



03/16/2010

Kit Components

Product code	Description
7326343	AquaPure™ Genomic DNA Tissue Kit

Components:

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

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.

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Trade name: AquaPure™ Genomic DNA Lysis Soln.

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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:**
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

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Material Safety Data Sheet

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Reviewed on 03/10/2010

Trade name: AquaPure™ Genomic DNA Lysis Soln.

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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.

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Material Safety Data Sheet

Printing date 03/16/2010

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Trade name: AquaPure™ Genomic DNA Lysis Soln.

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- **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.

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Reviewed on 03/10/2010

Trade name: AquaPure™ Genomic DNA Lysis Soln.

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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

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Material Safety Data Sheet

Printing date 03/16/2010

Reviewed on 03/10/2010

Trade name: AquaPure™ Genomic DNA Lysis Soln.

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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.

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Material Safety Data Sheet

Printing date 03/16/2010

Reviewed on 10/08/2009

Trade name: Protein Precipitation Solution

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· **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**

Form:	liquid
Color:	Colorless
Odor:	Odorless

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Material Safety Data Sheet

Printing date 03/16/2010

Reviewed on 10/08/2009

Trade name: Protein Precipitation Solution

(Contd. of page 2)

· Change in condition <i>Melting point/Melting range:</i> undetermined <i>Boiling point/Boiling range:</i> 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 ³
· Solubility in / Miscibility with Water:	Fully miscible
· pH-value at 20°C:	< 8
· Solvent content: <i>Organic solvents:</i> 0.0 % <i>Water:</i> 40.0 %	
· Solids content:	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.

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Material Safety Data Sheet

Printing date 03/16/2010

Reviewed on 10/08/2009

Trade name: Protein Precipitation Solution

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

None of the ingredients is listed.

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

None of the ingredients is listed.

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

None of the ingredients is listed.

· **Markings according to EU guidelines:**

Observe the general safety regulations when handling chemicals

The 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

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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:**
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 10/08/2009

Trade name: DNA Hydration Solution

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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)

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Trade name: DNA Hydration Solution

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· 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 ³ *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 10/08/2009

1 Identification of substance:

- **Product details:**
- **Trade name:** Proteinase K Solution (20 mg/ml)
- **Catalog or product number:** 7326348, 4307082, 4307060, 9703792
- **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		35-50%
7732-18-5	water		20-35%
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%
30007-47-7	5-Bromo-5-nitro-1,3-dioxane	Xn, Xi; R 21/22-36/38	2.5-5%
39450-01-6	Proteinase, Tritirachium album serine	Xi; R 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.

(Contd. on page 2)

Material Safety Data Sheet

Printing date 03/16/2010

Reviewed on 10/08/2009

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

(Contd. of page 1)

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

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:** 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 ³ *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: Proteinase K Solution (20 mg/ml)

(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 at 20°C:** 1.14028 g/cm³

· **Solubility in / Miscibility with**

Water: Fully miscible

· **Solvent content:**

Organic solvents: 50.0 %
Water: 30.0 %

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)

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

Oral LD50 2000 mg/kg (rat)

(Contd. on page 4)

Material Safety Data Sheet

Printing date 03/16/2010

Reviewed on 10/08/2009

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

(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.

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 Amendants 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: Proteinase K Solution (20 mg/ml)

(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
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.

· **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

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USA