### Kit Components

<table>
<thead>
<tr>
<th>Product code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1662100</td>
<td>PV92 PCR Kit</td>
</tr>
<tr>
<td>1669710EDU</td>
<td></td>
</tr>
<tr>
<td>1661601</td>
<td></td>
</tr>
<tr>
<td>1661601EDU</td>
<td></td>
</tr>
<tr>
<td>1662100EDU</td>
<td></td>
</tr>
</tbody>
</table>

Components:

<table>
<thead>
<tr>
<th>Product code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>9704807</td>
<td>PV92 Homozygous (+/+ ) Control</td>
</tr>
<tr>
<td>9704808</td>
<td>PV92 Homozygous (-/-) Control</td>
</tr>
<tr>
<td>9704809</td>
<td>PV92 Heterozygous (+/-) Control</td>
</tr>
<tr>
<td>9704814</td>
<td>PV92 XC Loading Dye</td>
</tr>
<tr>
<td>7326030</td>
<td>InstaGene™ Matrix</td>
</tr>
<tr>
<td>10011393</td>
<td>GAP SEQ F Sequencing Primer</td>
</tr>
<tr>
<td>1613116</td>
<td>Agarose, Molecular Biology Certified™</td>
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<tr>
<td>1610743</td>
<td>50X Tris/Acetic Acid/EDTA Buffer</td>
</tr>
<tr>
<td>9703461S</td>
<td>EZ Load Precision Molecular Mass Standard Smp</td>
</tr>
<tr>
<td>9704810</td>
<td>PV92 Primer Mix for PCR (50x)</td>
</tr>
<tr>
<td>1665009</td>
<td>Master Mix for PCR (2X)</td>
</tr>
<tr>
<td>1660420</td>
<td>Fast Blast™ DNA Staining Solution</td>
</tr>
</tbody>
</table>
1 Identification of the substance/mixture and of the company/undertaking

- **Trade name:** PV92 Homozygous (+/+) Control
- **Catalog or product number:** 9704807
- **Application of the substance / the preparation** Laboratory chemicals
- **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:** 7732-18-5 water
  - **Identification number(s):**
    - **EC number:** 231-791-2
  - **Chemical characterization: Mixtures**
    - **Description:** Mixture of the substances listed below with non-hazardous additions.
  - **Listing of dangerous and non-hazardous components:** Void
  - **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)
# Material Safety Data Sheet

**Trade name:** PV92 Homozygous (+/+) Control

## 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**
  - 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.
- **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:**
    - 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**
  - 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.
## 9 Physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Detail</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>General Information</strong></td>
<td></td>
</tr>
<tr>
<td>Appearance:</td>
<td></td>
</tr>
<tr>
<td>Form</td>
<td>liquid</td>
</tr>
<tr>
<td>Color</td>
<td>Colorless</td>
</tr>
<tr>
<td>Odor</td>
<td>Odorless</td>
</tr>
<tr>
<td>Odour threshold</td>
<td>Not determined.</td>
</tr>
<tr>
<td>pH-value</td>
<td>Not determined.</td>
</tr>
<tr>
<td>Change in condition</td>
<td></td>
</tr>
<tr>
<td>Melting point/Melting range</td>
<td>0°C</td>
</tr>
<tr>
<td>Boiling point/Boiling range</td>
<td>100°C</td>
</tr>
<tr>
<td>Flash point</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>Flammability (solid, gaseous)</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>Ignition temperature</td>
<td></td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>Not determined.</td>
</tr>
<tr>
<td>Auto igniting</td>
<td>Product is not selfigniting.</td>
</tr>
<tr>
<td>Danger of explosion</td>
<td>Product does not present an explosion hazard.</td>
</tr>
<tr>
<td>Explosion limits</td>
<td></td>
</tr>
<tr>
<td>Lower</td>
<td>Not determined.</td>
</tr>
<tr>
<td>Upper</td>
<td>Not determined.</td>
</tr>
<tr>
<td>Vapor pressure at 20°C</td>
<td>23 hPa</td>
</tr>
<tr>
<td>Density at 20°C</td>
<td>1 g/cm³</td>
</tr>
<tr>
<td>Relative density</td>
<td>Not determined.</td>
</tr>
<tr>
<td>Vapour density</td>
<td>Not determined.</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>Not determined.</td>
</tr>
<tr>
<td>Solubility in / Miscibility with Water</td>
<td>Fully miscible.</td>
</tr>
<tr>
<td>Segregation coefficient (n-octonol/water)</td>
<td>Not determined.</td>
</tr>
</tbody>
</table>
Trade name: PV92 Homozygous (+/+) Control

- Viscosity:
  dynamic: Not determined.
  kinematic: Not determined.

- Solvent content:
  Organic solvents: 0.0 %
  Water: 99.9 %

- Solids content: 0.1 %

- Other information: 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: 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.
• 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, IMGD, 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 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):
  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.
Trade name: PV92 Homozygous (+/+ Control)

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

- **Product identifier**
  - **Trade name:** PV92 Homozygous (−/−) Control
  - **Catalog or product number:** 9704808
  - **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:**
    7732-18-5 water
  - **Identification number(s):**
    - **EC number:** 231-791-2

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

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

- **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).
# Material Safety Data Sheet

**Trade name:** PV92 Homozygous (-/-) Control

## 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** 
  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.
- **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:** 
  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** 
  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.
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 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: Colorless
    Odor: Odorless
    Odour threshold: Not determined.
  · pH-value: Not determined.

· Change in condition
  Melting point/Melting range: 0°C
  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: 1 g/cm³
  Relative density Not determined.
  Vapour density Not determined.
  Evaporation rate Not determined.

· Solubility in / Miscibility with
  Water: Fully miscible

· Segregation coefficient (n-octonol/water): Not determined.
Trade name: PV92 Homozygous (−/−) Control

- Viscosity:
  - dynamic: Not determined.
  - kinematic: Not determined.

- Solvent content:
  - Organic solvents: 0.0 %
  - Water: 99.9 %

- Solids content: 0.1 %

- Other information: 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.
Trade name: PV92 Homozygous (-/-) Control

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 Void
  - 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): 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.
Trade name: PV92 Homozygous (-/-) Control

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

- **Product identifier**
  - **Trade name:** PV92 Heterozygous (+/-) Control
  - **Catalog or product number:** 9704809
  - **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
  - **Address:** 2000 Alfred Nobel Drive
  - **City, State, Zip:** Hercules, California 94547
  - **Emergency telephone number:** 1(800)424-9300
  - **Use only in the event of a CHEMICAL EMERGENCY involving a SPILL, LEAK, FIRE, EXPLOSION or ACCIDENT.**
  - **Telephone:** (510)741-1000

- **Information department:** Technical services, customer support.

2 Composition/information on ingredients

- **Chemical characterization:** Substances
  - **CAS No. Description:** 7732-18-5 water
  - **Identification number(s):**
  - **EC number:** 231-791-2

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

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

- **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).
**Trade name:** PV92 Heterozygous (+/-) Control

- **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**
  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.
- **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:**
  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**
  No special measures required.
- **Information about protection against explosions and fires:** No special measures required.
- **Storage**
  No special measures required.
- **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.
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 Synthetich gloves
- Penetration time of glove material
  The exact breakthrough 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: Colorless
- Odor: Odorless
- Odour threshold: Not determined.
- pH-value: Not determined.

- Change in condition
  - Melting point/Melting range: 0°C
  - 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: 1 g/cm³
- Relative density Not determined.
- Vapour density Not determined.
- Evaporation rate Not determined.

- Solubility in / Miscibility with
  - Water: Fully miscible

- Segregation coefficient (n-octonol/water): Not determined.
Trade name: PV92 Heterozygous (+/-) Control

- Viscosity:
  - dynamic: Not determined.
  - kinematic: Not determined.

- Solvent content:
  - Organic solvents: 0.0%
  - Water: 99.9%

- Solids content: 0.1%

- Other information: 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.
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 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):**
    - 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.
**Trade name: PV92 Heterozygous (+/-) Control**

(Contd. of page 5)

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

- Product identifier
  - Trade name: PV92 XC Loading Dye
  - Catalog or product number: 9704814
  - 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

2 Composition/information on ingredients

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

<table>
<thead>
<tr>
<th>Listing of dangerous and non-hazardous components:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>7732-18-5 water</td>
<td>50-100%</td>
</tr>
<tr>
<td>56-81-5 glycerol</td>
<td>20-35%</td>
</tr>
</tbody>
</table>

- 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

- 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.

- Safety phrases:
  - 60 This material and its container must be disposed of as hazardous waste.

(Contd. on page 2)
Material Safety Data Sheet

Trade name: PV92 XC Loading Dye

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**
  No special measures required.
· **Information about protection against explosions and fires**: No special measures required.
· **Storage**
  According to product specification
  Not required.
  None.
  No further relevant information available.

8 Exposure controls/personal protection

· **Additional information about design of technical systems**: No further data; see item 7.
Trade name: PV92 XC Loading Dye

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

<table>
<thead>
<tr>
<th>56-81-5 glycerol</th>
</tr>
</thead>
<tbody>
<tr>
<td>PEL (15* 5** mg/m³)</td>
</tr>
<tr>
<td>TLV (10* ppm)</td>
</tr>
<tr>
<td>*total dust **respirable fraction</td>
</tr>
<tr>
<td>*Mist</td>
</tr>
</tbody>
</table>

- 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: | Whitish |
  - Odor: Odorless
  - Odour threshold: Not determined.
  - pH-value: Not determined.
- 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.
Solubility in / Miscibility with Water: Fully miscible

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

Viscosity:
  dynamic: Not determined.
  kinematic: Not determined.

Solvent content:
  Organic solvents: 29.9 %
  Water: 69.8 %

Solids content: 0.3 %

Other information 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.
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: Void
  - 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):
    All ingredients are listed.

- Carcinogenic categories

- EPA (Environmental Protection Agency)
  - None of the ingredients is listed.
Trade name: PV92 XC Loading Dye

- 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):

<table>
<thead>
<tr>
<th>Class</th>
<th>Share in %</th>
</tr>
</thead>
<tbody>
<tr>
<td>NK</td>
<td>20-35</td>
</tr>
</tbody>
</table>

- 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.
1 Identification of the substance/mixture and of the company/undertaking

- **Product identifier**
  - **Trade name:** InstaGene™ Matrix
  - **Catalog or product number:** 7326030, 7326030EDU, 9703407, 7323030-022, 9704837
  - **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
  - **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%
    - 68954-42-7 Polystyrene-divinylbenzene iminodiacetate  5-10%

- **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).

  - **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
  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.
· 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:
  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.
· 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.
**Trade name: InstaGene™ Matrix**

- **Breathing equipment**: Not required.
- **Protection of hands**: Protective gloves.
- **Material of gloves**: Synthetic gloves
- **Penetration time of glove material**: The exact breakthrough 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**: Suspension
  - **Color**: Whitish
- **Odor**: Odorless
- **Odour threshold**: Not determined.
- **pH-value**: Not determined.

- **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**
  - **Not determined**
  - **Relative density**: Not determined.
  - **Vapour density**: Not determined.
  - **Evaporation rate**: Not determined.

- **Solubility in / Miscibility with**
  - **Water**: Fully miscible

- **Segregation coefficient (n-octanol/water)**: Not determined.

- **Viscosity**
  - **dynamic**: Not determined.
  - **kinematic**: Not determined.

- **Solvent content**
  - **Organic solvents**: 0.0 %
  - **Water**: 94.0 %
Trade name: InstaGene™ Matrix

Solids content: 6.0 %
Other information: 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: 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.
- Uncleaned packagings:
  - Recommendation: Disposal must be made according to official regulations.
Material Safety Data Sheet

Trade name: InstaGene™ Matrix

(Contd. of page 4)

14 Transport information

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

15 Regulatory information

<table>
<thead>
<tr>
<th><strong>SARA (Superfund Amendments and Reauthorization Act of 1986 - USA)</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Section 302/304 (40CFR355.30 / 40CFR355.40):</strong></td>
</tr>
<tr>
<td>None of the ingredients is listed.</td>
</tr>
<tr>
<td><strong>Section 313 (40CFR372.65):</strong></td>
</tr>
<tr>
<td>None of the ingredients is listed.</td>
</tr>
<tr>
<td><strong>TSCA (Toxic Substances Control Act):</strong></td>
</tr>
<tr>
<td>All ingredients are listed.</td>
</tr>
<tr>
<td><strong>Carcinogenic categories</strong></td>
</tr>
<tr>
<td><strong>EPA (Environmental Protection Agency)</strong></td>
</tr>
<tr>
<td>None of the ingredients is listed.</td>
</tr>
<tr>
<td><strong>IARC (International Agency for Research on Cancer)</strong></td>
</tr>
<tr>
<td>None of the ingredients is listed.</td>
</tr>
<tr>
<td><strong>NTP (National Toxicology Program)</strong></td>
</tr>
<tr>
<td>None of the ingredients is listed.</td>
</tr>
<tr>
<td><strong>TLV (Threshold Limit Value established by ACGIH)</strong></td>
</tr>
<tr>
<td>None of the ingredients is listed.</td>
</tr>
<tr>
<td><strong>MAK (German Maximum Workplace Concentration)</strong></td>
</tr>
<tr>
<td>None of the ingredients is listed.</td>
</tr>
<tr>
<td><strong>NIOSH-Ca (National Institute for Occupational Safety and Health)</strong></td>
</tr>
<tr>
<td>None of the ingredients is listed.</td>
</tr>
</tbody>
</table>
Trade name: InstaGene™ Matrix

- 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

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

- **Product identifier**
  - **Trade name:** GAP SEQ F Sequencing Primer
  - **Catalog or product number:** 10011393, 10012367, 10014109
  - **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:**
    7732-18-5 water
  - **Identification number(s):**
  - **EC number:** 231-791-2

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

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

- **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)
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
  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.
- 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.
- 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.
#### 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** 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: Colorless
  - Odor: Odorless
  - Odor threshold: Not determined.
- **pH-value at 20°C:** 8

#### Change in condition

- **Melting point/Melting range:** 0°C
- **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:
1 g/cm³

#### Relative density
Not determined.

#### Vapour density
Not determined.

#### Evaporation rate
Not determined.

#### Solubility in / Miscibility with

- **Water:** Fully miscible

#### Segregation coefficient (n-octonol/water):
Not determined.
Trade name: GAP SEQ F Sequencing Primer

- Viscosity:  
  - dynamic: Not determined.  
  - kinematic: Not determined.

- Solvent content:  
  - Organic solvents: 0.0 %  
  - Water: 100.0 %  
  - Other information 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: Generally not hazardous for water.

13 Disposal considerations

- Waste treatment methods  
  - Recommendation 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.
Trade name: GAP SEQ F Sequencing Primer

- **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: 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):**
  - 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.
Trade name: GAP SEQ F Sequencing Primer

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

- **Product identifier**
  - Trade name: Agarose, Molecular Biology Certified™
  - Catalog or product number: 1613116, 9703683, 9702312
  - CAS Number: 9012-36-6
  - EC number: 232-731-8
  - **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: 9012-36-6 Agarose
  - Identification number(s): EC number: 232-731-8
  - 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:** 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:**
    Observe the general safety regulations when handling chemicals
    The substance is not subject to classification according to EU lists and other sources of literature known to us.
    The product is not subject to identification regulations under EU Directives and the Ordinance on Hazardous Materials (GefStoffV).

4 First aid measures

- **General information** No special measures required.
- **After inhalation** Supply fresh air; consult doctor in case of complaints.
**Trade name: Agarose, Molecular Biology Certified™**

- **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**
  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.
- **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**
  No special measures required.
- **Information about protection against explosions and fires:** No special measures required.
- **Storage**
  No 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.
- **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** 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.
9 Physical and chemical properties

- **General Information**
  - **Appearance:**
    - Form: Powder
    - Color: Whitish
  - **Odor:** Odorless
  - **Odour threshold:** Not determined.
  - **pH-value:** Not applicable.

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

- **Flash point:** Not applicable

- **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.
  - **Upper:** Not determined.

- **Vapor pressure:** Not applicable.

- **Density:**
  - Not determined
  - **Relative density:** Not determined.
  - **Vapour density:** Not applicable.
  - **Evaporation rate:** Not applicable.

- **Solubility in / Miscibility with**
  - **Water at 20°C:** 6 g/l
  - Fully miscible

- **Segregation coefficient (n-octanol/water):** Not determined.

- **Viscosity:**
  - **dynamic:** Not applicable.
  - **kinematic:** Not applicable.
  - **Organic solvents:** 0.0 %

- **Solids content:** 100.0 %

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

10 Stability and reactivity

- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
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:
  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.
  The substance is not subject to classification according to the latest version of the EU lists.
- 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: 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.
- Uncleaned packaging:
  - 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
### 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.
  - **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:** 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.

---

*USA*
Trade name: Agarose, Molecular Biology Certified™

- 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.
1 Identification of the substance/mixture and of the company/undertaking

- **Product identifier**
  - **Trade name:** 50X Tris/Acetic Acid/EDTA Buffer
  - **Catalog or product number:**
    - 1610743, 1610773, 9704629, 9703685, 9702659, 1660742, 1660742EDU, 1610743EDU, 1610773EDU
  - **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
  - **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.

<table>
<thead>
<tr>
<th>Listing of dangerous and non-hazardous components:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>7732-18-5 water</td>
<td>50-100%</td>
</tr>
<tr>
<td>77-86-1 Tris(hydroxymethyl)aminomethane</td>
<td>Xn R22</td>
</tr>
<tr>
<td></td>
<td>Xi R36</td>
</tr>
<tr>
<td></td>
<td>20-35%</td>
</tr>
<tr>
<td>127-09-3 sodium acetate</td>
<td>10-20%</td>
</tr>
<tr>
<td>6381-92-6 Ethylenediaminetetraacetic acid disodium salt dihydrate</td>
<td>Xn R22</td>
</tr>
<tr>
<td></td>
<td>Xi R36/37/38</td>
</tr>
<tr>
<td></td>
<td>1.0-2.5%</td>
</tr>
</tbody>
</table>

- **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**
    - Xn; Harmful
  - **R22:** Harmful if swallowed.

- **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.

(Contd. on page 2)
Trade name: 50X Tris/Acetic Acid/EDTA Buffer

- 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

- Risk phrases: 22 Harmful if swallowed.
- Safety phrases:
  - 26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
  - 36 Wear suitable protective clothing.
  - 60 This material and its container must be disposed of as hazardous waste.

Emergency overview:
- Routes of exposure: Ingestion

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; 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. Then consult a doctor.
- After swallowing
  Immediately call a doctor.

5 Firefighting measures
- 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.
- 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
  See Section 7 for information on safe handling

(Contd. of page 1)
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.
- **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.
- **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**
  Keep away from foodstuffs, beverages and feed.
  Wash hands before breaks and at the end of work.
- **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: Colorless
  - Odor: Odorless
  - Odour threshold: Not determined.
- **pH-value at 20°C:** 7.1
- **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:

- Not determined

#### Relative density

- Not determined.

#### Vapour density

- Not determined.

#### Evaporation rate

- Not determined.

### Solubility in / Miscibility with Water:

- Fully miscible

### Segregation coefficient (n-octanol/water):

- Not determined.

### Viscosity:

- **Dynamic:** Not determined.
- **Kinematic:** Not determined.

### Solvent content:

- **Organic solvents:** 0.0 %
- **Water:** 60.3 %

### Solids content:

- 39.7 %

### Other information

- 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:**
    - 77-86-1 Tris(hydroxymethyl)aminomethane
      - Oral LD50 5900 mg/kg (rat)
    - 127-09-3 sodium acetate
      - Oral LD50 3530 mg/kg (rat)
Trade name: 50X Tris/Acetic Acid/EDTA Buffer

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

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 Void
- **Packing group**
  - DOT, ADR, IMDG, IATA Void
- **Environmental hazards:**
  - Marine pollutant: No

(Contd. on page 6)
Trade name: 50X Tris/Acetic Acid/EDTA Buffer

<table>
<thead>
<tr>
<th>· Special precautions for user</th>
<th>Not applicable.</th>
</tr>
</thead>
<tbody>
<tr>
<td>· Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code</td>
<td>Not applicable.</td>
</tr>
</tbody>
</table>

### 15 Regulatory information

<table>
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<tbody>
<tr>
<td>· Section 302/304 (40CFR355.30 / 40CFR355.40):</td>
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<tr>
<td>None of the ingredients is listed.</td>
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<tr>
<td>· Section 313 (40CFR372.65):</td>
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<tr>
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<tr>
<td>· TSCA (Toxic Substances Control Act):</td>
</tr>
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<td>127-09-3 sodium acetate</td>
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<td>· Carcinogenic categories</td>
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<td>· NTP (National Toxicology Program)</td>
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<tr>
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</tr>
<tr>
<td>· TLV (Threshold Limit Value established by ACGIH)</td>
</tr>
<tr>
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</tr>
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<td>· NIOSH-Ca (National Institute for Occupational Safety and Health)</td>
</tr>
<tr>
<td>None of the ingredients is listed.</td>
</tr>
<tr>
<td>· OSHA-Ca (Occupational Safety &amp; Health Administration)</td>
</tr>
<tr>
<td>None of the ingredients is listed.</td>
</tr>
<tr>
<td>· National regulations</td>
</tr>
<tr>
<td>· Water hazard class: Water hazard class 1 (Self-assessment): slightly hazardous for water.</td>
</tr>
</tbody>
</table>

### 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 |

(Contd. on page 7)
Trade name: 50X Tris/Acetic Acid/EDTA Buffer

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

* Data compared to the previous version altered.
1 Identification of the substance/mixture and of the company/undertaking

- Product identifier
  - Trade name: EZ Load Precision Molecular Mass Standard Smp
  - Catalog or product number: 9703461S
  - 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.

<table>
<thead>
<tr>
<th>Listing of dangerous and non-hazardous components:</th>
</tr>
</thead>
<tbody>
<tr>
<td>7732-18-5  water  50-100%</td>
</tr>
<tr>
<td>56-81-5    glycerol  5-10%</td>
</tr>
</tbody>
</table>

- 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).
- Safety phrases:
  60 This material and its container must be disposed of as hazardous waste.

(Contd. on page 2)
Material Safety Data Sheet

Trade name: EZ Load Precision Molecular Mass Standard Smp

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**: 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.
- **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.
- **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**: No special measures required.
- **Information about protection against explosions and fires**: No special measures required.
- **Storage**: According to product specification
- **Requirements to be met by storerooms and receptacles**: Not required.
- **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**: 56-81-5 glycerol
PEL () 15\* 5** mg/m³  
*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 breakthrough 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

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>General Information</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Appearance:</strong></td>
<td></td>
</tr>
<tr>
<td>Form:  Solution</td>
<td></td>
</tr>
<tr>
<td>Color: Whitish</td>
<td></td>
</tr>
<tr>
<td>Odor: Odorless</td>
<td></td>
</tr>
<tr>
<td>Odour threshold:</td>
<td>Not determined.</td>
</tr>
<tr>
<td>pH-value at 20°C:</td>
<td>8</td>
</tr>
<tr>
<td><strong>Change in condition</strong></td>
<td></td>
</tr>
<tr>
<td>Melting point/Melting range:</td>
<td>undetermined</td>
</tr>
<tr>
<td>Boiling point/Boiling range:</td>
<td>100°C</td>
</tr>
<tr>
<td><strong>Flash point:</strong></td>
<td>Not applicable</td>
</tr>
<tr>
<td><strong>Flammability (solid, gaseous)</strong></td>
<td>Not applicable.</td>
</tr>
<tr>
<td><strong>Ignition temperature:</strong></td>
<td>400°C</td>
</tr>
<tr>
<td><strong>Decomposition temperature:</strong></td>
<td>Not determined.</td>
</tr>
<tr>
<td><strong>Auto igniting:</strong></td>
<td>Product is not selfigniting.</td>
</tr>
<tr>
<td><strong>Danger of explosion:</strong></td>
<td>Product does not present an explosion hazard.</td>
</tr>
<tr>
<td><strong>Explosion limits:</strong></td>
<td></td>
</tr>
<tr>
<td>Lower:</td>
<td>Not determined.</td>
</tr>
<tr>
<td>Upper:</td>
<td>Not determined.</td>
</tr>
<tr>
<td><strong>Vapor pressure at 20°C:</strong></td>
<td>23 hPa</td>
</tr>
<tr>
<td><strong>Density:</strong></td>
<td>Not determined.</td>
</tr>
<tr>
<td>Relative density:</td>
<td>Not determined.</td>
</tr>
<tr>
<td>Vapour density:</td>
<td>Not determined.</td>
</tr>
<tr>
<td>Evaporation rate:</td>
<td>Not determined.</td>
</tr>
<tr>
<td><strong>Solubility in / Miscibility with</strong></td>
<td></td>
</tr>
<tr>
<td>Water:</td>
<td>Fully miscible</td>
</tr>
<tr>
<td><strong>Segregation coefficient (n-octanol/water):</strong></td>
<td>Not determined.</td>
</tr>
</tbody>
</table>
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: 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.
Material Safety Data Sheet

Trade name: EZ Load Precision Molecular Mass Standard Smp

- Uncleaned packaging:
- 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 Void
- 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
  - 77-86-1 Tris(hydroxymethyl)aminomethane
  - 2650-17-1 Xylene cyanole FF
  - 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.
Material Safety Data Sheet

Trade name: EZ Load Precision Molecular Mass Standard Smp

- **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):**

<table>
<thead>
<tr>
<th>Class</th>
<th>Share in %</th>
</tr>
</thead>
<tbody>
<tr>
<td>NK</td>
<td>5-10</td>
</tr>
</tbody>
</table>

- **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.*
# 1 Identification of the substance/mixture and of the company/undertaking

- **Product identifier**
  - **Trade name:** PV92 Primer Mix for PCR (50x)
  - **Catalog or product number:** 9704810
  - **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:** 7732-18-5 water
  - **Chemical characterization: Mixtures**
    - **Description:** Mixture of the substances listed below with non-hazardous additions.
  - **Listing of dangerous and non-hazardous components:** Void
  - **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)
Material Safety Data Sheet

Trade name: PV92 Primer Mix for PCR (50x)

- 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: 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.
- 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: 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: 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.
Trade name: PV92 Primer Mix for PCR (50x)

- **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** 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: Colorless
- **Odor:** Odorless
- **Odour threshold:** Not determined.
- **pH-value:** Not determined.
- **Change in condition**
  - Melting point/Melting range: 0°C
  - 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:** 1 g/cm³
- **Relative density** Not determined.
- **Vapour density** Not determined.
- **Evaporation rate** Not determined.
- **Solubility in / Miscibility with**
  - Water: Fully miscible
- **Segregation coefficient (n-octonol/water):** Not determined.

(Contd. on page 4)
Trade name: PV92 Primer Mix for PCR (50x)

- **Viscosity:**
  - dynamic: Not determined.
  - kinematic: Not determined.

- **Solvent content:**
  - Organic solvents: 0.0 %
  - Water: 99.7 %

- **Solids content:**
  - 0.3 %

- **Other information:**
  - 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.
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: Void
  - 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): 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.
Trade name: PV92 Primer Mix for PCR (50x)

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

- Product identifier
  - **Trade name:** Master Mix for PCR (2X)
  - **Catalog or product number:** 1665009, 1665009EDU, 10007984, 10009191
  - **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
  - **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:** 7732-18-5 water
  - **Identification number(s):**
  - **EC number:** 231-791-2

- **Chemical characterization: Mixtures**
  - **Description:** Mixture of the substances listed below with non-hazardous additions.
  - **Listing of dangerous and non-hazardous components:** Void
  - **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)
Trade name: Master Mix for PCR (2X)

· 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
  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.
· 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.
· 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.
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 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: Colorless
Odor: Odorless
Odoour threshold: Not determined.

pH-value at 20°C: 8.5

Change in condition
Melting point/Melting range: 0°C
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: 1 g/cm³
Relative density Not determined.
Vapour density Not determined.
Evaporation rate Not determined.

Solubility in / Miscibility with
Water: Fully miscible

Segregation coefficient (n-octonol/water): Not determined.
Material Safety Data Sheet

Trade name: Master Mix for PCR (2X)

- Viscosity:
  - dynamic: Not determined.
  - kinematic: Not determined.

- Solvent content:
  - Organic solvents: 0.0%
  - Water: 99.8%

- Solids content: 0.2%

- Other information: 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: 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.
Material Safety Data Sheet

Trade name: Master Mix for PCR (2X)

- 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: Void
  - 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
  Proprietary Reagent KL
- 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 & 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.**
1 Identification of the substance/mixture and of the company/undertaking

- **Product identifier**
  - **Trade name:** Fast Blast™ DNA Staining Solution
  - **Catalog or product number:** 1660420, 9704664, 9704659, 1660420EDU
  - **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:** 7732-18-5 water
  - **Identification number(s):**
    - **EC number:** 231-791-2

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

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

- **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:**
  - **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)
### 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**
  - 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.
- **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**
  - 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.
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 Synthetic gloves

Penetration time of glove material
The exact breakthrough 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: Blue
Odor: Odorless
Odour threshold: Not determined.

pH-value at 20°C: 7.7

Change in condition
Melting point/Melting range: 0°C
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: 1 g/cm³
Relative density Not determined.
Vapour density Not determined.
Evaporation rate Not determined.

Solubility in / Miscibility with
Water: Fully miscible

Segregation coefficient (n-octonol/water): Not determined.
Material Safety Data Sheet

Trade name: Fast Blast™ DNA Staining Solution

- Viscosity:
  - dynamic: Not determined.
  - kinematic: Not determined.

- Solvent content:
  - Organic solvents: 0.0 %
  - Water: 99.4 %

- Solids content: 0.3 %

- Other information
  - 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.
**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):**
  - 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.
**Trade name: Fast Blast™ DNA Staining Solution**

- **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.*