



08/01/2011

### Kit Components

Product code	Description
<b>3600001</b>	<b>CWD Test Kit</b>

Components:

3551159	BSE Proteinase K
3551102C	Grinding Tube
3551102CA	Reagent A - Denaturing Solution
1641	Reagent B - Clarifying Solution
3551102C1	Reagent C1 - Resolving Solution
861365	R2 - Washing Solution
3551103C3	R3 - Negative Control
3551103C4	R4 - Positive Control
3551103C6	R6 - Sample Diluent
3551103C7	R7- Concentrated (10X) Conjugate
861207	R8 - Peroxidase Substrate Buffer
861204	R9 - Chromogen: TMB Solution
861206	R10 - Stopping Solution
3551103C1	R1 - Solid Phase Antibody

## Material Safety Data Sheet

Printing date 08/01/2011

Reviewed on 08/01/2011

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

- **Product identifier**
- **Trade name:** BSE Proteinase K
- **Catalog or product number:** 3551159, 3551100
- **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**

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

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

7732-18-5	water		50-100%
39450-01-6	Proteinase, Tritirachium album serine	Xi R36/37/38	1.0-2.5%

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

**3 Hazards identification**

- **Classification of the substance or mixture**
- **Classification according to Directive 67/548/EEC or Directive 1999/45/EC** Void
- **Information concerning particular hazards for human and environment:**  
The product does not have to be labelled due to the calculation procedure of the "General Classification guideline for preparations of the EU" in the latest valid version.
- **Classification system:**  
The classification was made according to the latest editions of the EU-lists, and expanded upon from company and literature data.  
The classification was made according to OSHA 29CFR 1910.1200 and 1910.1030, and is expanded upon from company and/or literature information.
- **Label elements**
- **Labelling according to EU guidelines:**  
Observe the general safety regulations when handling chemicals  
The product is not subject to identification regulations under EU Directives and the Ordinance on Hazardous Materials (GefStoffV).
- **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.

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**Trade name: BSE Proteinase K**

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- **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:** 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.

**7 Handling and storage**

- **Handling**
- **Precautions for safe handling**  
No special measures required.  
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:**

**56-81-5 glycerol**

PEL	15*; 5** mg/m <sup>3</sup>
	*Total dust **Respirable fraction

- **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

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**Material Safety Data Sheet**

Printing date 08/01/2011

Reviewed on 08/01/2011

**Trade name: BSE Proteinase K**

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- **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
- **pH-value at 20°C:** 7
- **Change in condition**
  - Melting point/Melting range:** undetermined
  - Boiling point/Boiling range:** 100°C
- **Flash point:** Not applicable
- **Auto igniting:** Product is not selfigniting.
- **Danger of explosion:** Product does not present an explosion hazard.
- **Vapor pressure at 20°C:** 23 hPa
- **Density:** Not determined
- **Solubility in / Miscibility with**
  - Water:** Soluble
- **Solvent content:**
  - Organic solvents:** 2.3 %
  - Water:** 95.0 %
- **Solids content:** 2.7 %
- **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:**
- **Primary irritant effect:**
  - **on the skin:** No irritant effect.
  - **on the eye:** No irritant effect.
- **Sensitization:** No sensitizing effects known.

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**Material Safety Data Sheet**

Printing date 08/01/2011

Reviewed on 08/01/2011

**Trade name: BSE Proteinase K**

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**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.

· **Uncleaned packagings:**

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

**14 Transport information**

· **UN-Number**

· **DOT, ADR, ADN, IMDG, IATA** Void

· **UN proper shipping name**

· **DOT, ADR, ADN, IMDG, IATA** Void

· **Transport hazard class(es)**

· **DOT, ADR, ADN, IMDG, IATA**

· **Class** Void

· **Packing group**

· **DOT, ADR, IMDG, IATA** Void

· **Environmental hazards:**

· **Marine pollutant:** No

· **Special precautions for user**

Not applicable.

· **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**

Not applicable.

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Printing date 08/01/2011

Reviewed on 08/01/2011

**Trade name: BSE Proteinase K**

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**· 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

143-74-8 phenol red

**· 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.

**· Markings 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.

**· National regulations**

**· Technical instructions (air):**

Class	Share in %
NK	1.0-2.5

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**Material Safety Data Sheet**

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**Trade name: BSE Proteinase K**

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

**16 Other information**

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

- **Department issuing MSDS:** Environmental Health and Safety.

- **Contact:**

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

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

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

## Material Safety Data Sheet

Printing date 08/01/2011

Reviewed on 08/01/2011

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

- **Product identifier**
- **Trade name:** Grinding Tube
- **Catalog or product number:** 3551102C, 5144A
- **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
- **Additional information:** For the wording of the listed risk phrases refer to section 15.

· <b>Listing of dangerous and non-hazardous components:</b>	
50-99-7	glucose
	2.5-5%

**3 Hazards identification**

- **Classification of the substance or mixture**
- **Classification according to Directive 67/548/EEC or Directive 1999/45/EC** Void
- **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).
- **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.

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**Material Safety Data Sheet**

Printing date 08/01/2011

Reviewed on 08/01/2011

**Trade name: Grinding Tube**

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- **After skin contact** Generally the product does not irritate the skin.
- **After eye contact** Rinse opened eye for several minutes under running water.
- **After swallowing** Induce vomiting and call for medical help.

**5 Firefighting measures**

- **Suitable extinguishing agents**  
CO<sub>2</sub>, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- **Special hazards arising from the substance or mixture** No further relevant information available.
- **Protective equipment:** No special measures required.

**6 Accidental release measures**

- **Personal precautions, protective equipment and emergency procedures**  
Wear protective equipment (See section 8). Keep unprotected persons away.
- **Environmental precautions:** No special measures required.
- **Methods and material for containment and cleaning up:**  
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
- **Reference to other sections** No dangerous substances are released.

**7 Handling and storage**

- **Handling**
- **Precautions for safe handling**  
No special measures required.  
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:**

**26628-22-8 sodium azide**

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

- **Additional information:** The lists that were valid during the creation were used as basis.
- **Personal protective equipment**
- **General protective and hygienic measures** The usual precautionary measures for handling chemicals should be followed.
- **Breathing equipment:** Not required.
- **Protection of hands:** Protective gloves.

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**Material Safety Data Sheet**

Printing date 08/01/2011

Reviewed on 08/01/2011

**Trade name: Grinding Tube**

(Contd. of page 2)

- **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
- **pH-value at 20°C:** 7
- **Change in condition**
  - Melting point/Melting range:** 0°C
  - Boiling point/Boiling range:** 100°C
- **Flash point:** Not applicable
- **Danger of explosion:** Product does not present an explosion hazard.
- **Vapor pressure at 20°C:** 23 hPa
- **Density at 20°C:** 1 g/cm<sup>3</sup>
- **Solubility in / Miscibility with**
  - Water:** Insoluble
- **Solvent content:**
  - Organic solvents:** 0.0 %
  - Water:** 95.1 %
- **Solids content:** 4.9 %
- **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:**  
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.

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**Material Safety Data Sheet**

Printing date 08/01/2011

Reviewed on 08/01/2011

**Trade name: Grinding Tube**

(Contd. of page 3)

The substance is not subject to classification according to the latest version of the EU lists.

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

**14 Transport information**

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

**15 Regulatory information**

· **SARA (Superfund Amendments and Reauthorization Act of 1986 - USA)**

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

None of the ingredients is listed.

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**Material Safety Data Sheet**

Printing date 08/01/2011

Reviewed on 08/01/2011

**Trade name: Grinding Tube**

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· **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)**

26628-22-8 sodium azide

A4

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

None of the ingredients is listed.

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

None of the ingredients is listed.

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

None of the ingredients is listed.

· **Markings 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).

· **Safety phrases:**

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

· **National regulations**

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

**16 Other information**

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

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

· **Contact:**

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

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

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

## Material Safety Data Sheet

Printing date 08/01/2011

Reviewed on 08/01/2011

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

- **Product identifier**
- **Trade name:** Reagent A - Denaturing Solution
- **Catalog or product number:** 3551102CA, 5144B
- **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**

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

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

7732-18-5	water		50-100%
57-13-6	urea		5-10%
9002-93-1	Triton X-100	Xn R22 Xi R41	5-10%
137-16-6	Sodium N-lauroylsarcosinate		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).

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USA

## Material Safety Data Sheet

Printing date 08/01/2011

Reviewed on 08/01/2011

Trade name: Reagent A - Denaturing Solution

(Contd. of page 1)

· **Safety phrases:**

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

**4 First aid measures**

- **General information** No special measures required.
- **After inhalation** Supply fresh air; consult doctor in case of complaints.
- **After skin contact** Generally the product does not irritate the skin.
- **After eye contact** Rinse opened eye for several minutes under running water.
- **After swallowing** Induce vomiting and call for medical help.

**5 Firefighting measures**

- **Suitable extinguishing agents**  
CO<sub>2</sub>, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- **Special hazards arising from the substance or mixture** No further relevant information available.
- **Protective equipment:** No special measures required.

**6 Accidental release measures**

- **Personal precautions, protective equipment and emergency procedures**  
Wear protective equipment (See section 8). Keep unprotected persons away.
- **Environmental precautions:**  
Dilute with plenty of water.  
Do not allow to enter sewers/ surface or ground water.
- **Methods and material for containment and cleaning up:**  
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
- **Reference to other sections** No dangerous substances are released.

**7 Handling and storage**

- **Handling**
- **Precautions for safe handling**  
No special measures required.  
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.

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**Material Safety Data Sheet**

Printing date 08/01/2011

Reviewed on 08/01/2011

**Trade name: Reagent A - Denaturing Solution**

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

**57-13-6 urea**

WEEL () 10 mg/m<sup>3</sup>

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

· **Personal protective equipment**

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

· **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

· **pH-value at 20°C:** 7

· **Change in condition**

Melting point/Melting range: undetermined

Boiling point/Boiling range: 100°C

· **Flash point:** Not applicable

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

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

· **Vapor pressure at 20°C:** 23 hPa

· **Density:** Not determined

· **Solubility in / Miscibility with**

Water: Fully miscible

· **Solvent content:**

Organic solvents: 0.0 %

Water: 73.4 %

Solids content: 26.2 %

· **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.

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**Material Safety Data Sheet**

Printing date 08/01/2011

Reviewed on 08/01/2011

**Trade name: Reagent A - Denaturing Solution**

(Contd. of page 3)

· **Hazardous decomposition products:** No dangerous decomposition products known

**11 Toxicological information**

· **Acute toxicity:**

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

**57-13-6 urea**

Oral	LD50	14500 mg/kg (rat)
------	------	-------------------

**9002-93-1 Triton X-100**

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

· **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 2 (Self-assessment): hazardous for water.

Do not allow product to reach ground water, water course or sewage system.

Danger to drinking water if even small quantities leak into the ground.

**13 Disposal considerations**

· **Waste treatment methods**

· **Recommendation** Hand over to hazardous waste disposers.

· **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

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**Material Safety Data Sheet**

Printing date 08/01/2011

Reviewed on 08/01/2011

**Trade name: Reagent A - Denaturing Solution**

(Contd. of page 4)

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

**15 Regulatory information**

· **SARA (Superfund Amendments and Reauthorization Act of 1986 - USA)**

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

None of the ingredients is listed.

· **Section 313 (40CFR372.65):**

None of the ingredients is listed.

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

All ingredients are listed.

· **Carcinogenic categories**

· **EPA (Environmental Protection Agency)**

None of the ingredients is listed.

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

None of the ingredients is listed.

· **NTP (National Toxicology Program)**

None of the ingredients is listed.

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

None of the ingredients is listed.

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

None of the ingredients is listed.

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

None of the ingredients is listed.

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

None of the ingredients is listed.

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**Material Safety Data Sheet**

Printing date 08/01/2011

Reviewed on 08/01/2011

**Trade name: Reagent A - Denaturing Solution**

(Contd. of page 5)

**· Markings 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.

**· National regulations**

· **Water hazard class:** Water hazard class 2 (Self-assessment): hazardous for water.

**16 Other information**

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

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

**· Contact:**

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

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

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

## Material Safety Data Sheet

Printing date 08/01/2011

Reviewed on 09/09/2010



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

- **Product identifier**
- **Trade name:** Reagent B - Clarifying Solution
- **Catalog or product number:** 1641
- **CAS Number:**  
71-36-3
- **EC number:**  
200-751-6
- **Index number:**  
603-004-00-6
- **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:**  
71-36-3 butan-1-ol
- **Identification number(s):**
- **EC number:** 200-751-6
- **Index number:** 603-004-00-6
- **Additional information:** For the wording of the listed risk phrases refer to section 15.

## 3 Hazards identification

- **Classification of the substance or mixture**
- **Classification according to Directive 67/548/EEC or Directive 1999/45/EC**  
Irritant to skin.  
Flammable.  
May cause irreversible eye damage.  
Irritant to respiratory system.  
Irritant to respiratory system and skin.
-  Xn; Harmful  
R22: Harmful if swallowed.
-  Xi; Irritant  
R37/38-41: Irritating to respiratory system and skin. Risk of serious damage to eyes.
- R10: Flammable.

(Contd. on page 2)

USA

## Material Safety Data Sheet

Printing date 08/01/2011

Reviewed on 09/09/2010

Trade name: Reagent B - Clarifying Solution

(Contd. of page 1)

· **Classification system:**

The classification was made according to OSHA 29CFR 1910.1200 and 1910.1030, and is expanded upon from company and/or literature information.

· **Label elements**· **Labelling according to EU guidelines:**

The product has been classified and marked in accordance with EU Directives / Ordinance on Hazardous Materials

· **Code letter and hazard designation of product:**

Xn Harmful

· **Risk phrases:**

- 10 Flammable.
- 22 Harmful if swallowed.
- 37/38 Irritating to respiratory system and skin.
- 41 Risk of serious damage to eyes.

· **Safety phrases:**

- 26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
- 36/37/39 Wear suitable protective clothing, gloves and eye/face protection.
- 43 In case of fire, use sand, carbon dioxide or powdered extinguishing agent. Never use water.
- 60 This material and its container must be disposed of as hazardous waste.

· **Emergency overview:**· **Routes of exposure:**

Ingestion  
Inhalation  
Skin

#### 4 First aid measures

· **General information**

Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.

· **After inhalation** In case of unconsciousness place patient stably in side position for transportation.

· **After skin contact** Immediately wash with water and soap and rinse thoroughly.

· **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** CO<sub>2</sub>, sand, extinguishing powder. Do not use water.

· **For safety reasons unsuitable extinguishing agents**

Water.

Water with full jet.

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

· **Protective equipment:** Wear self-contained respiratory protective device.

#### 6 Accidental release measures

· **Personal precautions, protective equipment and emergency procedures**

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

(Contd. on page 3)

**Material Safety Data Sheet**

Printing date 08/01/2011

Reviewed on 09/09/2010

**Trade name: Reagent B - Clarifying Solution**

(Contd. of page 2)

- **Environmental precautions:** Do not allow to enter sewers/ surface or ground water.
- **Methods and material for containment and cleaning up:**  
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).  
Dispose contaminated material as waste according to item 13.  
Ensure adequate ventilation.  
Do not flush with water or aqueous cleansing agents
- **Reference to other sections**  
See Section 8 for information on personal protection equipment.  
See Section 13 for disposal information.

**7 Handling and storage**

- **Handling**
- **Precautions for safe handling** No special precautions are necessary if used correctly.
- **Information about protection against explosions and fires:**  
Keep ignition sources away - Do not smoke.  
Protect against electrostatic charges.
- **Storage**
- **Requirements to be met by storerooms and receptacles:** According to product specification
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:** Keep receptacle tightly sealed.
- **Specific end use(s)** No further relevant information available.

**8 Exposure controls/personal protection**

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

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

**71-36-3 butan-1-ol**

PEL ()	300 mg/m <sup>3</sup> , 100 ppm
REL ()	Short-term value: C 150 mg/m <sup>3</sup> , C 50 ppm Skin
TLV ()	61 mg/m <sup>3</sup> , 20 ppm

- **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.  
Immediately remove all soiled and contaminated clothing  
Wash hands before breaks and at the end of work.  
Avoid contact with the skin.  
Avoid contact with the eyes and skin.
- **Breathing equipment:**  
In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.
- **Protection of hands:** Protective gloves.
- **Material of gloves** Synthetic gloves
- **Penetration time of glove material**  
The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
- **Eye protection:**  
Safety glasses

(Contd. on page 4)

**Material Safety Data Sheet**

Printing date 08/01/2011

Reviewed on 09/09/2010

**Trade name: Reagent B - Clarifying Solution**

Tightly sealed goggles.

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**9 Physical and chemical properties**

**· General Information**

**· Appearance:**

**Form:** liquid  
**Color:** Colorless  
**Odor:** Alcohol-like

**· Change in condition**

**Melting point/Melting range:** -89°C  
**Boiling point/Boiling range:** 116°C

**· Flash point:** 21 - 55°C

**· Ignition temperature:** 340°C

**· Danger of explosion:** Product is not explosive. However, formation of explosive air/vapor mixtures are possible.

**· Explosion limits:**

**Lower:** 1.5 Vol %  
**Upper:** 9.4 Vol %

**· Vapor pressure at 20°C:** 6.7 hPa

**· Density at 20°C:** 0.81 g/cm<sup>3</sup>

**· Solubility in / Miscibility with**

**Water at 20°C:** 77 g/l  
**Organic solvents:** 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:**

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

**71-36-3 butan-1-ol**

Oral	LD50	790 mg/kg (rat)
Dermal	LD50	3400 mg/kg (rbt)
Inhalative	LC50/4 h	8000 mg/l (rat)

**· Primary irritant effect:**

- **on the skin:** Irritant to skin and mucous membranes.
- **on the eye:** Strong irritant with the danger of severe eye injury.

(Contd. on page 5)

**Material Safety Data Sheet**

Printing date 08/01/2011

Reviewed on 09/09/2010

**Trade name: Reagent B - Clarifying Solution**

(Contd. of page 4)

Irritant effect.

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

· **Target organs:**

Skin.

Eye.

**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) (Assessment by list): 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.

**14 Transport information**

· **UN-Number**

· **DOT**

UN1120

· **ADR, IMDG, IATA**

1120

· **UN proper shipping name**

· **DOT, IMDG, IATA**

BUTANOLS, mixture

· **ADR**

1120 BUTANOLS, mixture

· **Transport hazard class(es)**

· **DOT, IMDG, IATA**

· **Class**

3 Flammable liquids.

· **Label**

3

· **ADR**

· **Class**

3 Flammable liquids

· **Label**

3

· **Packing group**

· **DOT, ADR, IMDG, IATA**

III

(Contd. on page 6)

**Material Safety Data Sheet**

Printing date 08/01/2011

Reviewed on 09/09/2010

**Trade name: Reagent B - Clarifying Solution**

(Contd. of page 5)

- **Environmental hazards:**
- **Marine pollutant:** No
- **Special precautions for user:** Warning: Flammable liquids
- **Danger code (Kemler):** 30
- **EMS Number:** F-E,S-D
- **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code:** Not applicable.

**15 Regulatory information**

· **SARA (Superfund Amendments and Reauthorization Act of 1986 - USA)**

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

Substance not listed.

· **Section 313 (40CFR372.65):**

Substance is listed.

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

Substance is listed.

· **Carcinogenic categories**

· **EPA (Environmental Protection Agency)**

71-36-3 butan-1-ol

D

· **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.

· **Markings 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:**

- 10 Flammable.
- 22 Harmful if swallowed.
- 37/38 Irritating to respiratory system and skin.
- 41 Risk of serious damage to eyes.

(Contd. on page 7)



## Material Safety Data Sheet

Printing date 08/01/2011

Reviewed on 09/09/2010

Trade name: Reagent B - Clarifying Solution

(Contd. of page 6)

· **Safety phrases:**

- 26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.  
 36/37/39 Wear suitable protective clothing, gloves and eye/face protection.  
 43 In case of fire, use sand, carbon dioxide or powdered extinguishing agent. Never use water.  
 60 This material and its container must be disposed of as hazardous waste.

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

Class	Share in %
NK	50-100

- **Water hazard class:** Water hazard class 1 (Assessment by list): slightly hazardous for water.

**16 Other information**

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

- **Department issuing MSDS:** Environmental Health and Safety.

· **Contact:**

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

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

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

## Material Safety Data Sheet

Printing date 08/01/2011

Reviewed on 08/01/2011

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

- **Product identifier**
- **Trade name:** Reagent C1 - Resolving Solution
- **Catalog or product number:** 3551102C1, 5144D
- **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**

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

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

7732-18-5	water	50-100%
57-13-6	urea	20-35%

- **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.

(Contd. on page 2)

USA

**Material Safety Data Sheet**

Printing date 08/01/2011

Reviewed on 08/01/2011

**Trade name: Reagent C1 - Resolving Solution**

(Contd. of page 1)

- **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.  
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.

**7 Handling and storage**

- **Handling**
- **Precautions for safe handling**  
No special measures required.  
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:**

**57-13-6 urea**

WEEL () 10 mg/m<sup>3</sup>

- **Additional information:** The lists that were valid during the creation were used as basis.
- **Personal protective equipment**
- **General protective and hygienic measures** The usual precautionary measures for handling chemicals should be followed.
- **Breathing equipment:** Not required.
- **Protection of hands:** Protective gloves.

(Contd. on page 3)

**Material Safety Data Sheet**

Printing date 08/01/2011

Reviewed on 08/01/2011

**Trade name: Reagent C1 - Resolving Solution**

(Contd. of page 2)

- **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:** Green
  - Odor:** Odorless
- **pH-value at 20°C:** 7
- **Change in condition**
  - Melting point/Melting range:** undetermined
  - Boiling point/Boiling range:** 100°C
- **Flash point:** Not applicable
- **Auto igniting:** Product is not selfigniting.
- **Danger of explosion:** Product does not present an explosion hazard.
- **Vapor pressure at 20°C:** 23 hPa
- **Density:** Not determined
- **Solubility in / Miscibility with**
  - Water:** Fully miscible
- **Solvent content:**
  - Organic solvents:** 0.0 %
  - Water:** 73.2 %
- **Solids content:** 26.8 %
- **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:**
- |                     |      |                   |
|---------------------|------|-------------------|
| <b>57-13-6 urea</b> |      |                   |
| Oral                | LD50 | 14500 mg/kg (rat) |

(Contd. on page 4)

**Material Safety Data Sheet**

Printing date 08/01/2011

Reviewed on 08/01/2011

**Trade name: Reagent C1 - Resolving Solution**

(Contd. of page 3)

- **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.
- **Uncleaned packagings:**
- **Recommendation:** Disposal must be made according to official regulations.
- **Recommended cleansing agent:** Water, if necessary with cleansing agents.

**14 Transport information**

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

(Contd. on page 5)

**Material Safety Data Sheet**

Printing date 08/01/2011

Reviewed on 08/01/2011

**Trade name: Reagent C1 - Resolving Solution**

(Contd. of page 4)

- **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 Amendants and Reauthorization Act of 1986 - USA)**

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

None of the ingredients is listed.

· **Section 313 (40CFR372.65):**

None of the ingredients is listed.

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

All ingredients are listed.

· **Carcinogenic categories**

· **EPA (Environmental Protection Agency)**

None of the ingredients is listed.

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

None of the ingredients is listed.

· **NTP (National Toxicology Program)**

None of the ingredients is listed.

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

None of the ingredients is listed.

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

None of the ingredients is listed.

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

None of the ingredients is listed.

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

None of the ingredients is listed.

· **Markings 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.

· **National regulations**

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

**Material Safety Data Sheet**

Printing date 08/01/2011

Reviewed on 08/01/2011

**Trade name: Reagent C1 - Resolving Solution**

(Contd. of page 5)

**16 Other information**

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

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

· **Contact:**

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

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

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

**Material Safety Data Sheet**

Printing date 08/01/2011

Reviewed on 07/19/2011

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

- **Product identifier**
- **Trade name:** R2 - Washing Solution
- **Catalog or product number:** 861365, 3572240, 572240, 7360A
- **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**

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

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

7732-18-5	water		50-100%
7647-14-5	sodium chloride	Xi R36/38	10-20%
77-86-1	Tris(hydroxymethyl)aminomethane	Xn R22 Xi R36	1.0-2.5%

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

**3 Hazards identification**

- **Classification of the substance or mixture**
  - **Classification according to Directive 67/548/EEC or Directive 1999/45/EC** Void
  - **Information concerning particular hazards for human and environment:**  
 The product does not have to be labelled due to the calculation procedure of the "General Classification guideline for preparations of the EU" in the latest valid version.
  - **Classification system:**  
 The classification was made according to the latest editions of the EU-lists, and expanded upon from company and literature data.  
 The classification was made according to OSHA 29CFR 1910.1200 and 1910.1030, and is expanded upon from company and/or literature information.
- 
- **Label elements**
  - **Labelling according to EU guidelines:**  
 Observe the general safety regulations when handling chemicals  
 The product is not subject to identification regulations under EU Directives and the Ordinance on Hazardous Materials (GefStoffV).
  - **Safety phrases:**  
 60 This material and its container must be disposed of as hazardous waste.



## Material Safety Data Sheet

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Trade name: R2 - Washing Solution

(Contd. of page 1)

**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.  
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.

**7 Handling and storage**

- **Handling**
- **Precautions for safe handling**  
No special measures required.  
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** The usual precautionary measures for handling chemicals should be followed.

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**Material Safety Data Sheet**

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Reviewed on 07/19/2011

**Trade name: R2 - Washing Solution**

(Contd. of page 2)

- **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
- **pH-value at 20°C:** 7.4
- **Change in condition**
  - Melting point/Melting range: undetermined
  - Boiling point/Boiling range: 100°C
- **Flash point:** Not applicable
- **Auto igniting:** Product is not selfigniting.
- **Danger of explosion:** Product does not present an explosion hazard.
- **Vapor pressure at 20°C:** 23 hPa
- **Density:** Not determined
- **Solubility in / Miscibility with Water:** Fully miscible
- **Solvent content:**
  - Organic solvents: 0.0 %
  - Water: 83.0 %
- **Solids content:** 16.1 %
- **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.

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**Material Safety Data Sheet**

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**Trade name: R2 - Washing Solution**

(Contd. of page 3)

- **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**

- |   |                 |
|---|-----------------|
| · <b>UN-Number</b><br>· <b>DOT, ADR, ADN, IMDG, IATA</b>                                    | Void            |
| · <b>UN proper shipping name</b><br>· <b>DOT, ADR, ADN, IMDG, IATA</b>                      | Void            |
| · <b>Transport hazard class(es)</b><br>· <b>DOT, ADR, ADN, IMDG, IATA</b><br>· <b>Class</b> | Void            |
| · <b>Packing group</b><br>· <b>DOT, ADR, IMDG, IATA</b>                                     | Void            |
| · <b>Environmental hazards:</b><br>· <b>Marine pollutant:</b>                               | No              |
| · <b>Special precautions for user</b>   | Not applicable. |

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**Material Safety Data Sheet**

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Reviewed on 07/19/2011

**Trade name: R2 - Washing Solution**

(Contd. of page 4)

- **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
7647-14-5	sodium chloride
77-86-1	Tris(hydroxymethyl)aminomethane
9005-64-5	Tween 20

· **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.

· **Markings 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.

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**Material Safety Data Sheet**

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Reviewed on 07/19/2011

**Trade name: R2 - Washing Solution**

(Contd. of page 5)

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

**16 Other information**

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

- **Department issuing MSDS:** Environmental Health and Safety.
- **Contact:**  
Life Science Group, Environmental Health and Safety, 2000 Alfred Nobel Drive, Hercules, California, 94547: 1(510) 741-1000
- **Diagnostic Group, Environmental Health and Safety, 4000 Alfred Nobel Drive, Hercules, California, 94547: 1(510) 724-7000**
- **\* Data compared to the previous version altered.**

USA

**Material Safety Data Sheet**

Printing date 08/01/2011

Reviewed on 07/19/2011

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

- **Product identifier**
- **Trade name:** R3 - Negative Control
- **Catalog or product number:** 3551103C3, 5145B
- **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
- **Additional information:** For the wording of the listed risk phrases refer to section 15.

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

7758-11-4	dipotassium hydrogenorthophosphate	1.0-2.5%
-----------	------------------------------------	----------

**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).
- **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.

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## Material Safety Data Sheet

Printing date 08/01/2011

Reviewed on 07/19/2011

Trade name: R3 - Negative Control

(Contd. of page 1)

- **After inhalation** Supply fresh air; consult doctor in case of complaints.
- **After skin contact** Generally the product does not irritate the skin.
- **After eye contact** Rinse opened eye for several minutes under running water.
- **After swallowing** Induce vomiting and call for medical help.

## 5 Firefighting measures

- **Suitable extinguishing agents**  
CO<sub>2</sub>, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- **Special hazards arising from the substance or mixture** No further relevant information available.
- **Protective equipment:** No special measures required.

## 6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**  
Wear protective equipment (See section 8). Keep unprotected persons away.
- **Environmental precautions:** No special measures required.
- **Methods and material for containment and cleaning up:**  
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
- **Reference to other sections** No dangerous substances are released.

## 7 Handling and storage

- **Handling**
- **Precautions for safe handling**  
No special measures required.  
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** The usual precautionary measures for handling chemicals should be followed.
- **Breathing equipment:** Not required.
- **Protection of hands:** Protective gloves.
- **Material of gloves** Synthetic gloves

(Contd. on page 3)

USA

**Material Safety Data Sheet**

Printing date 08/01/2011

Reviewed on 07/19/2011

**Trade name: R3 - Negative Control**

(Contd. of page 2)

- **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
- **pH-value at 20°C:** 7.4
- **Change in condition**
  - Melting point/Melting range: 0°C
  - Boiling point/Boiling range: 100°C
- **Flash point:** Not applicable
- **Danger of explosion:** Product does not present an explosion hazard.
- **Vapor pressure at 20°C:** 23 hPa
- **Density at 20°C:** 1 g/cm<sup>3</sup>
- **Solubility in / Miscibility with Water:** Fully miscible
- **Solvent content:**
  - Organic solvents: 0.0 %
  - Water: 97.4 %
- **Solids content:** 2.6 %
- **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:**  
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.

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**Material Safety Data Sheet**

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Reviewed on 07/19/2011

**Trade name: R3 - Negative Control**

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

**14 Transport information**

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

USA

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**Material Safety Data Sheet**

Printing date 08/01/2011

Reviewed on 07/19/2011

**Trade name: R3 - Negative Control**

(Contd. of page 4)

**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

7758-11-4 dipotassium hydrogenorthophosphate

7647-14-5 sodium chloride

7778-77-0 potassium dihydrogenorthophosphate

· **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.

· **Markings 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).

· **Safety phrases:**

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

· **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.

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**Material Safety Data Sheet**

Printing date 08/01/2011

Reviewed on 07/19/2011

**Trade name: R3 - Negative Control**

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**· 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.**

—USA—

**Material Safety Data Sheet**

Printing date 08/01/2011

Reviewed on 07/19/2011

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

- **Product identifier**
- **Trade name:** R4 - Positive Control
- **Catalog or product number:** 3551103C4, 5145C
- **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**

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

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

10039-26-6	D-Lactose monohydrate		50-100%
7758-11-4	dipotassium hydrogenorthophosphate		10-20%
7647-14-5	sodium chloride	Xi R36/38	10-20%
7778-77-0	potassium dihydrogenorthophosphate		2.5-5%
90604-29-8	Albumins, blood plasma, Cohn fraction V		1.0-2.5%

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

**3 Hazards identification**

- **Classification of the substance or mixture**
  - **Classification according to Directive 67/548/EEC or Directive 1999/45/EC** Void
  - **Information concerning particular hazards for human and environment:**  
The product does not have to be labelled due to the calculation procedure of the "General Classification guideline for preparations of the EU" in the latest valid version.
  - **Classification system:**  
The classification was made according to the latest editions of the EU-lists, and expanded upon from company and literature data.  
The classification was made according to OSHA 29CFR 1910.1200 and 1910.1030, and is expanded upon from company and/or literature information.
- 
- **Label elements**
  - **Labelling according to EU guidelines:**  
Observe the general safety regulations when handling chemicals  
The product is not subject to identification regulations under EU Directives and the Ordinance on Hazardous Materials (GefStoffV).

(Contd. on page 2)

## Material Safety Data Sheet

Printing date 08/01/2011

Reviewed on 07/19/2011

Trade name: R4 - Positive Control

(Contd. of page 1)

· **Safety phrases:**

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

**4 First aid measures**

- **General information** No special measures required.
- **After inhalation** Supply fresh air; consult doctor in case of complaints.
- **After skin contact** Generally the product does not irritate the skin.
- **After eye contact** Rinse opened eye for several minutes under running water.
- **After swallowing** Induce vomiting and call for medical help.

**5 Firefighting measures**

- **Suitable extinguishing agents**  
CO<sub>2</sub>, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- **Special hazards arising from the substance or mixture** No further relevant information available.
- **Protective equipment:** No special measures required.

**6 Accidental release measures**

- **Personal precautions, protective equipment and emergency procedures**  
Wear protective equipment (See section 8). Keep unprotected persons away.
- **Environmental precautions:** No special measures required.
- **Methods and material for containment and cleaning up:** Pick up mechanically.
- **Reference to other sections** No dangerous substances are released.

**7 Handling and storage**

- **Handling**
- **Precautions for safe handling**  
No special measures required.  
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.

(Contd. on page 3)

**Material Safety Data Sheet**

Printing date 08/01/2011

Reviewed on 07/19/2011

**Trade name: R4 - Positive Control**

(Contd. of page 2)

- **Personal protective equipment**
- **General protective and hygienic measures** The usual precautionary measures for handling chemicals should be followed.
- **Protection of hands:** Protective gloves.
- **Material of gloves** Synthetic gloves
- **Penetration time of glove material**  
The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
- **Eye protection:** Safety glasses

**9 Physical and chemical properties**

· **General Information**

· **Appearance:**

Form: Solid.  
Color: Whitish  
Odor: Odorless

· **pH-value at 20°C:** 7.4

· **Change in condition**

Melting point/Melting range: undetermined  
Boiling point/Boiling range: undetermined

· **Flash point:** Not applicable

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

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

· **Vapor pressure at 20°C:** 23.0 hPa

· **Density:** Not determined

· **Solubility in / Miscibility with**

Water: Fully miscible

· **Solvent content:**

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.
- **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.

(Contd. on page 4)

**Material Safety Data Sheet**

Printing date 08/01/2011

Reviewed on 07/19/2011

**Trade name: R4 - Positive Control**

(Contd. of page 3)

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

**14 Transport information**

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

(Contd. on page 5)

**Material Safety Data Sheet**

Printing date 08/01/2011

Reviewed on 07/19/2011

**Trade name: R4 - Positive Control**

(Contd. of page 4)

· **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):**

7758-11-4 dipotassium hydrogenorthophosphate

7647-14-5 sodium chloride

7778-77-0 potassium dihydrogenorthophosphate

· **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.

· **Markings 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.

· **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.

(Contd. on page 6)



**Material Safety Data Sheet**

Printing date 08/01/2011

Reviewed on 07/19/2011

**Trade name: R4 - Positive Control**

(Contd. of page 5)

· **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.**

USA

## Material Safety Data Sheet

Printing date 08/01/2011

Reviewed on 07/19/2011

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

- **Product identifier**
- **Trade name:** R6 - Sample Diluent
- **Catalog or product number:** 3551103C6, 5145D
- **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
- **Additional information:** For the wording of the listed risk phrases refer to section 15.

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

7758-11-4	dipotassium hydrogenorthophosphate	1.0-2.5%
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**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).
- **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.

(Contd. on page 2)

## Material Safety Data Sheet

Printing date 08/01/2011

Reviewed on 07/19/2011

Trade name: R6 - Sample Diluent

(Contd. of page 1)

- **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.

## 7 Handling and storage

- **Handling**
- **Precautions for safe handling**  
No special measures required.  
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** The usual precautionary measures for handling chemicals should be followed.
- **Breathing equipment:** Not required.
- **Protection of hands:** Protective gloves.
- **Material of gloves** Synthetic gloves

(Contd. on page 3)

USA

## Material Safety Data Sheet

Printing date 08/01/2011

Reviewed on 07/19/2011

Trade name: R6 - Sample Diluent

(Contd. of page 2)

· **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

· **pH-value at 20°C:** 7.4· **Change in condition**

Melting point/Melting range: 0°C

Boiling point/Boiling range: 100°C

· **Flash point:** Not applicable· **Danger of explosion:** Product does not present an explosion hazard.· **Vapor pressure at 20°C:** 23 hPa· **Density at 20°C:** 1 g/cm<sup>3</sup>· **Solubility in / Miscibility with**

Water: Fully miscible

· **Solvent content:**

Organic solvents: 0.0 %

Water: 97.4 %

Solids content: 2.6 %

· **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:**

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.

(Contd. on page 4)

**Material Safety Data Sheet**

Printing date 08/01/2011

Reviewed on 07/19/2011

**Trade name: R6 - Sample Diluent**

(Contd. of page 3)

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

**14 Transport information**

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

USA

(Contd. on page 5)

**Material Safety Data Sheet**

Printing date 08/01/2011

Reviewed on 07/19/2011

**Trade name: R6 - Sample Diluent**

(Contd. of page 4)

**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

7758-11-4 dipotassium hydrogenorthophosphate

7647-14-5 sodium chloride

7778-77-0 potassium dihydrogenorthophosphate

143-74-8 phenol red

· **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.

· **Markings 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).

· **Safety phrases:**

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

· **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.

(Contd. on page 6)

**Material Safety Data Sheet**

Printing date 08/01/2011

Reviewed on 07/19/2011

**Trade name: R6 - Sample Diluent**

(Contd. of page 5)

· **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.**

USA

**Material Safety Data Sheet**

Printing date 08/01/2011

Reviewed on 07/19/2011

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

- **Product identifier**
- **Trade name:** R7- Concentrated (10X) Conjugate
- **Catalog or product number:** 3551103C7, 5145E
- **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**

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

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

7732-18-5	water	50-100%
56-81-5	glycerol	10-20%
	Fetal Bovine Serum	1.0-2.5%
7758-11-4	dipotassium hydrogenorthophosphate	1.0-2.5%

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

**3 Hazards identification**

- **Classification of the substance or mixture**
- **Classification according to Directive 67/548/EEC or Directive 1999/45/EC** Void
- **Information concerning particular hazards for human and environment:**  
 The product does not have to be labelled due to the calculation procedure of the "General Classification guideline for preparations of the EU" in the latest valid version.
- **Classification system:**  
 The classification was made according to the latest editions of the EU-lists, and expanded upon from company and literature data.  
 The classification was made according to OSHA 29CFR 1910.1200 and 1910.1030, and is expanded upon from company and/or literature information.
- **Label elements**
- **Labelling according to EU guidelines:**  
 Observe the general safety regulations when handling chemicals  
 The product is not subject to identification regulations under EU Directives and the Ordinance on Hazardous Materials (GefStoffV).
- **Safety phrases:**  
 60 This material and its container must be disposed of as hazardous waste.



**Material Safety Data Sheet**

Printing date 08/01/2011

Reviewed on 07/19/2011

**Trade name: R7- Concentrated (10X) Conjugate**

(Contd. of page 1)

**4 First aid measures**

- **General information** No special measures required.
- **After inhalation** Supply fresh air; consult doctor in case of complaints.
- **After skin contact** Generally the product does not irritate the skin.
- **After eye contact** Rinse opened eye for several minutes under running water.
- **After swallowing** Induce vomiting and call for medical help.

**5 Firefighting measures**

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

**6 Accidental release measures**

- **Personal precautions, protective equipment and emergency procedures**  
Wear protective equipment (See section 8). Keep unprotected persons away.
- **Environmental precautions:** Do not allow to enter sewers/ surface or ground water.
- **Methods and material for containment and cleaning up:**  
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
- **Reference to other sections** No dangerous substances are released.

**7 Handling and storage**

- **Handling**
- **Precautions for safe handling**  
No special measures required.  
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:**

**56-81-5 glycerol**

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

- **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.

(Contd. on page 3)

**Material Safety Data Sheet**

Printing date 08/01/2011

Reviewed on 07/19/2011

**Trade name: R7- Concentrated (10X) Conjugate**

(Contd. of page 2)

- **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

· **pH-value at 20°C:** 7.4

· **Change in condition**

Melting point/Melting range: undetermined  
Boiling point/Boiling range: 290°C

· **Flash point:** > 100°C

· **Ignition temperature:** 400°C

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

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

· **Explosion limits:**

Lower: 0.9 Vol %

· **Vapor pressure at 20°C:** 23 hPa

· **Density:** Not determined

· **Solubility in / Miscibility with**

Water: Fully miscible

· **Solvent content:**

Organic solvents: 0.0 %  
Water: 83.8 %

Solids content: 88.4 %

· **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

USA

(Contd. on page 4)

**Material Safety Data Sheet**

Printing date 08/01/2011

Reviewed on 07/19/2011

**Trade name: R7- Concentrated (10X) Conjugate**

(Contd. of page 3)

**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.

**14 Transport information**

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

(Contd. on page 5)

**Material Safety Data Sheet**

Printing date 08/01/2011

Reviewed on 07/19/2011

**Trade name: R7- Concentrated (10X) Conjugate**

(Contd. of page 4)

· <b>Environmental hazards:</b>	
· <b>Marine pollutant:</b>	No
· <b>Special precautions for user</b>	Not applicable.
· <b>Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code</b>	Not applicable.
· <b>Transport/Additional information:</b>	Not dangerous according to the above specifications.

**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
7758-11-4	dipotassium hydrogenorthophosphate
7647-14-5	sodium chloride
7778-77-0	potassium dihydrogenorthophosphate
143-74-8	phenol red

· **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.

· **Markings 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 6)

**Material Safety Data Sheet**

Printing date 08/01/2011

Reviewed on 07/19/2011

**Trade name: R7- Concentrated (10X) Conjugate**

(Contd. of page 5)

· **Safety phrases:**

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

· **National regulations**

· **Technical instructions (air):**

Class	Share in %
NK	10-20

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

**16 Other information**

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

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

· **Contact:**

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

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

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

## Material Safety Data Sheet

Printing date 08/01/2011

Reviewed on 07/19/2011

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

- **Product identifier**
- **Trade name:** R8 - Peroxidase Substrate Buffer
- **Catalog or product number:** 861207, 7435S
- **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

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

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

7732-18-5	water		50-100%
67-68-5	dimethyl sulfoxide		2.5-5%
77-92-9	citric acid	Xi R36/37	1.0-2.5%
127-09-3	sodium acetate		1.0-2.5%

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

## 3 Hazards identification

- **Classification of the substance or mixture**
- **Classification according to Directive 67/548/EEC or Directive 1999/45/EC** Void
- **Information concerning particular hazards for human and environment:**  
The product does not have to be labelled due to the calculation procedure of the "General Classification guideline for preparations of the EU" in the latest valid version.
- **Classification system:**  
The classification was made according to the latest editions of the EU-lists, and expanded upon from company and literature data.  
The classification was made according to OSHA 29CFR 1910.1200 and 1910.1030, and is expanded upon from company and/or literature information.
- **Label elements**
- **Labelling according to EU guidelines:**  
Observe the general safety regulations when handling chemicals  
The product is not subject to identification regulations under EU Directives and the Ordinance on Hazardous Materials (GefStoffV).
- **Safety phrases:**  
60 This material and its container must be disposed of as hazardous waste.

**Material Safety Data Sheet**

Printing date 08/01/2011

Reviewed on 07/19/2011

**Trade name: R8 - Peroxidase Substrate Buffer**

(Contd. of page 1)

**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.  
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.

**7 Handling and storage**

- **Handling**
- **Precautions for safe handling**  
No special measures required.  
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:**

**67-68-5 dimethyl sulfoxide**

WEEL () 250 ppm

(Contd. on page 3)

**Material Safety Data Sheet**

Printing date 08/01/2011

Reviewed on 07/19/2011

**Trade name: R8 - Peroxidase Substrate Buffer**

(Contd. of page 2)

**7722-84-1 hydrogen peroxide solution**

PEL ()	1.4 mg/m <sup>3</sup> , 1 ppm
REL ()	1.4 mg/m <sup>3</sup> , 1 ppm
TLV ()	1.4 mg/m <sup>3</sup> , 1 ppm

- **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
- **pH-value at 20°C:** 4
- **Change in condition**
  - Melting point/Melting range: undetermined
  - Boiling point/Boiling range: 100°C
- **Flash point:** Not applicable
- **Auto igniting:** Product is not selfigniting.
- **Danger of explosion:** Product does not present an explosion hazard.
- **Vapor pressure at 20°C:** 23 hPa
- **Density at 20°C:** 1.00705 g/cm<sup>3</sup>
- **Solubility in / Miscibility with Water:** Fully miscible
- **Solvent content:**
  - Organic solvents: 3.9 %
  - Water: 93.2 %
- **Solids content:** 2.9 %
- **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.

(Contd. on page 4)



**Material Safety Data Sheet**

Printing date 08/01/2011

Reviewed on 07/19/2011

**Trade name: R8 - Peroxidase Substrate Buffer**

(Contd. of page 3)

· **Hazardous decomposition products:** No dangerous decomposition products known

**11 Toxicological information**

· **Acute toxicity:**

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

**67-68-5 dimethyl sulfoxide**

Oral	LD50	14500 mg/kg (rat)
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· **Primary irritant effect:**

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

· **on the eye:** No irritant effect.

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

· **Additional toxicological information:**

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

(Contd. on page 5)

**Material Safety Data Sheet**

Printing date 08/01/2011

Reviewed on 07/19/2011

**Trade name: R8 - Peroxidase Substrate Buffer**

(Contd. of page 4)

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

**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)**

7722-84-1 | hydrogen peroxide solution

3

· **NTP (National Toxicology Program)**

None of the ingredients is listed.

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

7722-84-1 | hydrogen peroxide solution

A3

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

7722-84-1 | hydrogen peroxide solution

4

· **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.

(Contd. on page 6)

## Material Safety Data Sheet

Printing date 08/01/2011

Reviewed on 07/19/2011

Trade name: R8 - Peroxidase Substrate Buffer

(Contd. of page 5)

· **Markings 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.

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

Class	Share in %
NK	2.5-5

· **Water hazard class:** Water hazard class 1 (Self-assessment): slightly hazardous for water.**16 Other information**

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

· **Department issuing MSDS:** Environmental Health and Safety.· **Contact:**

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

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

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

## Material Safety Data Sheet

Printing date 08/01/2011

Reviewed on 07/19/2011

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

- **Product identifier**
- **Trade name:** R9 - Chromogen: TMB Solution
- **Catalog or product number:** 861204, 7436J
- **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
- **Additional information:** For the wording of the listed risk phrases refer to section 15.

· <b>Listing of dangerous and non-hazardous components:</b>			
54827-17-7	3,3',5,5'-tetramethylbenzidine	T R23/24/25	0.1-1.0%

**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).
- **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.

(Contd. on page 2)

**Material Safety Data Sheet**

Printing date 08/01/2011

Reviewed on 07/19/2011

**Trade name: R9 - Chromogen: TMB Solution**

(Contd. of page 1)

- **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:** 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.

**7 Handling and storage**

- **Handling**
- **Precautions for safe handling**  
No special measures required.  
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:**

**7647-01-0 hydrochloric acid**

PEL (j)	Short-term value: C 7 mg/m <sup>3</sup> , C 5 ppm
REL (j)	Short-term value: C 7 mg/m <sup>3</sup> , C 5 ppm
TLV (j)	Short-term value: C 2.98 mg/m <sup>3</sup> , C 2 ppm

- **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.

(Contd. on page 3)

**Material Safety Data Sheet**

Printing date 08/01/2011

Reviewed on 07/19/2011

**Trade name: R9 - Chromogen: TMB Solution**

(Contd. of page 2)

- **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
- **pH-value at 20°C:** 4
- **Change in condition**
  - **Melting point/Melting range:** 0°C
  - **Boiling point/Boiling range:** 100°C
- **Flash point:** Not applicable
- **Danger of explosion:** Product does not present an explosion hazard.
- **Vapor pressure at 20°C:** 23 hPa
- **Density at 20°C:** 1 g/cm<sup>3</sup>
- **Solubility in / Miscibility with**
  - **Water:** Fully miscible
- **Solvent content:**
  - **Organic solvents:** 0.0 %
  - **Water:** 99.4 %
- **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:**  
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.

(Contd. on page 4)

**Material Safety Data Sheet**

Printing date 08/01/2011

Reviewed on 07/19/2011

**Trade name: R9 - Chromogen: TMB Solution**

(Contd. of page 3)

The substance is not subject to classification according to the latest version of the EU lists.

· **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.

**14 Transport information**

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

**Material Safety Data Sheet**

Printing date 08/01/2011

Reviewed on 07/19/2011

**Trade name: R9 - Chromogen: TMB Solution**

(Contd. of page 4)

**15 Regulatory information**

· **SARA (Superfund Amendments and Reauthorization Act of 1986 - USA)**

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

7647-01-0	hydrochloric acid
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· **Section 313 (40CFR372.65):**

7647-01-0	hydrochloric acid
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· **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)**

7647-01-0	hydrochloric acid	3
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· **NTP (National Toxicology Program)**

None of the ingredients is listed.

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

7647-01-0	hydrochloric acid	A4
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· **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.

· **Markings 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).

· **Safety phrases:**

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

· **National regulations**

· **Technical instructions (air):**

Class	Share in %
I	0.1-1.0

· **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.

(Contd. on page 6)



**Material Safety Data Sheet**

Printing date 08/01/2011

Reviewed on 07/19/2011

**Trade name: R9 - Chromogen: TMB Solution**

(Contd. of page 5)

**· 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.**

—USA—

**Material Safety Data Sheet**

Printing date 08/01/2011

Reviewed on 07/19/2011

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

- **Product identifier**
- **Trade name:** R10 - Stopping Solution
- **Catalog or product number:** 861206, 7438L
- **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
- **Additional information:** For the wording of the listed risk phrases refer to section 15.

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

7664-93-9	sulphuric acid	C R35	2.5-5%
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**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.

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- **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).
- **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.

(Contd. on page 2)

## Material Safety Data Sheet

Printing date 08/01/2011

Reviewed on 07/19/2011

Trade name: R10 - Stopping Solution

(Contd. of page 1)

- **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.  
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.

## 7 Handling and storage

- **Handling**
- **Precautions for safe handling**  
No special measures required.  
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** The usual precautionary measures for handling chemicals should be followed.
- **Breathing equipment:** Not required.
- **Protection of hands:** Protective gloves.
- **Material of gloves** Synthetic gloves

(Contd. on page 3)

**Material Safety Data Sheet**

Printing date 08/01/2011

Reviewed on 07/19/2011

**Trade name: R10 - Stopping Solution**

(Contd. of page 2)

- **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

· **pH-value at 20°C:** 2.6

· **Change in condition**

**Melting point/Melting range:** 0°C  
**Boiling point/Boiling range:** 100°C

· **Flash point:** Not applicable

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

· **Vapor pressure at 20°C:** 23 hPa

· **Density at 20°C:** 1 g/cm<sup>3</sup>

· **Solubility in / Miscibility with**

**Water:** Fully miscible

· **Solvent content:**

**Organic solvents:** 0.0 %  
**Water:** 97.4 %

· **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:**

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.

(Contd. on page 4)

**Material Safety Data Sheet**

Printing date 08/01/2011

Reviewed on 07/19/2011

**Trade name: R10 - Stopping Solution**

(Contd. of page 3)

· **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**

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

**Material Safety Data Sheet**

Printing date 08/01/2011

Reviewed on 07/19/2011

**Trade name: R10 - Stopping Solution**

(Contd. of page 4)

**15 Regulatory information**

· **SARA (Superfund Amendments and Reauthorization Act of 1986 - USA)**

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

7664-93-9 sulphuric acid

· **Section 313 (40CFR372.65):**

7664-93-9 sulphuric acid

· **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)**

7664-93-9 sulphuric acid

1

· **NTP (National Toxicology Program)**

7664-93-9 sulphuric acid

K

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

7664-93-9 sulphuric acid

A2

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

7664-93-9 sulphuric acid

4

· **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.

· **Markings 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).

· **Safety phrases:**

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

· **National regulations**

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

**16 Other information**

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

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

· **Contact:**

(Contd. on page 6)

**Material Safety Data Sheet**

Printing date 08/01/2011

Reviewed on 07/19/2011

**Trade name: R10 - Stopping Solution**

(Contd. of page 5)

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.**

USA

## Material Safety Data Sheet

Printing date 08/01/2011

Reviewed on 07/19/2011

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

- **Product identifier**
- **Trade name:** *R1 - Solid Phase Antibody*
- **Catalog or product number:** 3551103C1
- **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:**  
*Purified 3B5 monoclonal antibody*
- **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).*
- **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.*

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USA



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Trade name: R1 - Solid Phase Antibody

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- **After swallowing** Induce vomiting and call for medical help.

## 5 Firefighting measures

- **Suitable extinguishing agents**  
CO<sub>2</sub>, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- **Special hazards arising from the substance or mixture** No further relevant information available.
- **Protective equipment:** No special measures required.

## 6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**  
Wear protective equipment (See section 8). Keep unprotected persons away.
- **Environmental precautions:** Do not allow to enter sewers/ surface or ground water.
- **Methods and material for containment and cleaning up:** Dispose contaminated material as waste according to item 13.
- **Reference to other sections** No dangerous substances are released.

## 7 Handling and storage

- **Handling**
- **Precautions for safe handling**  
No special measures required.  
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:** 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.
- **Eye protection:** Safety glasses

USA

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## Material Safety Data Sheet

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Trade name: R1 - Solid Phase Antibody

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## 9 Physical and chemical properties

### · General Information

#### · Appearance:

Form:	Solid.
Color:	Whitish
Odor:	Odorless

### · Change in condition

Melting point/Melting range: undetermined

Boiling point/Boiling range: undetermined

· Flash point: Not applicable

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

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

· Density: Not determined

### · Solubility in / Miscibility with

Water: Fully miscible

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.

· 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:

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.

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**Trade name: R1 - Solid Phase Antibody**

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- **Additional ecological information:**
- **General notes:**  
*Water hazard class 1 (German Regulation) (Self-assessment): slightly hazardous for water.  
 Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.*

**13 Disposal considerations**

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

**14 Transport information**

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

**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 not listed.

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**Trade name: R1 - Solid Phase Antibody**

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**· 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.

**· Markings 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).

**· Safety phrases:**

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

**· National regulations**

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

**16 Other information**

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

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

**· Contact:**

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