



08/01/2011

### Kit Components

Product code	Description
<b>7326346</b>	<b>AquaPure™ Genomic DNA Universal Kit</b>

Components:

4307064	AquaPure™ Genomic DNA Lysis Soln.
4307065	Protein Precipitation Solution
4307066	DNA Hydration Solution
7326349	RNase A Solution (4 mg/ml), 250 ul
7326372	RBC Lysis Solution
7326348	Proteinase K Solution (20 mg/ml)

**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:** AquaPure™ Genomic DNA Lysis Soln.
- **Catalog or product number:** 4307064, 4307078
- **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%
77-86-1	Tris(hydroxymethyl)aminomethane	Xn R22 Xi R36	2.5-5%
6381-92-6	Ethylenediaminetetraacetic acid disodium salt dihydrate	Xn R22 Xi R36/37/38	2.5-5%
151-21-3	sodium dodecyl sulphate	Xn R21/22 Xi R36/38	2.5-5%

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

**3 Hazards identification**

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

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## Material Safety Data Sheet

Printing date 08/01/2011

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Trade name: AquaPure™ Genomic DNA Lysis Soln.

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· **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: AquaPure™ Genomic DNA Lysis Soln.**

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- **Components with limit values that require monitoring at the workplace:**  
The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.
- **Additional information:** The lists that were valid during the creation were used as basis.
- **Personal protective equipment**
- **General protective and hygienic measures** The usual precautionary measures for handling chemicals should be followed.
- **Breathing equipment:** Not required.
- **Protection of hands:** Protective gloves.
- **Material of gloves** Synthetic gloves
- **Penetration time of glove material**  
The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
- **Eye protection:** Safety glasses

**9 Physical and chemical properties**

- **General Information**
- **Appearance:**
  - Form: Liquid
  - Color: Colorless
  - Odor: Odorless
- **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: 85.0 %
- **Solids content:** 15.0 %
- **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

**Material Safety Data Sheet**

Printing date 08/01/2011

Reviewed on 08/01/2011

**Trade name: AquaPure™ Genomic DNA Lysis Soln.**

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**11 Toxicological information**

· **Acute toxicity:**

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

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

Oral	LD50	5900 mg/kg (rat)
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**6381-92-6 Ethylenediaminetetraacetic acid disodium salt dihydrate**

Oral	LD50	2000 mg/kg (rat)
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**151-21-3 sodium dodecyl sulphate**

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

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.

**Material Safety Data Sheet**

Printing date 08/01/2011

Reviewed on 08/01/2011

**Trade name: AquaPure™ Genomic DNA Lysis Soln.**

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**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):**

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
77-86-1	Tris(hydroxymethyl)aminomethane
151-21-3	sodium dodecyl sulphate

· **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.

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Trade name: AquaPure™ Genomic DNA Lysis Soln.

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· **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 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 08/01/2011

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

- **Product identifier**
- **Trade name:** Protein Precipitation Solution
- **Catalog or product number:** 4307065, 4307080
- **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:**

631-61-8	ammonium acetate	50-100%
7732-18-5	water	35-50%

- **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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## Material Safety Data Sheet

Printing date 08/01/2011

Reviewed on 08/01/2011

Trade name: Protein Precipitation 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**  
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:**  
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

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USA

## Material Safety Data Sheet

Printing date 08/01/2011

Reviewed on 08/01/2011

Trade name: Protein Precipitation 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:** < 8

#### · 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:** 1.1 g/cm<sup>3</sup>

#### · Solubility in / Miscibility with

Water: Fully miscible

#### · Solvent content:

Organic solvents: 0.0 %

Water: 40.0 %

Solids content: 60.0 %

· **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.

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**Material Safety Data Sheet**

Printing date 08/01/2011

Reviewed on 08/01/2011

**Trade name: Protein Precipitation Solution**

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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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**Material Safety Data Sheet**

Printing date 08/01/2011

Reviewed on 08/01/2011

**Trade name: Protein Precipitation Solution**

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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):**

631-61-8 ammonium acetate

· **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.

**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**

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**Trade name: Protein Precipitation Solution**

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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 08/01/2011

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

- **Product identifier**
- **Trade name:** DNA Hydration Solution
- **Catalog or product number:** 4307066, 4307081
- **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%
77-86-1	Tris(hydroxymethyl)aminomethane	Xn R22 Xi R36	2.5-5%
6381-92-6	Ethylenediaminetetraacetic acid disodium salt dihydrate	Xn R22 Xi R36/37/38	2.5-5%

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

**3 Hazards identification**

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

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Reviewed on 08/01/2011

Trade name: DNA Hydration 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: DNA Hydration Solution**

(Contd. of page 2)

- **Components with limit values that require monitoring at the workplace:**  
The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.
- **Additional information:** The lists that were valid during the creation were used as basis.
- **Personal protective equipment**
- **General protective and hygienic measures** The usual precautionary measures for handling chemicals should be followed.
- **Breathing equipment:** Not required.
- **Protection of hands:** Protective gloves.
- **Material of gloves** 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:** < 8
- **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: 90.0 %
- **Solids content:** 10.0 %
- **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



**Material Safety Data Sheet**

Printing date 08/01/2011

Reviewed on 08/01/2011

**Trade name: DNA Hydration Solution**

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**11 Toxicological information**

· **Acute toxicity:**

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

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

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

**6381-92-6 Ethylenediaminetetraacetic acid disodium salt dihydrate**

Oral	LD50	2000 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 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**

· **UN-Number**

· **DOT, ADR, ADN, IMDG, IATA** Void

· **UN proper shipping name**

· **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: DNA Hydration Solution**

(Contd. of page 4)

· <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):**

7732-18-5 water

77-86-1 Tris(hydroxymethyl)aminomethane

· **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

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## Material Safety Data Sheet

Printing date 08/01/2011

Reviewed on 08/01/2011

**Trade name: DNA Hydration Solution**

(Contd. of page 5)

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:**

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:** RNase A Solution (4 mg/ml), 250 ul
- **Catalog or product number:** 7326349, 4307083, 4307067
- **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:**

56-81-5	glycerol		50-100%
7732-18-5	water		20-35%
9001-99-4	Nuclease, ribo-		2.5-5%
77-86-1	Tris(hydroxymethyl)aminomethane	Xn R22 Xi R36	2.5-5%
7774-34-7	calcium chloride	Xi R36	2.5-5%

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

**3 Hazards identification**

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

(Contd. on page 2)

## Material Safety Data Sheet

Printing date 08/01/2011

Reviewed on 08/01/2011

Trade name: RNase A Solution (4 mg/ml), 250 ul

(Contd. of page 1)

· **Safety phrases:**

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

**4 First aid measures**

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

**5 Firefighting measures**

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

**6 Accidental release measures**

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

**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.

(Contd. on page 3)

USA

**Material Safety Data Sheet**

Printing date 08/01/2011

Reviewed on 08/01/2011

**Trade name: RNase A Solution (4 mg/ml), 250 ul**

(Contd. of page 2)

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

**56-81-5 glycerol**

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

- **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:**

<b>Form:</b>	Liquid
<b>Color:</b>	Colorless
<b>Odor:</b>	Odorless

· **pH-value at 20°C:** < 8

**· Change in condition**

<b>Melting point/Melting range:</b>	undetermined
<b>Boiling point/Boiling range:</b>	100°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:**

<b>Organic solvents:</b>	60.0 %
<b>Water:</b>	25.0 %

**Solids content:** 15.0 %

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

## Material Safety Data Sheet

Printing date 08/01/2011

Reviewed on 08/01/2011

Trade name: RNase A Solution (4 mg/ml), 250 ul

(Contd. of page 3)

**10 Stability and reactivity**

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

**11 Toxicological information**

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

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

Oral LD50 5900 mg/kg (rat)

- **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.

USA

(Contd. on page 5)

**Material Safety Data Sheet**

Printing date 08/01/2011

Reviewed on 08/01/2011

Trade name: RNase A Solution (4 mg/ml), 250 ul

(Contd. of page 4)

**14 Transport information**

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

**15 Regulatory information**

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

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

None of the ingredients is listed.

· **Section 313 (40CFR372.65):**

None of the ingredients is listed.

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

56-81-5 glycerol

7732-18-5 water

9001-99-4 Nuclease, ribo-

77-86-1 Tris(hydroxymethyl)aminomethane

· **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.

(Contd. on page 6)



**Material Safety Data Sheet**

Printing date 08/01/2011

Reviewed on 08/01/2011

**Trade name: RNase A Solution (4 mg/ml), 250 ul**

(Contd. of page 5)

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

None of the ingredients is listed.

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

None of the ingredients is listed.

· **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	50-100

· **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:** RBC Lysis Solution
- **Catalog or product number:** 7326372, 4307061, 4307079
- **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%
12125-02-9	ammonium chloride	Xn R22 Xi R36	2.5-5%
6381-92-6	Ethylenediaminetetraacetic acid disodium salt dihydrate	Xn R22 Xi R36/37/38	2.5-5%
144-55-8	sodium hydrogencarbonate		2.5-5%

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

**3 Hazards identification**

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

(Contd. on page 2)

## Material Safety Data Sheet

Printing date 08/01/2011

Reviewed on 08/01/2011

Trade name: RBC Lysis 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:** 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.

(Contd. on page 3)

USA

**Material Safety Data Sheet**

Printing date 08/01/2011

Reviewed on 08/01/2011

**Trade name: RBC Lysis Solution**

(Contd. of page 2)

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

**12125-02-9 ammonium chloride**

REL ()	Short-term value: 20 mg/m <sup>3</sup> Long-term value: 10 mg/m <sup>3</sup>
TLV ()	Short-term value: 20 mg/m <sup>3</sup> Long-term value: 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:** According to product specification
  - Odor:** Odorless
- **pH-value at 20°C:** < 8
- **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 g/cm<sup>3</sup>
- **Solubility in / Miscibility with Water:** Fully miscible
- **Solvent content:**
  - Organic solvents:** 0.0 %
  - Water:** 85.0 %
- **Solids content:** 15.0 %
- **Other information** No further relevant information available.

**10 Stability and reactivity**

- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.

(Contd. on page 4)

**Material Safety Data Sheet**

Printing date 08/01/2011

Reviewed on 08/01/2011

**Trade name: RBC Lysis Solution**

(Contd. of page 3)

- **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:**

**12125-02-9 ammonium chloride**

Oral	LD50	1650 mg/kg (rat)
------	------	------------------

**6381-92-6 Ethylenediaminetetraacetic acid disodium salt dihydrate**

Oral	LD50	2000 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:** 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**

· **UN-Number**

· **DOT, ADR, ADN, IMDG, IATA** Void

· **UN proper shipping name**

· **DOT, ADR, ADN, IMDG, IATA** Void

(Contd. on page 5)

**Material Safety Data Sheet**

Printing date 08/01/2011

Reviewed on 08/01/2011

**Trade name: RBC Lysis Solution**

(Contd. of page 4)

· <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):**

7732-18-5 water

12125-02-9 ammonium chloride

144-55-8 sodium hydrogencarbonate

· **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.

(Contd. on page 6)

## Material Safety Data Sheet

Printing date 08/01/2011

Reviewed on 08/01/2011

**Trade name: RBC Lysis 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.

**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:** Proteinase K Solution (20 mg/ml)
- **Catalog or product number:** 7326348, 4307082, 4307060, 9703792
- **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:**

56-81-5	glycerol		35-50%
7732-18-5	water		20-35%
77-86-1	Tris(hydroxymethyl)aminomethane	Xn R22 Xi R36	2.5-5%
7774-34-7	calcium chloride	Xi R36	2.5-5%
30007-47-7	5-Bromo-5-nitro-1,3-dioxane	Xn R21/22 Xi R36/38	2.5-5%
39450-01-6	Proteinase, Tritirachium album serine	Xi R36/37/38	2.5-5%

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

**3 Hazards identification**

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

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## Material Safety Data Sheet

Printing date 08/01/2011

Reviewed on 08/01/2011

Trade name: Proteinase K Solution (20 mg/ml)

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· **Safety phrases:**

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

**4 First aid measures**

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

**5 Firefighting measures**

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

**6 Accidental release measures**

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

**Material Safety Data Sheet**

Printing date 08/01/2011

Reviewed on 08/01/2011

**Trade name: Proteinase K Solution (20 mg/ml)**

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

**56-81-5 glycerol**

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

- **Additional information:** The lists that were valid during the creation were used as basis.
- **Personal protective equipment**
- **General protective and hygienic measures** The usual precautionary measures for handling chemicals should be followed.
- **Breathing equipment:** Not required.
- **Protection of hands:** Protective gloves.
- **Material of gloves** Synthetic gloves
- **Penetration time of glove material**  
 The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
- **Eye protection:** Safety glasses

**9 Physical and chemical properties**

**· General Information**

**· Appearance:**

**Form:** Liquid  
**Color:** Colorless  
**Odor:** Odorless

**· Change in condition**

**Melting point/Melting range:** undetermined  
**Boiling point/Boiling range:** 100°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 at 20°C:** 1.14028 g/cm<sup>3</sup>

**· Solubility in / Miscibility with**

**Water:** Fully miscible

**· Solvent content:**

**Organic solvents:** 50.0 %  
**Water:** 30.0 %

**Solids content:** 15.0 %

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

## Material Safety Data Sheet

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Trade name: Proteinase K Solution (20 mg/ml)

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**10 Stability and reactivity**

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

**11 Toxicological information**· **Acute toxicity:**· **LD/LC50 values for hazardous components per OSHA criteria:****77-86-1 Tris(hydroxymethyl)aminomethane**

Oral LD50 5900 mg/kg (rat)

**30007-47-7 5-Bromo-5-nitro-1,3-dioxane**

Oral LD50 2000 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 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.

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**Trade name: Proteinase K Solution (20 mg/ml)**

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**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):**

None of the ingredients is listed.

· **Section 313 (40CFR372.65):**

None of the ingredients is listed.

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

56-81-5 glycerol

7732-18-5 water

77-86-1 Tris(hydroxymethyl)aminomethane

30007-47-7 5-Bromo-5-nitro-1,3-dioxane

· **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.

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**· 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 %
I	2.5-5
NK	35-50

**· 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.**