1 Identification

- **Product identifier**
  - **Trade name**: 2-D SDS-PAGE Standards
  - **Catalog or product number**: 1610320, 1610320EDU
  - **Relevant identified uses of the substance or mixture and uses advised against**
    No further relevant information available.
  - **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
    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**
  - H318  Causes serious eye damage.
  - H312  Harmful in contact with skin.
  - H315  Causes skin irritation.

  **Classification according to Directive 67/548/EEC or Directive 1999/45/EC**
  - Irritant to skin.
  - Xn; Harmful
  - R21: Harmful in contact with skin.
  - R52/53: Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

- **Information concerning particular hazards for human and environment**:
  The product has 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 has been classified and marked in accordance with EU Directives / Ordinance on Hazardous Materials
Material Safety Data Sheet

Trade name: 2-D SDS-PAGE Standards

· Code letter and hazard designation of product:
  Xn Harmful

· Hazard-determining components of labeling:
  2-mercaptoethanol

· Risk phrases:
  21 Harmful in contact with skin.
  52/53 Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment

· Safety phrases:
  25 Avoid contact with eyes.
  26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
  28 After contact with skin, wash immediately with plenty of water
  36/37/39 Wear suitable protective clothing, gloves and eye/face protection.
  45 In case of accident or if you feel unwell, seek medical advice immediately.
  60 This material and its container must be disposed of as hazardous waste.
  61 Avoid release to the environment. Refer to special instructions/Safety data sheets

· Emergency overview:
  Routes of exposure: Skin

· 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.

· Listing of dangerous and non-hazardous components:

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage (w/w)</th>
</tr>
</thead>
<tbody>
<tr>
<td>57-13-6 urea</td>
<td>35-50%</td>
</tr>
<tr>
<td>60-24-2 2-mercaptoethanol</td>
<td>2.5-5%</td>
</tr>
<tr>
<td>Bio-Lyte ampholytes</td>
<td>XI R36/37/38</td>
</tr>
<tr>
<td>7732-18-5 water</td>
<td>35-50%</td>
</tr>
</tbody>
</table>

· 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; consult doctor in case of complaints.
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37.0.5

· After skin contact Immediately rinse with water.
· After eye contact Rinse opened eye for several minutes under running water. Then consult a doctor.
· After swallowing Induce vomiting and call for medical help.
· Information for doctor
· Most important symptoms and effects, both acute and delayed No further relevant information available.
· Indication of any immediate medical attention and special treatment needed No further relevant information available.

5 Fire-fighting measures

· Extinguishing media
· Suitable extinguishing agents
  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:
  Inform respective authorities in case of seepage into water course or sewage system.
  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
  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 precautions are necessary if used correctly.
· Information about protection against explosions and fires: No special measures required.
· Conditions for safe storage, including any incompatibilities
· Storage
· Requirements to be met by storerooms and receptacles: According to product specification
· Information about storage in one common storage facility: Not required.
· Further information about storage conditions: None.
· Specific end use(s) No further relevant information available.

8 Exposure controls/personal protection

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

(Contd. on page 4)
### 9 Physical and chemical properties

- **Information on basic physical and chemical properties**
  - **General Information**
  - **Appearance:**
    - Form: Liquid
    - Color: Whitish
  - Odor: Odorless
  - Odor threshold: Not determined.
  - **pH-value at 20 °C:** 8.4
  - **Change in condition**
    - Melting point/Melting range: undetermined
    - Boiling point/Boiling range: undetermined
  - **Flash point:** Not applicable
  - **Flammability (solid, gaseous):** Not applicable.
  - **Ignition temperature:** 400.0 °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.
37.0.5

- 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: 0.0 %
  - Water: 46.5 %

- Solids content: 1.0 %
- 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:
  - LD/LC50 values for hazardous components per OSHA criteria:
    - 57-13-6 urea
      - Oral LD50: 14500 mg/kg (rat)

- Primary irritant effect:
  - on the skin: Irritant to skin and mucous membranes.
  - on the eye: Strong caustic effect.
  - Sensitization: No sensitizing effects known.
- Additional toxicological information:
  The product shows the following dangers according to the calculation method of the General EU Classification Guidelines for Preparations as issued in the latest version:
  Harmful
Trade name: 2-D SDS-PAGE Standards

- 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.
  - Target organs: Skin.

12 Ecological information

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

13 Disposal considerations

- Waste treatment methods
  - Recommendation
    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, IMDG, IATA UN2810
- UN proper shipping name
  - DOT, IMDG, IATA TOXIC LIQUID, ORGANIC, N.O.S. (THIOGLYCOL)
  - ADR 2810 TOXIC LIQUID, ORGANIC, N.O.S. (THIOGLYCOL)
### Transport hazard class(es)
- DOT, ADR, IMDG, IATA
- Class
- Label

### Packing group
- DOT, ADR, IMDG, IATA
- Class
- Label

### Environmental hazards:
- Marine pollutant:

### Special precautions for user
- Warning: Toxic substances
- Danger code (Kemler):
- EMS Number:

### Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code
- Not applicable.

### UN "Model Regulation"
- UN2810, TOXIC LIQUID, ORGANIC, N.O.S., 6.1, III

### 15 Regulatory information

- Safety, health and environmental regulations/legislation specific for the substance or mixture
- SARA (Superfund Amendents 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):
  - 57-13-6 urea
  - 60-24-2 2-mercaptoethanol
  - 9048-46-8 Bovine Serum Albumin
  - 9001-50-7 Glyceraldehyde-3-phosphate dehydrogenase
  - 1391-06-6 Conalbumin from hen egg white
  - 7732-18-5 water

- Carcinogenic categories
  - EPA (Environmental Protection Agency)
    - 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.
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(Contd. of page 7)

· OSHA-Ca (Occupational Safety & Health Administration)
  None of the ingredients is listed.

· National regulations

· Technical instructions (air):

<table>
<thead>
<tr>
<th>Class</th>
<th>Share in %</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>2.5-5</td>
</tr>
</tbody>
</table>

· Water hazard class: Generally not hazardous for water.
· Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

16 Other information

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

· Department issuing 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

· 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
  IATA: 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)
  LC50: Lethal concentration, 50 percent
  LD50: Lethal dose, 50 percent
· * Data compared to the previous version altered.