADN, IMDG, IATA</b>   | Void   |
| · <b>UN proper shipping name</b>   |  |
| · <b>DOT, ADR, ADN, IMDG, IATA</b>   | Void   |
| · <b>Transport hazard class(es)</b>  |  |
| · <b>DOT, ADR, ADN, IMDG, IATA</b>   |  |
| · <b>Class</b>   | Void   |
| · <b>Packing group</b>   |  |
| · <b>DOT, ADR, IMDG, IATA</b>  | Void   |
| · <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. |

USA

(Contd. on page 6)

## Material Safety Data Sheet

Printing date 09/29/2011

Reviewed on 09/29/2011

Trade name: 10X Tris/Glycine/SDS Buffer

(Contd. of page 5)

## 15 Regulatory information

## · 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):

All ingredients are listed.

## · Carcinogenic categories

## · EPA (Environmental Protection Agency)

None of the ingredients is listed.

## · IARC (International Agency for Research on Cancer)

None of the ingredients is listed.

## · NTP (National Toxicology Program)

None of the ingredients is listed.

## · TLV (Threshold Limit Value established by ACGIH)

None of the ingredients is listed.

## · 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.

## · OSHA-Ca (Occupational Safety &amp; Health Administration)

None of the ingredients is listed.

## · National regulations

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

## 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 MSDS: 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

· \* Data compared to the previous version altered.

## Material Safety Data Sheet

Printing date 09/29/2011

Reviewed on 09/29/2011

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

- **Product identifier**
- **Trade name:** Laemmli Sample Buffer
- **Catalog or product number:** 1610737, 1610737EDU, 1610737XTU
- **Application of the substance / the preparation** 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.
- **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 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:**

|           |                         |                        |          |
|-----------|-------------------------|------------------------|----------|
| 7732-18-5 | water                   |                        | 50-100%  |
| 56-81-5   | glycerol                |                        | 20-35%   |
| 151-21-3  | sodium dodecyl sulphate | Xn R21/22<br>Xi R36/38 | 1.0-2.5% |

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

## 3 Hazards identification

- **Classification of the substance or mixture**
- **Classification according to Directive 67/548/EEC or Directive 1999/45/EC** Void
- **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**
- **Labelling according to EU guidelines:**  
Observe the general safety regulations when handling chemicals  
The product is not subject to identification regulations under EU Directives and the Ordinance on Hazardous Materials (GefStoffV).

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USA

## Material Safety Data Sheet

Printing date 09/29/2011

Reviewed on 09/29/2011

Trade name: Laemmli Sample Buffer

(Contd. of page 1)

• **Safety phrases:**

60 This material and its container must be disposed of as hazardous waste.

**4 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.

**5 Firefighting measures**

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

**6 Accidental release measures**

- **Personal precautions, protective equipment and emergency procedures**  
Wear protective equipment (See section 8). Keep unprotected persons away.
- **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.
- **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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## Material Safety Data Sheet

Printing date 09/29/2011

Reviewed on 09/29/2011

Trade name: Laemmli Sample Buffer

(Contd. of page 2)

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

|        |                                   |
|--------|-----------------------------------|
| PEL () | 15* 5** mg/m <sup>3</sup>         |
|        | *total dust **respirable fraction |
| TLV () | 10* ppm                           |
|        | *Mist                             |

· **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:** 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**· **General Information**· **Appearance:**

|                  |                 |
|------------------|-----------------|
| Form:            | liquid          |
| Color:           | Light blue      |
| Odor:            | Odorless        |
| Odour 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:** 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. |

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USA

## Material Safety Data Sheet

Printing date 09/29/2011

Reviewed on 09/29/2011

Trade name: Laemmli Sample Buffer

(Contd. of page 3)

|   |  |
|---|--|
| · <b>Solubility in / Miscibility with Water:</b>    | Fully miscible                             |
| · <b>Segregation coefficient (n-octanol/water):</b> | Not determined.                            |
| · <b>Viscosity:</b>                                 |  |
| dynamic:  | Not determined.                            |
| kinematic:  | Not determined.                            |
| · <b>Solvent content:</b>                           |  |
| Organic solvents:                                   | 26.3 %                                     |
| Water:  | 70.8 %                                     |
| Solids content:                                     | 2.9 %                                      |
| · <b>Other information</b>                          | No further relevant information available. |

## 10 Stability and reactivity

- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Incompatible materials:** No further relevant information available.
- **Hazardous decomposition products:** No dangerous decomposition products known

## 11 Toxicological information

- **Acute toxicity:**
- **Primary irritant effect:**
- **on the skin:** No irritant effect.
- **on the eye:** No 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.
- **Target organs:** Not applicable.

## 12 Ecological information

- **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.
- **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.

USA

(Contd. on page 5)



## Material Safety Data Sheet

Printing date 09/29/2011

Reviewed on 09/29/2011

Trade name: Laemmli Sample Buffer

(Contd. of page 4)

## \* 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

- |  |  |
|--|--|
| · <b>UN-Number</b>   | Void   |
| · <b>DOT, ADR, ADN, IMDG, IATA</b>   | Void   |
| · <b>UN proper shipping name</b>   | Void   |
| · <b>DOT, ADR, ADN, IMDG, IATA</b>   | Void   |
| · <b>Transport hazard class(es)</b>  | Void   |
| · <b>DOT, ADR, ADN, IMDG, IATA</b>   | Void   |
| · <b>Class</b>   | Void   |
| · <b>Packing group</b>   | Void   |
| · <b>DOT, ADR, IMDG, IATA</b>  | Void   |
| · <b>Environmental hazards:</b>  | No   |
| · <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. |

## \* 15 Regulatory information

- **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):**

All ingredients are listed.

- **Carcinogenic categories**

- **EPA (Environmental Protection Agency)**

None of the ingredients is listed.

(Contd. on page 6)



## Material Safety Data Sheet

Printing date 09/29/2011

Reviewed on 09/29/2011

Trade name: Laemmli Sample Buffer

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

None of the ingredients is listed.

· **NTP (National Toxicology Program)**

None of the ingredients is listed.

· **TLV (Threshold Limit Value established by ACGIH)**

None of the ingredients is listed.

· **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.

· **OSHA-Ca (Occupational Safety & Health Administration)**

None of the ingredients is listed.

· **National regulations**· **Technical instructions (air):**

| Class | Share in % |
|-------|------------|
| NK    | 20-35      |

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

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

## Material Safety Data Sheet

Printing date 09/29/2011

Reviewed on 09/29/2011

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

- **Product identifier**
- **Trade name:** Bio-Safe™ Coomassie Stain
- **Catalog or product number:** 1610786, 1610787, 1610786S, 1610787EDU, 9704607, 4307131, 4307045
- **Application of the substance / the preparation** 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.
- **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 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:**

|           |                 |                                  |          |
|-----------|-----------------|----------------------------------|----------|
| 7732-18-5 | water           |                                  | 50-100%  |
| 7664-38-2 | phosphoric acid | C R34                            | 2.5-5%   |
| 67-56-1   | methanol        | T R23/24/25-39/23/24/25<br>F R11 | 0.1-1.0% |

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

## 3 Hazards identification

- **Classification of the substance or mixture**
- **Classification according to Directive 67/548/EEC or Directive 1999/45/EC** Void
- **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**
- **Labelling according to EU guidelines:**  
Observe the general safety regulations when handling chemicals  
The product is not subject to identification regulations under EU Directives and the Ordinance on Hazardous Materials (GefStoffV).

(Contd. on page 2)

USA

## Material Safety Data Sheet

Printing date 09/29/2011

Reviewed on 09/29/2011

Trade name: Bio-Safe™ Coomassie Stain

(Contd. of page 1)

• **Safety phrases:**

35 This material and its container must be disposed of in a safe way.

\* **4 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.

\* **5 Firefighting 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 arising from the substance or mixture** No further relevant information available.
- **Protective equipment:** No special measures required.

\* **6 Accidental release measures**

- **Personal precautions, protective equipment and emergency procedures**  
Wear protective equipment (See section 8). Keep unprotected persons away.
- **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).  
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**

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

## Material Safety Data Sheet

Printing date 09/29/2011

Reviewed on 09/29/2011

Trade name: Bio-Safe™ Coomassie Stain

(Contd. of page 2)

## \* 8 Exposure controls/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:**

**7664-38-2 phosphoric acid**

PEL () 1 mg/m<sup>3</sup>  
 REL () Short-term value: 3 mg/m<sup>3</sup>  
 Long-term value: 1 mg/m<sup>3</sup>  
 TLV () Short-term value: 3 mg/m<sup>3</sup>  
 Long-term value: 1 mg/m<sup>3</sup>

**67-56-1 methanol**

PEL () 260 mg/m<sup>3</sup>, 200 ppm  
 REL () Short-term value: 325 mg/m<sup>3</sup>, 250 ppm  
 Long-term value: 260 mg/m<sup>3</sup>, 200 ppm  
 Skin  
 TLV () Short-term value: 328 mg/m<sup>3</sup>, 250 ppm  
 Long-term value: 262 mg/m<sup>3</sup>, 200 ppm  
 Skin; BEI

**64-17-5 ethanol**

PEL () 1900 mg/m<sup>3</sup>, 1000 ppm  
 REL () 1900 mg/m<sup>3</sup>, 1000 ppm  
 TLV () Short-term value: 1880 mg/m<sup>3</sup>, NIC-1000 ppm  
 Long-term value: 1880 mg/m<sup>3</sup>, 1000 ppm  
 NIC-A3

· **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:** Not required.

· **Protection of hands:** Protective gloves.

· **Material of gloves**

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

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

· **General Information**

· **Appearance:**

Form: liquid  
 Color: According to product specification

· **Odor:** Acid

· **Odour threshold:** Not determined.

· **pH-value:** Not determined.

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USA

## Material Safety Data Sheet

Printing date 09/29/2011

Reviewed on 09/29/2011

Trade name: Bio-Safe™ Coomassie Stain

(Contd. of page 3)

|   |   |
|---|---|
| · <b>Change in condition</b>                        |   |
| Melting point/Melting range:                        | undetermined                                  |
| Boiling point/Boiling range:                        | 100°C   |
| · <b>Flash point:</b>                               | Not applicable                                |
| · <b>Flammability (solid, gaseous)</b>              | Not applicable.                               |
| · <b>Ignition temperature:</b>                      |   |
| Decomposition temperature:                          | Not determined.                               |
| · <b>Auto igniting:</b>                             | Product is not selfigniting.                  |
| · <b>Danger of explosion:</b>                       | Product does not present an explosion hazard. |
| · <b>Explosion limits:</b>                          |   |
| Lower:  | Not determined.                               |
| Upper:  | Not determined.                               |
| · <b>Vapor pressure at 20°C:</b>                    | 23 hPa  |
| · <b>Density:</b>                                   | Not determined                                |
| · <b>Relative density</b>                           | Not determined.                               |
| · <b>Vapour density</b>                             | Not determined.                               |
| · <b>Evaporation rate</b>                           | Not determined.                               |
| · <b>Solubility in / Miscibility with</b>           |   |
| Water:  | Fully miscible                                |
| · <b>Segregation coefficient (n-octanol/water):</b> | Not determined.                               |
| · <b>Viscosity:</b>                                 |   |
| dynamic:  | Not determined.                               |
| kinematic:  | Not determined.                               |
| · <b>Solvent content:</b>                           |   |
| Organic solvents:                                   | 1.1 %   |
| Water:  | 93.9 %  |
| · <b>Other information</b>                          | No further relevant information available.    |

## 10 Stability and reactivity

- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Incompatible materials:** No further relevant information available.
- **Hazardous decomposition products:** No dangerous decomposition products known

## 11 Toxicological information

- **Acute toxicity:**
- **LD/LC50 values for hazardous components per OSHA criteria:**
- 67-56-1 methanol**

|        |      |                   |
|--------|------|-------------------|
| Oral   | LD50 | 5628 mg/kg (rat)  |
| Dermal | LD50 | 20000 mg/kg (rat) |

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## Material Safety Data Sheet

Printing date 09/29/2011

Reviewed on 09/29/2011

Trade name: Bio-Safe™ Coomassie Stain

(Contd. of page 4)

· **Primary irritant effect:**· **on the skin:** No irritant effect.· **on the eye:** No 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.

· **Target organs:** Not applicable.\* **12 Ecological information**· **Acquatic 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.· **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.

\* **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**· **DOT, ADR, ADN, IMDG, IATA**

Void

· **UN proper shipping name**· **DOT, ADR, ADN, IMDG, IATA**

Void

· **Transport hazard class(es)**· **DOT, ADR, ADN, IMDG, IATA**· **Class**

Void

· **Packing group**· **DOT, ADR, IMDG, IATA**

Void

· **Environmental hazards:**· **Marine pollutant:**

No

(Contd. on page 6)

## Material Safety Data Sheet

Printing date 09/29/2011

Reviewed on 09/29/2011

Trade name: Bio-Safe™ Coomassie Stain

(Contd. of page 5)

- |  |  |
|--|--|
| · <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. |

## \* 15 Regulatory information

· **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):**

67-56-1 | methanol

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

All ingredients are listed.

· **California Proposition 65:**· **Developmental Toxicity**

64-17-5 | ethanol

· **Carcinogenic categories**· **EPA (Environmental Protection Agency)**

None of the ingredients is listed.

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

None of the ingredients is listed.

· **NTP (National Toxicology Program)**

None of the ingredients is listed.

· **TLV (Threshold Limit Value established by ACGIH)**

64-17-5 | ethanol

A4

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

64-17-5 | ethanol

5

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

None of the ingredients is listed.

· **OSHA-Ca (Occupational Safety & Health Administration)**

None of the ingredients is listed.

· **National regulations**· **Technical instructions (air):**

| Class | Share in % |
|-------|------------|
| I     | 0.1-1.0    |
| NK    | 0.01-0.1   |

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USA

**Material Safety Data Sheet**

Printing date 09/29/2011

Reviewed on 09/29/2011

**Trade name: Bio-Safe™ Coomassie Stain**

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

**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 MSDS:** 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

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



## Material Safety Data Sheet

Printing date 09/29/2011

Reviewed on 09/29/2011

**1 Identification of the substance/mixture and of the company/undertaking**

- **Product identifier**
- **Trade name:** Dithiothreitol (DTT)
- **Catalog or product number:** 1610610, 1610611, 1610610EDU, 1610611EDU, 10005243, 10005526
- **CAS Number:**  
27565-41-9
- **EC number:**  
248-531-9
- **Application of the substance / the preparation** 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.
- **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 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.

**3 Hazards identification**

- **Classification of the substance or mixture**
- **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**
- **Labelling according to EU guidelines:**  
The product has been classified and marked in accordance with EU Directives / Ordinance on Hazardous Materials
- **Code letter and hazard designation of product:**



Xn Harmful

(Contd. on page 2)

USA

## Material Safety Data Sheet

Printing date 09/29/2011

Reviewed on 09/29/2011

Trade name: Dithiothreitol (DTT)

(Contd. of page 1)

• **Risk phrases:**

20/21/22 Harmful by inhalation, in contact with skin and if swallowed.

• **Safety phrases:**

60 This material and its container must be disposed of as hazardous waste.

• **Emergency overview:**• **Routes of exposure:**

Ingestion

Inhalation

Skin

\* **4 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.\* **5 Firefighting measures**• **Suitable extinguishing agents** Use fire fighting measures that suit the environment.• **Special hazards arising from the substance or mixture** No further relevant information available.• **Protective equipment:** Mount respiratory protective device.\* **6 Accidental release measures**• **Personal precautions, protective equipment and emergency procedures**

Wear protective equipment (See section 8). Keep unprotected persons away.

• **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**

Thorough dedusting.

Ensure good ventilation/exhaustion at the workplace.

• **Information about protection against explosions and fires:** No special measures required.

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## Material Safety Data Sheet

Printing date 09/29/2011

Reviewed on 09/29/2011

Trade name: Dithiothreitol (DTT)

(Contd. of page 2)

- **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.
- **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.
- **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.
- **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

- **General Information**
- **Appearance:**

|        |         |
|--------|---------|
| Form:  | Solid.  |
| Color: | Whitish |
- **Odor:** Sulphurous
- **Odour threshold:** Not determined.
- **pH-value:** Not applicable.
- **Change in condition**

|                              |              |
|------------------------------|--------------|
| Melting point/Melting range: | 42-44°C      |
| Boiling point/Boiling range: | undetermined |
- **Flash point:** > 100°C
- **Flammability (solid, gaseous)** Product is not flammable.
- **Ignition temperature:**
- **Decomposition temperature:** Not determined.
- **Auto igniting:** Not determined.
- **Danger of explosion:** Product does not present an explosion hazard.
- **Explosion limits:**

|        |                 |
|--------|-----------------|
| Lower: | Not determined. |
|--------|-----------------|

(Contd. on page 4)

## Material Safety Data Sheet

Printing date 09/29/2011

Reviewed on 09/29/2011

Trade name: Dithiothreitol (DTT)

(Contd. of page 3)

|   |  |
|---|--|
| <b>Upper:</b>                                       | Not determined.                            |
| · <b>Vapor pressure:</b>                            | Not applicable.                            |
| · <b>Density:</b>                                   | Not determined                             |
| · <b>Relative density</b>                           | Not determined.                            |
| · <b>Vapour density</b>                             | Not applicable.                            |
| · <b>Evaporation rate</b>                           | Not applicable.                            |
| · <b>Solubility in / Miscibility with Water:</b>    | Fully miscible                             |
| · <b>Segregation coefficient (n-octanol/water):</b> | Not determined.                            |
| · <b>Viscosity:</b>                                 |  |
| dynamic:  | Not applicable.                            |
| kinematic:  | Not applicable.                            |
| Organic solvents:                                   | 0.0 %                                      |
| Solids content:                                     | 100.0 %                                    |
| · <b>Other information</b>                          | No further relevant information available. |

## 10 Stability and reactivity

- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Incompatible materials:** No further relevant information available.
- **Hazardous decomposition products:** No dangerous decomposition products known

## 11 Toxicological information

- **Acute toxicity:**
- **Primary irritant effect:**
- **on the skin:** No irritant effect.
- **on the eye:** No irritant effect.
- **Sensitization:** No sensitizing effects known.
- **Target organs:**  
Skin.  
Respiratory tract.

## 12 Ecological information

- **Acquatic 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.
- **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.

USA

(Contd. on page 5)

## Material Safety Data Sheet

Printing date 09/29/2011

Reviewed on 09/29/2011

Trade name: Dithiothreitol (DTT)

(Contd. of page 4)

## \* 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

- |  |                 |
|--|-----------------|
| · <b>UN-Number</b>   |                 |
| · <b>DOT, ADR, ADN, IMDG, IATA</b>   | Void            |
| · <b>UN proper shipping name</b>   |                 |
| · <b>DOT, ADR, ADN, IMDG, IATA</b>   | Void            |
| · <b>Transport hazard class(es)</b>  |                 |
| · <b>DOT, ADR, ADN, IMDG, IATA</b>   |                 |
| · <b>Class</b>   | Void            |
| · <b>Packing group</b>   |                 |
| · <b>DOT, ADR, IMDG, IATA</b>  | Void            |
| · <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. |

## \* 15 Regulatory information

- **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 listed.

- **Carcinogenic categories**

- **EPA (Environmental Protection Agency)**

Substance is not listed.

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

Substance is not listed.

(Contd. on page 6)

## Material Safety Data Sheet

Printing date 09/29/2011

Reviewed on 09/29/2011

Trade name: Dithiothreitol (DTT)

(Contd. of page 5)

· **NTP (National Toxicology Program)**

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.

· **OSHA-Ca (Occupational Safety & Health Administration)**

Substance is not listed.

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

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