



03/16/2010

### Kit Components

Product code	Description
<b>7326345</b>	<b>AquaPure™ Genomic DNA Blood 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

## Material Safety Data Sheet

Printing date 03/16/2010

Reviewed on 03/10/2010

**1 Identification of substance:**

- **Product details:**
- **Trade name:** AquaPure™ Genomic DNA Lysis Soln.
- **Catalog or product number:** 4307064, 4307078
- **Application of the substance / the preparation** Laboratory chemicals
- **Manufacturer/Supplier:**  
Bio-Rad Laboratories, Life Science Group  
2000 Alfred Nobel Drive  
Hercules, California 94547 (510)741-1000
- **Information department:** Technical services, customer support.
- **Emergency information:**  
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 components:**

- **Chemical characterization**
- **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, Xi; R 22-36	2.5-5%
6381-92-6	Ethylenediaminetetraacetic acid disodium salt dihydrate	Xn, Xi; R 22-36/37/38	2.5-5%
151-21-3	sodium dodecyl sulphate	Xn, Xi; R 20/22-36/37/38-42	2.5-5%

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

**3 Hazards identification**

- **Emergency overview:** not applicable
- **Information pertaining to particular dangers for man 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.

**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.

## Material Safety Data Sheet

Printing date 03/16/2010

Reviewed on 03/10/2010

Trade name: AquaPure™ Genomic DNA Lysis Soln.

(Contd. of page 1)

**5 Fire fighting measures**

- **Suitable extinguishing agents**  
CO<sub>2</sub>, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- **Protective equipment:** No special measures required.

**6 Accidental release measures**

- **Person-related safety precautions:** Not required
- **Measures for environmental protection:**  
Dilute with plenty of water.  
Do not allow to enter sewers/ surface or ground water.
- **Measures for cleaning/collecting:**  
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
- **Additional information:** No dangerous substances are released.

**7 Handling and storage**

- **Handling**
- **Information 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.

**8 Exposure controls and personal protection**

- **Additional information about design of technical systems:** No further data; see item 7.
- **Components with limit values that require monitoring at the workplace:**  
The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.
- **Additional information:** The lists that were valid during the creation were used as basis.
- **Personal protective equipment**
- **General protective and hygienic measures** The usual precautionary measures for handling chemicals should be followed.
- **Breathing equipment:** Not required.
- **Protection of hands:** Protective gloves.
- **Material of gloves** Synthetic gloves
- **Penetration time of glove material**  
The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
- **Eye protection:** Safety glasses

**Material Safety Data Sheet**

Printing date 03/16/2010

Reviewed on 03/10/2010

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

(Contd. of page 2)

**9 Physical and chemical properties:**

**· General Information**

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

**· 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

**· pH-value at 20°C:** > 7

**· Solvent content:**

**Organic solvents:** 0.0 %  
**Water:** 85.0 %

**Solids content:** 15.0 %

**10 Stability and reactivity**

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

**· Materials to be avoided:**

**· Dangerous reactions:** No dangerous reactions known

**· Dangerous products of decomposition:** 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)

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

Oral LD50 2000 mg/kg (rat)

**151-21-3 sodium dodecyl sulphate**

Oral LD50 1288 mg/kg (rat)

Dermal LD50 580 mg/kg (rab)

**· Primary irritant effect:**

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

(Contd. on page 4)

**Material Safety Data Sheet**

Printing date 03/16/2010

Reviewed on 03/10/2010

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

(Contd. of page 3)

- **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:**

- **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**

- **Product:**
- **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**

- **DOT regulations:**
- **Hazard class:** -
- **Land transport ADR/RID (cross-border)**
- **ADR/RID class:** -
- **Maritime transport IMDG:**
- **IMDG Class:** -
- **Marine pollutant:** No
- **Air transport ICAO-TI and IATA-DGR:**
- **ICAO/IATA Class:** -

· **Transport/Additional information:** Not dangerous according to the above specifications.

**Material Safety Data Sheet**

Printing date 03/16/2010

Reviewed on 03/10/2010

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

(Contd. of page 4)

**15 Regulations**

· **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.

· **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

(Contd. on page 6)

**Material Safety Data Sheet**

Printing date 03/16/2010

Reviewed on 03/10/2010

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

(Contd. of page 5)

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 03/16/2010

Reviewed on 10/08/2009

**1 Identification of substance:**

- **Product details:**
- **Trade name:** Protein Precipitation Solution
- **Catalog or product number:** 4307065, 4307080
- **Application of the substance / the preparation** Laboratory chemicals
- **Manufacturer/Supplier:**  
Bio-Rad Laboratories, Life Science Group  
2000 Alfred Nobel Drive  
Hercules, California 94547 (510)741-1000
- **Information department:** Technical services, customer support.
- **Emergency information:**  
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 components:**

- **Chemical characterization**
- **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**

- **Emergency overview:** not applicable
- **Information pertaining to particular dangers for man 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.

**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 Fire fighting measures**

- **Suitable extinguishing agents**  
CO2, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.

(Contd. on page 2)



**Material Safety Data Sheet**

Printing date 03/16/2010

Reviewed on 10/08/2009

**Trade name: Protein Precipitation Solution**

(Contd. of page 1)

· **Protective equipment:** No special measures required.

**6 Accidental release measures**

- **Person-related safety precautions:** Not required
- **Measures for environmental protection:** Do not allow to enter sewers/ surface or ground water.
- **Measures for cleaning/collecting:**  
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
- **Additional information:** No dangerous substances are released.

**7 Handling and storage**

- **Handling**
- **Information 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.

**8 Exposure controls and personal protection**

- **Additional information about design of technical systems:** No further data; see item 7.
- **Components with limit values that require monitoring at the workplace:**  
The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.
- **Additional information:** The lists that were valid during the creation were used as basis.
- **Personal protective equipment**
- **General protective and hygienic measures** The usual precautionary measures for handling chemicals should be followed.
- **Breathing equipment:** Not required.
- **Protection of hands:** Protective gloves.
- **Material of gloves** Synthetic gloves
- **Penetration time of glove material**  
The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
- **Eye protection:** Safety glasses

**9 Physical and chemical properties:**

· **General Information**

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

(Contd. on page 3)

## Material Safety Data Sheet

Printing date 03/16/2010

Reviewed on 10/08/2009

Trade name: Protein Precipitation Solution

(Contd. of page 2)

· <b>Change in condition</b> <i>Melting point/Melting range:</i> undetermined <i>Boiling point/Boiling range:</i> 100°C	
· <b>Flash point:</b>	Not applicable
· <b>Auto igniting:</b>	Product is not selfigniting.
· <b>Danger of explosion:</b>	Product does not present an explosion hazard.
· <b>Vapor pressure at 20°C:</b>	23 hPa
· <b>Density at 20°C:</b>	1.1 g/cm <sup>3</sup>
· <b>Solubility in / Miscibility with Water:</b>	Fully miscible
· <b>pH-value at 20°C:</b>	< 8
· <b>Solvent content:</b> <i>Organic solvents:</i> 0.0 % <i>Water:</i> 40.0 %	
· <b>Solids content:</b>	60.0 %

**10 Stability and reactivity**

- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Materials to be avoided:**
- **Dangerous reactions:** No dangerous reactions known
- **Dangerous products of decomposition:** No dangerous decomposition products known

**11 Toxicological information**

- **Acute toxicity:**
- **Primary irritant effect:**
- **on the skin:** No irritant effect.
- **on the eye:** No irritant effect.
- **Sensitization:** No sensitizing effects known.
- **Additional toxicological information:**  
The product is not subject to classification according to the calculation method of the General EU Classification Guidelines for Preparations as issued in the latest version:  
When used and handled according to specifications, the product does not have any harmful effects according to our experience and the information provided to us.
- **Target organs:** Not applicable.

**12 Ecological information:**

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

(Contd. on page 4)

USA

**Material Safety Data Sheet**

Printing date 03/16/2010

Reviewed on 10/08/2009

**Trade name: Protein Precipitation Solution**

(Contd. of page 3)

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

**13 Disposal considerations**

- **Product:**
- **Recommendation** Hand over to hazardous waste disposers.
- **Uncleaned packagings:**
- **Recommendation:** Disposal must be made according to official regulations.

**14 Transport information**

- **DOT regulations:**
- **Hazard class:** -
- **Land transport ADR/RID (cross-border)**
- **ADR/RID class:** -
- **Maritime transport IMDG:**
- **IMDG Class:** -
- **Marine pollutant:** No
- **Air transport ICAO-TI and IATA-DGR:**
- **ICAO/IATA Class:** -
- **Transport/Additional information:** Not dangerous according to the above specifications.

**15 Regulations**

- **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.

(Contd. on page 5)

## Material Safety Data Sheet

Printing date 03/16/2010

Reviewed on 10/08/2009

Trade name: Protein Precipitation Solution

(Contd. of page 4)

· **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.· **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 03/16/2010

Reviewed on 10/08/2009

**1 Identification of substance:**

- **Product details:**
- **Trade name:** DNA Hydration Solution
- **Catalog or product number:** 4307066, 4307081
- **Application of the substance / the preparation** Laboratory chemicals
- **Manufacturer/Supplier:**  
Bio-Rad Laboratories, Life Science Group  
2000 Alfred Nobel Drive  
Hercules, California 94547 (510)741-1000
- **Information department:** Technical services, customer support.
- **Emergency information:**  
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 components:**

- **Chemical characterization**
- **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, Xi; R 22-36	2.5-5%
6381-92-6	Ethylenediaminetetraacetic acid disodium salt dihydrate	Xn, Xi; R 22-36/37/38	2.5-5%

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

**3 Hazards identification**

- **Emergency overview:** not applicable
- **Information pertaining to particular dangers for man 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.

**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.

## Material Safety Data Sheet

Printing date 03/16/2010

Reviewed on 10/08/2009

Trade name: DNA Hydration Solution

(Contd. of page 1)

**5 Fire fighting measures**

- **Suitable extinguishing agents**  
CO<sub>2</sub>, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- **Protective equipment:** No special measures required.

**6 Accidental release measures**

- **Person-related safety precautions:** Not required
- **Measures for environmental protection:**  
Dilute with plenty of water.  
Do not allow to enter sewers/ surface or ground water.
- **Measures for cleaning/collecting:**  
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
- **Additional information:** No dangerous substances are released.

**7 Handling and storage**

- **Handling**
- **Information 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.

**8 Exposure controls and personal protection**

- **Additional information about design of technical systems:** No further data; see item 7.
- **Components with limit values that require monitoring at the workplace:**  
The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.
- **Additional information:** The lists that were valid during the creation were used as basis.
- **Personal protective equipment**
- **General protective and hygienic measures** The usual precautionary measures for handling chemicals should be followed.
- **Breathing equipment:** Not required.
- **Protection of hands:** Protective gloves.
- **Material of gloves** Synthetic gloves
- **Penetration time of glove material**  
The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
- **Eye protection:** Safety glasses

USA

(Contd. on page 3)

**Material Safety Data Sheet**

Printing date 03/16/2010

Reviewed on 10/08/2009

**Trade name: DNA Hydration Solution**

(Contd. of page 2)

**9 Physical and chemical properties:**

**· General Information**

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

**· 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

**· pH-value at 20°C:** < 8

**· Solvent content:**

**Organic solvents:** 0.0 %  
**Water:** 90.0 %

**Solids content:** 10.0 %

**10 Stability and reactivity**

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

**· Materials to be avoided:**

**· Dangerous reactions:** No dangerous reactions known

**· Dangerous products of decomposition:** 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)

**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.

(Contd. on page 4)

**Material Safety Data Sheet**

Printing date 03/16/2010

Reviewed on 10/08/2009

**Trade name: DNA Hydration Solution**

(Contd. of page 3)

**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:**

**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**

**Product:**

**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**

**DOT regulations:**

**Hazard class:** -

**Land transport ADR/RID (cross-border)**

**ADR/RID class:** -

**Maritime transport IMDG:**

**IMDG Class:** -

**Marine pollutant:** No

**Air transport ICAO-TI and IATA-DGR:**

**ICAO/IATA Class:** -

**Transport/Additional information:** Not dangerous according to the above specifications.

**15 Regulations**

**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.

(Contd. on page 5)



**Material Safety Data Sheet**

Printing date 03/16/2010

Reviewed on 10/08/2009

**Trade name: DNA Hydration Solution**

(Contd. of page 4)

**· 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

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 03/16/2010

Reviewed on 10/08/2009

**1 Identification of substance:**

- **Product details:**
- **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
- **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 information:**  
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 components:**

- **Chemical characterization**
- **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, Xi; R 22-36	2.5-5%
7774-34-7	calcium chloride	Xi; R 36	2.5-5%

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

**3 Hazards identification**

- **Emergency overview:** not applicable
- **Information pertaining to particular dangers for man 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.

**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.

**Material Safety Data Sheet**

Printing date 03/16/2010

Reviewed on 10/08/2009

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

(Contd. of page 1)

**5 Fire fighting measures**

- **Suitable extinguishing agents** Use fire fighting measures that suit the environment.
- **Protective equipment:** No special measures required.

**6 Accidental release measures**

- **Person-related safety precautions:** Not required
- **Measures for environmental protection:**  
Dilute with plenty of water.  
Do not allow to enter sewers/ surface or ground water.
- **Measures for cleaning/collecting:**  
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
- **Additional information:** No dangerous substances are released.

**7 Handling and storage**

- **Handling**
- **Information 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.

**8 Exposure controls and 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.
- **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.

(Contd. on page 3)

**Material Safety Data Sheet**

Printing date 03/16/2010

Reviewed on 10/08/2009

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

(Contd. of page 2)

· **Eye protection:** Safety glasses

**9 Physical and chemical properties:**

· **General Information**

**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:** Not determined

· **Solubility in / Miscibility with**

**Water:** Fully miscible

· **pH-value at 20°C:** < 8

· **Solvent content:**

**Organic solvents:** 60.0 %  
**Water:** 25.0 %

**Solids content:** 15.0 %

**10 Stability and reactivity**

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

· **Materials to be avoided:**

· **Dangerous reactions** No dangerous reactions known

· **Dangerous products of decomposition:** 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)

(Contd. on page 4)

**Material Safety Data Sheet**

Printing date 03/16/2010

Reviewed on 10/08/2009

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

(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:**

- **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**

- **Product:**
- **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**

- **DOT regulations:**
- **Hazard class:** -
- **Land transport ADR/RID (cross-border)**
- **ADR/RID class:** -
- **Maritime transport IMDG:**
- **IMDG Class:** -
- **Marine pollutant:** No
- **Air transport ICAO-TI and IATA-DGR:**
- **ICAO/IATA Class:** -
- **Transport/Additional information:** Not dangerous according to the above specifications.

**15 Regulations**

- **SARA (Superfund Amendments and Reauthorization Act of 1986 - USA)**
- **Section 302/304 (40CFR355.30 / 40CFR355.40):**  
 None of the ingredients is listed.

(Contd. on page 5)

**Material Safety Data Sheet**

Printing date 03/16/2010

Reviewed on 10/08/2009

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

(Contd. of page 4)

**· 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.

**· 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

(Contd. on page 6)

**Material Safety Data Sheet**

Printing date 03/16/2010

Reviewed on 10/08/2009

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

(Contd. of page 5)

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 03/16/2010

Reviewed on 01/20/2010

**1 Identification of substance:**

- **Product details:**
- **Trade name:** RBC Lysis Solution
- **Catalog or product number:** 7326372, 4307061, 4307079
- **Application of the substance / the preparation** Laboratory chemicals
- **Manufacturer/Supplier:**  
 Bio-Rad Laboratories, Life Science Group  
 2000 Alfred Nobel Drive  
 Hercules, California 94547 (510)741-1000
- **Information department:** Technical services, customer support.
- **Emergency information:**  
 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 components:**

- **Chemical characterization**
- **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, Xi; R 22-36	2.5-5%
6381-92-6	Ethylenediaminetetraacetic acid disodium salt dihydrate	Xn, Xi; R 22-36/37/38	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**

- **Emergency overview:** not applicable
- **Information pertaining to particular dangers for man 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.

**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.



**Material Safety Data Sheet**

Printing date 03/16/2010

Reviewed on 01/20/2010

**Trade name: RBC Lysis Solution**

(Contd. of page 1)

**5 Fire fighting measures**

- **Suitable extinguishing agents**  
CO2, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- **Protective equipment:** No special measures required.

**6 Accidental release measures**

- **Person-related safety precautions:** Not required
- **Measures for environmental protection:** No special measures required.
- **Measures for cleaning/collecting:**  
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
- **Additional information:** No dangerous substances are released.

**7 Handling and storage**

- **Handling**
- **Information 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.

**8 Exposure controls and 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:**

**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.

(Contd. on page 3)

**Material Safety Data Sheet**

Printing date 03/16/2010

Reviewed on 01/20/2010

**Trade name: RBC Lysis Solution**

(Contd. of page 2)

· **Eye protection:** Safety glasses

**9 Physical and chemical properties:**

· **General Information**

**Form:** liquid  
**Color:** According to product specification  
**Odor:** Odorless

· **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

· **pH-value at 20°C:** < 8

· **Solvent content:**

**Organic solvents:** 0.0 %  
**Water:** 85.0 %

**Solids content:** 15.0 %

**10 Stability and reactivity**

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

· **Materials to be avoided:**

· **Dangerous reactions** No dangerous reactions known

· **Dangerous products of decomposition:** 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.

(Contd. on page 4)

**Material Safety Data Sheet**

Printing date 03/16/2010

Reviewed on 01/20/2010

**Trade name: RBC Lysis Solution**

(Contd. of page 3)

- **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:**

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

**13 Disposal considerations**

- **Product:**
- **Recommendation** Hand over to hazardous waste disposers.
- **Uncleaned packagings:**
- **Recommendation:** Disposal must be made according to official regulations.

**14 Transport information**

- **DOT regulations:**
- **Hazard class:** -
- **Land transport ADR/RID (cross-border)**
- **ADR/RID class:** -
- **Maritime transport IMDG:**
- **IMDG Class:** -
- **Marine pollutant:** No
- **Air transport ICAO-TI and IATA-DGR:**
- **ICAO/IATA Class:** -
- **Transport/Additional information:** Not dangerous according to the above specifications.

**15 Regulations**

- **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

(Contd. on page 5)

**Material Safety Data Sheet**

Printing date 03/16/2010

Reviewed on 01/20/2010

**Trade name: RBC Lysis Solution**

(Contd. of page 4)

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.

· **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.**