



ZYMO RESEARCH

The Beauty of Science is to Make Things Simple

03/28/2018

Kit Components

Product code	Description
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R1072	Quick-cfDNA/cfRNA Serum & Plasma Kit
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Components:

D3001-2-A	Proteinase K
D3001-2-C	Proteinase K Storage Buffer
R1072-1-150	Quick-cfDNA/cfRNA Digestion Buffer
R1072-2-150	Quick-cfDNA/cfRNA Binding Buffer
R1072-3-20	Cell-free Recovery Buffer
R1060-2-10	RNA Prep Buffer
R1003-3-6	RNA Wash Buffer (Concentrate)
W1001-1, W1001-4, W1001-6	DNase/RNase Free Water



Safety Data Sheet
acc. to OSHA HCS

Printing date 03/28/2018

Reviewed on 12/07/2015

1 Identification

- **Product identifier**
- **Trade name: Proteinase K**
- **Article number:** D3001-2-A, D3001-2-B, D3001-2-F
- **Application of the substance / the mixture** Laboratory Reagent
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**
Zymo Research Corp.
17062 Murphy Ave.
Irvine, CA 92614
USA
Phone: 1-949-679-1190 or 1-888-882-9682
sds@zymoresearch.com
- **Information department:** Product safety department
- **Emergency telephone number:**
During normal business hours (8 am to 5 pm Pacific Standard Time): +1 (949) 679 1190

2 Hazard(s) identification

- **Classification of the substance or mixture**
The product is not classified according to the Globally Harmonized System (GHS).

- **Label elements**
- **GHS label elements** Void
- **Hazard pictograms** Void
- **Signal word** Void
- **Hazard statements** Void
- **Classification system:**
- **NFPA ratings (scale 0 - 4)**



- **HMIS-ratings (scale 0 - 4)**



- **Other hazards**
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.



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Trade name: Proteinase K

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3 Composition/information on ingredients

- **Chemical characterization: Mixtures**
- **Description:** Mixture of the substances listed below with nonhazardous additions.
- **Dangerous components:** Void

4 First-aid measures

- **Description of 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. Then consult a doctor.
- **After swallowing:** Do not induce vomiting; immediately call for medical help.
- **Information for doctor:**
- **Most important symptoms and effects, both acute and delayed** No further relevant information available.
- **Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

5 Fire-fighting measures

- **Extinguishing media**
- **Suitable extinguishing agents:**
CO2, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
Use fire fighting measures that suit the environment.
- **Advice for firefighters**
- **Protective equipment:** Wear protective clothing.

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures** Wear protective clothing.
- **Environmental precautions:** Dilute with plenty of water.
- **Methods and material for containment and cleaning up:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
- **Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.
- **Protective Action Criteria for Chemicals**

· **PAC-1:**

None of the ingredients is listed.

· **PAC-2:**

None of the ingredients is listed.

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Trade name: Proteinase K

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· **PAC-3:**

None of the ingredients is listed.

7 Handling and storage

- **Handling:**
- **Precautions for safe handling** No special measures required.
- **Information about protection against explosions and fires:** No special measures required.
- **Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:** No special requirements.
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:** None.
- **Specific end use(s)** Laboratory reagent

8 Exposure controls/personal protection

- **Additional information about design of technical systems:** No further data; see item 7.
- **Control parameters**
- **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.
- **Exposure controls**
- **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:**
The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation
- **Material of gloves**
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.
- **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:** Goggles recommended during refilling.

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Trade name: Proteinase K

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9 Physical and chemical properties

· **Information on basic physical and chemical properties**

· **General Information**

· **Appearance:**

· **Form:** Crystalline powder

· **Color:** Whitish

· **Odor:** Odorless

· **Odor threshold:** Not determined.

· **pH-value:** Not determined.

· **Change in condition**

· **Melting point/Melting range:** Undetermined.

· **Boiling point/Boiling range:** Undetermined.

· **Flash point:** Not applicable.

· **Flammability (solid, gaseous):** Not applicable.

· **Ignition temperature:**

· **Decomposition temperature:** Not determined.

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

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

· **Explosion limits:**

· **Lower:** Not Applicable

· **Upper:** Not Applicable

· **Vapor pressure:** Not determined.

· **Density:** Not determined.

· **Relative density** Not determined.

· **Vapor density** Not determined.

· **Evaporation rate** Not determined.

· **Solubility in / Miscibility with**

· **Water:** Fully miscible.

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

· **Viscosity:**

· **Dynamic:** Not determined.

· **Kinematic:** Not determined.

· **Solvent content:**

· **VOC content:** 0.00 %
0.0 g/l / 0.00 lb/gl

· **Solids content:** 0.0 %

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Trade name: Proteinase K

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· Other information No further relevant information available.

10 Stability and reactivity

- Reactivity No further relevant information available.
· Chemical stability
· Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications.
· Possibility of hazardous reactions No dangerous reactions known.
· Conditions to avoid No further relevant information available.
· Incompatible materials: No further relevant information available.
· Hazardous decomposition products: No dangerous decomposition products known.

11 Toxicological information

- Information on toxicological effects
· Acute toxicity:
· Primary irritant effect:
· on the skin: No irritant effect.
· on the eye: No irritating effect.
· Sensitization: No sensitizing effects known.
· Additional toxicological information:
The product is not subject to classification according to internally approved calculation methods for preparations:
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.
· Carcinogenic categories

· IARC (International Agency for Research on Cancer)

None of the ingredients is listed.

· NTP (National Toxicology Program)

None of the ingredients is listed.

· OSHA-Ca (Occupational Safety & Health Administration)

None of the ingredients is listed.

12 Ecological information

- Toxicity
· Aquatic toxicity: No further relevant information available.
· Persistence and degradability No further relevant information available.
· Behavior in environmental systems:
· Bioaccumulative potential No further relevant information available.
· Mobility in soil No further relevant information available.
· Additional ecological information:
· General notes: Generally not hazardous for water

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Trade name: Proteinase K

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- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **Other adverse effects** No further relevant information available.

13 Disposal considerations

- **Waste treatment methods**
- **Recommendation:** Smaller quantities can be disposed of with household waste.
- **Uncleaned packagings:**
- **Recommendation:** Dispose of container in accordance with local/regional/national and international recommendations.
- **Recommended cleansing agent:** Water, if necessary with cleansing agents.

14 Transport information

· UN-Number	
· DOT, ADN, IMDG, IATA	not regulated
· UN proper shipping name	
· DOT, ADN, IMDG, IATA	not regulated
· Transport hazard class(es)	
· DOT, ADN, IMDG, IATA	
· Class	not regulated
· Packing group	
· DOT, IMDG, IATA	not regulated
· Environmental hazards:	Not applicable.
· Special precautions for user	Not applicable.
· Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	Not applicable.
· UN "Model Regulation":	not regulated

15 Regulatory information

- **Safety, health and environmental regulations/legislation specific for the substance or mixture**
- **Sara**

· Section 355 (extremely hazardous substances):
None of the ingredients is listed.

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Trade name: Proteinase K

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Section 313 (Specific toxic chemical listings):

None of the ingredients is listed.

TSCA (Toxic Substances Control Act):

None of the ingredients is listed.

Proposition 65

Chemicals known to cause cancer:

None of the ingredients is listed.

Chemicals known to cause reproductive toxicity for females:

None of the ingredients is listed.

Chemicals known to cause reproductive toxicity for males:

None of the ingredients is listed.

Chemicals known to cause developmental toxicity:

None of the ingredients is listed.

Carcinogenic categories

EPA (Environmental Protection Agency)

None of the ingredients is listed.

TLV (Threshold Limit Value established by ACGIH)

None of the ingredients is listed.

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

None of the ingredients is listed.

GHS label elements Void

Hazard pictograms Void

Signal word Void

Hazard statements Void

Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

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 SDS:

Zymo Research Corp.
Safety Department
17062 Murphy Ave.
Irvine, CA 92614
USA

Phone: 1-949-679-1190 or 1-888-882-9682

Contact: sds@zymoresearch.com

Date of preparation / last revision 03/28/2018 / -

Abbreviations and acronyms:

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

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Trade name: Proteinase K

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IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association
ACGIH: American Conference of Governmental Industrial Hygienists
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
NFPA: National Fire Protection Association (USA)
HMIS: Hazardous Materials Identification System (USA)
VOC: Volatile Organic Compounds (USA, EU)
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
NIOSH: National Institute for Occupational Safety
OSHA: Occupational Safety & Health
TLV: Threshold Limit Value
PEL: Permissible Exposure Limit
REL: Recommended Exposure Limit

US



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acc. to OSHA HCS

Printing date 03/28/2018

Reviewed on 11/13/2015

1 Identification

- **Product identifier**
- **Trade name:** Proteinase K Storage Buffer
- **Article number:** D3001-2-C, D3001-2-D, D3001-2-E
- **Application of the substance / the mixture** Laboratory Reagent
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**
Zymo Research Corp.
17062 Murphy Ave.
Irvine, CA 92614
USA
Phone: 1-949-679-1190 or 1-888-882-9682
sds@zymoresearch.com
- **Information department:** Product safety department
- **Emergency telephone number:**
During normal business hours (8 am to 5 pm Pacific Standard Time): +1 (949) 679 1190

2 Hazard(s) identification

- **Classification of the substance or mixture**
The product is not classified according to the Globally Harmonized System (GHS).

- **Label elements**
- **GHS label elements** Void
- **Hazard pictograms** Void
- **Signal word** Void
- **Hazard statements** Void
- **Classification system:**
- **NFPA ratings (scale 0 - 4)**



- **HMIS-ratings (scale 0 - 4)**



- **Other hazards**
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.



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acc. to OSHA HCS

Printing date 03/28/2018

Reviewed on 11/13/2015

Trade name: Proteinase K Storage Buffer

(Contd. of page 1)

3 Composition/information on ingredients

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

Dangerous components:

Table with 2 columns: Component (CAS: 56-81-5 glycerol) and Concentration (50%)

4 First-aid measures

- Description of 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. Then consult a doctor.
After swallowing: Do not induce vomiting; immediately call for medical help.
Information for doctor:
Most important symptoms and effects, both acute and delayed No further relevant information available.
Indication of any immediate medical attention and special treatment needed
No further relevant information available.

5 Fire-fighting measures

- Extinguishing media
Suitable extinguishing agents: Use fire fighting measures that suit the environment.
Advice for firefighters
Protective equipment: Wear protective clothing.

6 Accidental release measures

- Personal precautions, protective equipment and emergency procedures Wear protective clothing.
Environmental precautions:
Dilute with plenty of water.
Do not allow to enter sewers/ surface or ground water.
Methods and material for containment and cleaning up:
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Reference to other sections
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.
Protective Action Criteria for Chemicals

PAC-1:

Table with 2 columns: Component (CAS: 56-81-5 glycerol) and Concentration (45 mg/m³)

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Trade name: Proteinase K Storage Buffer

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PAC-2:

Table with 2 columns: CAS: 56-81-5 glycerol, 180 mg/m³

PAC-3:

Table with 2 columns: CAS: 56-81-5 glycerol, 1,100 mg/m³

7 Handling and storage

- Handling:
Precautions for safe handling: No special measures required.
Information about protection against explosions and fires: No special measures required.
Conditions for safe storage, including any incompatibilities
Storage:
Requirements to be met by storerooms and receptacles: No special requirements.
Information about storage in one common storage facility: Not required.
Further information about storage conditions: None.
Specific end use(s): Laboratory reagent

8 Exposure controls/personal protection

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

Components with limit values that require monitoring at the workplace:

CAS: 56-81-5 glycerol

PEL Long-term value: 15* 5** mg/m³
mist; *total dust **respirable fraction

TLV TLV withdrawn-insufficient data human occup. exp.

- Additional information: The lists that were valid during the creation were used as basis.
Exposure controls
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: The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
Material of gloves: The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.

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Trade name: Proteinase K Storage Buffer

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- Penetration time of glove material
The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
Eye protection: Goggles recommended during refilling.

9 Physical and chemical properties

Information on basic physical and chemical properties

General Information

Appearance:

- Form: Liquid
Color: Clear
Odor: Odorless
Odor threshold: Not determined.

pH-value: Not determined.

Change in condition

- Melting point/Melting range: Undetermined.
Boiling point/Boiling range: 290 °C (554 °F)

Flash point: 160 °C (320 °F)

Flammability (solid, gaseous): Not applicable.

Ignition temperature: 400 °C (752 °F)

Decomposition temperature: Not determined.

Auto igniting: Product is not selfigniting.

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

Explosion limits:

- Lower: 0,9 Vol %
Upper: 0,0 Vol %

Vapor pressure at 20 °C (68 °F): 0.1 hPa (0.1 mm Hg)

- Density: Not determined.
Relative density: Not determined.
Vapor density: Not determined.
Evaporation rate: Not determined.

Solubility in / Miscibility with

Water: Fully miscible.

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

Viscosity:

- Dynamic: Not determined.
Kinematic: Not determined.

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Trade name: Proteinase K Storage Buffer

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Table with solvent content (50.0% organic, 0.00% VOC), solids content (0.0%), and other information (No further relevant information available).

10 Stability and reactivity

- Reactivity, Chemical stability, Thermal decomposition, Possibility of hazardous reactions, Conditions to avoid, Incompatible materials, Hazardous decomposition products.

11 Toxicological information

- Information on toxicological effects, Acute toxicity, Primary irritant effect (skin, eye), Sensitization, Additional toxicological information.

Carcinogenic categories

IARC (International Agency for Research on Cancer)

None of the ingredients is listed.

NTP (National Toxicology Program)

None of the ingredients is listed.

OSHA-Ca (Occupational Safety & Health Administration)

None of the ingredients is listed.

12 Ecological information

- Toxicity, Aquatic toxicity.

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Trade name: Proteinase K Storage Buffer

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- Persistence and degradability No further relevant information available.
· Behavior in environmental systems:
· Bioaccumulative potential No further relevant information available.
· Mobility in soil No further relevant information available.
· Additional ecological information:
· General notes:
Water hazard class 1 (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.
· Results of PBT and vPvB assessment
· PBT: Not applicable.
· vPvB: Not applicable.
· Other adverse effects No further relevant information available.

13 Disposal considerations

- Waste treatment methods
· Recommendation: Smaller quantities can be disposed of with household waste.
· Uncleaned packagings:
· Recommendation:
Dispose of container in accordance with local/regional/national and international recommendations.
· Recommended cleansing agent: Water, if necessary with cleansing agents.

14 Transport information

Table with 2 columns: Hazard/Requirement and Status. Rows include UN-Number, UN proper shipping name, Transport hazard class(es), Packing group, Environmental hazards, Special precautions for user, Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code, and UN Model Regulation.



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Trade name: Proteinase K Storage Buffer

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15 Regulatory information

- *Safety, health and environmental regulations/legislation specific for the substance or mixture*
- *Sara*

· **Section 355 (extremely hazardous substances):**

None of the ingredients is listed.

· **Section 313 (Specific toxic chemical listings):**

None of the ingredients is listed.

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

All ingredients are listed.

· **Proposition 65**

· **Chemicals known to cause cancer:**

None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for females:**

None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for males:**

None of the ingredients is listed.

· **Chemicals known to cause developmental toxicity:**

None of the ingredients is listed.

· **Carcinogenic categories**

· **EPA (Environmental Protection Agency)**

None of the ingredients is listed.

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

None of the ingredients is listed.

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

None of the ingredients is listed.

· **GHS label elements** Void

· **Hazard pictograms** Void

· **Signal word** Void

· **Hazard statements** Void

· **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

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 SDS:**

Zymo Research Corp.
Safety Department
17062 Murphy Ave.
Irvine, CA 92614
USA

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Trade name: Proteinase K Storage Buffer

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Phone: 1-949-679-1190 or 1-888-882-9682

· **Contact:** sds@zymoresearch.com

· **Date of preparation / last revision** 03/28/2018 / -

· **Abbreviations and acronyms:**

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

ACGIH: American Conference of Governmental Industrial Hygienists

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

NFPA: National Fire Protection Association (USA)

HMIS: Hazardous Materials Identification System (USA)

VOC: Volatile Organic Compounds (USA, EU)

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

NIOSH: National Institute for Occupational Safety

OSHA: Occupational Safety & Health

TLV: Threshold Limit Value

PEL: Permissible Exposure Limit

REL: Recommended Exposure Limit

US



Safety Data Sheet
acc. to OSHA HCS

Printing date 03/28/2018

Reviewed on 03/27/2018

1 Identification

- Product identifier
Trade name: Quick-cfDNA/cfRNA Digestion Buffer
Article number: R1072-1-150
Application of the substance / the mixture Laboratory Reagent
Details of the supplier of the safety data sheet
Manufacturer/Supplier: Zymo Research Corp.
Information department: Product safety department
Emergency telephone number: +1 (949) 679 1190

2 Hazard(s) identification

Classification of the substance or mixture



GHS05 Corrosion

Skin Corr. 1C H314 Causes severe skin burns and eye damage.
Eye Dam. 1 H318 Causes serious eye damage.



GHS07

Acute Tox. 4 H302 Harmful if swallowed.
Aquatic Chronic 3 H412 Harmful to aquatic life with long lasting effects.

- Label elements
GHS label elements The product is classified and labeled according to the Globally Harmonized System (GHS).
Hazard pictograms GHS05, GHS07
Signal word Danger
Hazard-determining components of labeling: guanidinium thiocyanate
Hazard statements Harmful if swallowed. Causes severe skin burns and eye damage. Harmful to aquatic life with long lasting effects.
Precautionary statements Do not breathe dusts or mists. Wash thoroughly after handling. Do not eat, drink or smoke when using this product.

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Trade name: Quick-cfDNA/cfRNA Digestion Buffer

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Avoid release to the environment.
Wear protective gloves / eye protection / face protection.
If swallowed: Call a poison center/doctor if you feel unwell.
If on skin: Wash with plenty of water.
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.
Continue rinsing.
Specific treatment (see on this label).
Rinse mouth.
If skin irritation occurs: Get medical advice/attention.
If eye irritation persists: Get medical advice/attention.
Take off contaminated clothing and wash it before reuse.
Store locked up.
Dispose of contents/container in accordance with local/regional/national/international regulations.

Classification system:

NFPA ratings (scale 0 - 4)



HMIS-ratings (scale 0 - 4)



Other hazards

Results of PBT and vPvB assessment

PBT: Not applicable.

vPvB: Not applicable.

3 Composition/information on ingredients

Chemical characterization: Mixtures

Description: Mixture: consisting of the following components.

Dangerous components:

Table with 2 columns: CAS: 593-84-0, guanidinium thiocyanate, 30-50%

4 First-aid measures

Description of first aid measures

General information:

Immediately remove any clothing soiled by the product.
Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.

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Trade name: Quick-cfDNA/cfRNA Digestion Buffer

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- After inhalation: Supply fresh air. If required, provide artificial respiration...
After skin contact: Immediately wash with water and soap...
After eye contact: Rinse opened eye for several minutes...
After swallowing: Rinse mouth. DO NOT induce vomiting.
Information for doctor: Most important symptoms and effects, both acute and delayed No further relevant information available.
Indication of any immediate medical attention and special treatment needed No further relevant information available.

5 Fire-fighting measures

- Extinguishing media
Suitable extinguishing agents: Use fire fighting measures that suit the environment.
Special hazards arising from the substance or mixture Products of thermal decomposition of this material would include hydrogen cyanide, ammonia, and oxides of carbon, nitrogen and sulfur.
Advice for firefighters
Protective equipment: Wear self-contained breathing apparatus for fighting fires involving this material

6 Accidental release measures

- Personal precautions, protective equipment and emergency procedures Wear self-contained breathing apparatus for responding to non-incidenta...
Environmental precautions: Dilute with plenty of water. Do not allow to enter sewers/ surface or ground water.
Methods and material for containment and cleaning up: Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust). Use neutralizing agent. Dispose contaminated material as waste according to item 13. Ensure adequate ventilation.
Reference to other sections See Section 7 for information on safe handling. See Section 8 for information on personal protection equipment. See Section 13 for disposal information.
Protective Action Criteria for Chemicals

PAC-I:

CAS: 593-84-0 guanidinium thiocyanate

0.98 mg/m³

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PAC-2:

Table with 2 columns: CAS: 593-84-0 guanidinium thiocyanate, 11 mg/m³

PAC-3:

Table with 2 columns: CAS: 593-84-0 guanidinium thiocyanate, 65 mg/m³

7 Handling and storage

- Handling:
Precautions for safe handling
Information about protection against explosions and fires: No special measures required.
Conditions for safe storage, including any incompatibilities
Storage:
Requirements to be met by storerooms and receptacles: No special requirements.
Information about storage in one common storage facility: Do not store together with acids or strong oxidizers.
Further information about storage conditions: Keep receptacle tightly sealed.
Specific end use(s) Laboratory reagent

8 Exposure controls/personal protection

- Additional information about design of technical systems: No further data; see item 7.
Control parameters
Components with limit values that require monitoring at the workplace:
Additional information: The lists that were valid during the creation were used as basis.
Exposure controls
Personal protective equipment:
General protective and hygienic measures:
Breathing equipment:

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Protection of hands:



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation. Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

Material of gloves

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

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:



Tightly sealed goggles

9 Physical and chemical properties

Information on basic physical and chemical properties

General Information

Appearance:

Form:	Liquid
Color:	Colorless
Odor:	Nearly odorless
Odor threshold:	Not determined.

pH-value: Not determined.

Change in condition

Melting point/Melting range:	Undetermined.
Boiling point/Boiling range:	Undetermined.

Flash point: Not applicable.

Flammability (solid, gaseous): Not applicable.

Ignition temperature:

Decomposition temperature: Not determined.

Auto igniting: Product is not selfigniting.

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

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Table with 2 columns: Property and Value. Rows include Explosion limits, Vapor pressure, Density, Solubility in Water, Partition coefficient, Viscosity, Solvent content, and Solids content.

10 Stability and reactivity

- Reactivity: No further relevant information available.
Chemical stability: This product is normally stable under anticipated circumstances of use and storage.
Thermal decomposition / conditions to be avoided: Products of thermal decomposition of this material would include hydrogen cyanide, ammonia, and oxides of carbon nitrogen and sulfur.
Possibility of hazardous reactions: No dangerous reactions known.
Conditions to avoid: Avoid exposing product to extreme temperatures or incompatible chemicals.
Incompatible materials: Acids and strong oxidizers.
Hazardous decomposition products: Product will not undergo self-decomposition, so no such products will be generated.

11 Toxicological information

- Information on toxicological effects
Acute toxicity:
LD/LC50 values that are relevant for classification:

Table with 2 columns: Route and LD50. Row 1: Oral, LD50 593 mg/kg (rat). Row 2: CAS: 593-84-0 guanidinium thiocyanate

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- Primary irritant effect:
on the skin: Caustic effect on skin and mucous membranes.
on the eye: Strong caustic effect. Irritating to eyes.
Sensitization: No sensitizing effects known.
Additional toxicological information: The product shows the following dangers according to internally approved calculation methods for preparations: Harmful Corrosive Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.

Carcinogenic categories

Table with 2 columns: Category (IARC, NTP, OSHA-Ca) and Description (None of the ingredients is listed).

12 Ecological information

Toxicity

Table with 2 columns: Aquatic toxicity (CAS: 593-84-0 guanidinium thiocyanate) and EC50 (42.4 mg/kg (daphnia)).

- Persistence and degradability: No further relevant information available.
Behavior in environmental systems:
Bioaccumulative potential: No further relevant information available.
Mobility in soil: No further relevant information available.
Additional ecological information:
General notes: Do not allow product to reach ground water, water course or sewage system. Must not reach bodies of water or drainage ditch undiluted or unneutralized. Danger to drinking water if even small quantities leak into the ground.
Results of PBT and vPvB assessment:
PBT: Not applicable.
vPvB: Not applicable.
Other adverse effects: No further relevant information available.

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13 Disposal considerations

- Waste treatment methods
Recommendation: Dispose of contents in accordance with local/regional/national, and international recommendations.
Uncleaned packagings:
Recommendation: Dispose of container in accordance with local/regional/national and international recommendations.
Recommended cleansing agent: Water, if necessary with cleansing agents.

14 Transport information

Table with 2 columns: Property and Value. Rows include UN-Number (UN1760), UN proper shipping name (CORROSIVE LIQUID, N.O.S. (guanidinium thiocyanate)), Transport hazard class(es) (8 Corrosive substances), Packing group (III), and Stowage Code (SW2 Clear of living quarters).

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- Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code
Transport/Additional information:
DOT
Quantity limitations
IMDG
Limited quantities (LQ)
Excepted quantities (EQ)
UN Model Regulation

15 Regulatory information

- Safety, health and environmental regulations/legislation specific for the substance or mixture
Sara

Section 355 (extremely hazardous substances):

None of the ingredients is listed.

Section 313 (Specific toxic chemical listings):

None of the ingredients is listed.

TSCA (Toxic Substances Control Act):

All ingredients are listed.

Proposition 65

Chemicals known to cause cancer:

None of the ingredients is listed.

Chemicals known to cause reproductive toxicity for females:

None of the ingredients is listed.

Chemicals known to cause reproductive toxicity for males:

None of the ingredients is listed.

Chemicals known to cause developmental toxicity:

None of the ingredients is listed.

Carcinogenic categories

EPA (Environmental Protection Agency)

None of the ingredients is listed.

TLV (Threshold Limit Value established by ACGIH)

None of the ingredients is listed.

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

None of the ingredients is listed.

· **GHS label elements** The product is classified and labeled according to the Globally Harmonized System (GHS).

· **Hazard pictograms** GHS05, GHS07

· **Signal word** Danger

· **Hazard-determining components of labeling:**

guanidinium thiocyanate

· **Hazard statements**

Harmful if swallowed.

Causes severe skin burns and eye damage.

Harmful to aquatic life with long lasting effects.

· **Precautionary statements**

Do not breathe dusts or mists.

Wash thoroughly after handling.

Do not eat, drink or smoke when using this product.

Avoid release to the environment.

Wear protective gloves / eye protection / face protection.

If swallowed: Call a poison center/doctor if you feel unwell.

If on skin: Wash with plenty of water.

If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.

Continue rinsing.

Specific treatment (see on this label).

Rinse mouth.

If skin irritation occurs: Get medical advice/attention.

If eye irritation persists: Get medical advice/attention.

Take off contaminated clothing and wash it before reuse.

Store locked up.

Dispose of contents/container in accordance with local/regional/national/international regulations.

· **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

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 SDS:**

Zymo Research Corp.

Safety Department

17062 Murphy Ave.

Irvine, CA 92614

USA

Phone: 1-949-679-1190 or 1-888-882-9682

· **Contact:** sds@zymoresearch.com

· **Date of preparation / last revision** 03/28/2018 / -

· **Abbreviations and acronyms:**

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

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DOT: US Department of Transportation
IATA: International Air Transport Association
ACGIH: American Conference of Governmental Industrial Hygienists
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
NFPA: National Fire Protection Association (USA)
HMIS: Hazardous Materials Identification System (USA)
VOC: Volatile Organic Compounds (USA, EU)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
NIOSH: National Institute for Occupational Safety
OSHA: Occupational Safety & Health
TLV: Threshold Limit Value
PEL: Permissible Exposure Limit
REL: Recommended Exposure Limit
Acute Tox. 4: Acute toxicity – Category 4
Skin Corr. 1C: Skin corrosion/irritation – Category 1C
Eye Dam. 1: Serious eye damage/eye irritation – Category 1
Aquatic Chronic 3: Hazardous to the aquatic environment - long-term aquatic hazard – Category 3

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1 Identification

- **Product identifier**
- **Trade name:** *Quick-cfDNA/cfRNA Binding Buffer*
- **Article number:** R1072-2-150
- **Application of the substance / the mixture** Laboratory Reagent
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**
Zymo Research Corp.
17062 Murphy Ave.
Irvine, CA 92614
USA
Phone: 1-949-679-1190 or 1-888-882-9682
sds@zymoresearch.com
- **Information department:** Product safety department
- **Emergency telephone number:**
During normal business hours (8 am to 5 pm Pacific Standard Time): +1 (949) 679 1190

2 Hazard(s) identification

- **Classification of the substance or mixture**



GHS05 Corrosion

Skin Corr. 1C H314 Causes severe skin burns and eye damage.
 Eye Dam. 1 H318 Causes serious eye damage.



GHS07

Acute Tox. 4 H302 Harmful if swallowed.
 Acute Tox. 4 H312 Harmful in contact with skin.
 Acute Tox. 4 H332 Harmful if inhaled.

.....

Aquatic Chronic 3 H412 Harmful to aquatic life with long lasting effects.

- **Label elements**
- **GHS label elements** The product is classified and labeled according to the Globally Harmonized System (GHS).
- **Hazard pictograms** GHS05, GHS07
- **Signal word** Danger
- **Hazard-determining components of labeling:**
guanidinium thiocyanate
- **Hazard statements**
Harmful if swallowed, in contact with skin or if inhaled.
Causes severe skin burns and eye damage.
Harmful to aquatic life with long lasting effects.

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Precautionary statements

- Do not breathe mist/vapours/spray. Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Use only outdoors or in a well-ventilated area. Avoid release to the environment. Wear protective gloves/protective clothing/eye protection/face protection. If swallowed: Call a poison center/doctor if you feel unwell. If swallowed: Rinse mouth. Do NOT induce vomiting. If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. IF INHALED: Remove person to fresh air and keep comfortable for breathing. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a poison center/doctor. Specific treatment (see on this label). Take off contaminated clothing and wash it before reuse. Wash contaminated clothing before reuse. Store locked up. Dispose of contents/container in accordance with local/regional/national/international regulations.

Classification system:

NFPA ratings (scale 0 - 4)



HMIS-ratings (scale 0 - 4)



Other hazards

Results of PBT and vPvB assessment

- PBT: Not applicable. vPvB: Not applicable.

3 Composition/information on ingredients

Chemical characterization: Mixtures

Description: Mixture of the substances listed below with nonhazardous additions.

Dangerous components:

Table with 3 columns: CAS number, Component name, and Percentage. Rows include: CAS: 593-84-0, guanidinium thiocyanate, 70%; CAS: 9002-93-1, Polyethylene glycol octylphenol ether, 5%; CAS: 137-16-6, N-Lauroylsarcosine, Sodium salt, 5%.

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4 First-aid measures

- **Description of first aid measures**
- **General information:**
Immediately remove any clothing soiled by the product.
Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.
- **After inhalation:**
Supply fresh air. If required, provide artificial respiration if trained to do so. Keep patient warm. Consult doctor if symptoms persist.
In case of unconsciousness place patient stably in side position for transportation.
- **After skin contact:** Immediately wash with water and soap and rinse thoroughly.
- **After eye contact:** Rinse opened eye for several minutes under running water. Then consult a doctor.
- **After swallowing:**
Rinse mouth
DO NOT induce vomiting.
- **Information for doctor:**
- **Most important symptoms and effects, both acute and delayed** No further relevant information available.
- **Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

5 Fire-fighting measures

- **Extinguishing media**
- **Suitable extinguishing agents:**
CO2, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
Use fire fighting measures that suit the environment.
- **Special hazards arising from the substance or mixture**
Products of thermal decomposition of this material would include hydrogen cyanide, ammonia, and oxides of carbon, nitrogen and sulfur.
- **Advice for firefighters**
- **Protective equipment:** Wear self-contained breathing apparatus for fighting fires involving this material

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**
Wear self-contained breathing apparatus for responding to non-incident release of this material in which there is the potential for inhalation of vapors, mists or sprays
Wear protective equipment. Keep unprotected persons away.
- **Environmental precautions:**
Dilute with plenty of water.
Do not allow to enter sewers/ surface or ground water.
- **Methods and material for containment and cleaning up:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Use neutralizing agent.
Dispose contaminated material as waste according to item 13.

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- Ensure adequate ventilation.
Reference to other sections
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

Protective Action Criteria for Chemicals

PAC-1:

Table with 3 columns: CAS number, chemical name, and concentration (0.98 mg/m³)

PAC-2:

Table with 3 columns: CAS number, chemical name, and concentration (11 mg/m³)

PAC-3:

Table with 3 columns: CAS number, chemical name, and concentration (65 mg/m³)

7 Handling and storage

- Handling:
Precautions for safe handling
Information about protection against explosions and fires: No special measures required.
Conditions for safe storage, including any incompatibilities
Storage:
Requirements to be met by storerooms and receptacles: No special requirements.
Information about storage in one common storage facility: Do not store together with acids or strong oxidizers.
Further information about storage conditions: Keep receptacle tightly sealed.
Specific end use(s) Laboratory reagent

8 Exposure controls/personal protection

- Additional information about design of technical systems: No further data; see item 7.
Control parameters
Components with limit values that require monitoring at the workplace:
Additional information: The lists that were valid during the creation were used as basis.
Exposure controls

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- **Personal protective equipment:**
- **General protective and hygienic measures:**
Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing.
Wash hands before breaks and at the end of work.
Avoid contact with the eyes and skin.
- **Breathing equipment:**
In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.
- **Protection of hands:**



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation. Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

- **Material of gloves**
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.
- **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:**



Tightly sealed goggles

9 Physical and chemical properties

- **Information on basic physical and chemical properties**
- **General Information**
- **Appearance:**

Form:	Liquid
Color:	Light yellow
Odor:	Odorless
Odor threshold:	Not determined.
- **pH-value:** Not determined.
- **Change in condition**

Melting point/Melting range:	Undetermined.
Boiling point/Boiling range:	Undetermined.

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Table with hazard information including Flash point, Flammability, Ignition temperature, Decomposition temperature, Auto igniting, Danger of explosion, Explosion limits, Vapor pressure, Density, Solubility in Water, Partition coefficient, Viscosity, Solvent content, and Other information.

10 Stability and reactivity

- Reactivity: No further relevant information available.
Chemical stability: This product is normally stable under anticipated circumstances of use and storage.
Thermal decomposition / conditions to be avoided: Products of thermal decomposition of this material would include hydrogen cyanide, ammonia, and oxides of carbon nitrogen and sulfur.
Possibility of hazardous reactions: No dangerous reactions known.
Conditions to avoid: Avoid exposing product to extreme temperatures or incompatible chemicals.
Incompatible materials: Acids and strong oxidizers.

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- Hazardous decomposition products: Product will not undergo self-decomposition, so no such products will be generated.

11 Toxicological information

- Information on toxicological effects
Acute toxicity:
LD/LC50 values that are relevant for classification:

CAS: 593-84-0 guanidinium thiocyanate

Oral LD50 593 mg/kg (rat)

- Primary irritant effect:
on the skin: Caustic effect on skin and mucous membranes.
on the eye: Strong caustic effect.
Sensitization: No sensitizing effects known.
Additional toxicological information:
The product shows the following dangers according to internally approved calculation methods for preparations:
Harmful
Corrosive
Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.

Carcinogenic categories

IARC (International Agency for Research on Cancer)

None of the ingredients is listed.

NTP (National Toxicology Program)

None of the ingredients is listed.

OSHA-Ca (Occupational Safety & Health Administration)

None of the ingredients is listed.

12 Ecological information

Toxicity

Aquatic toxicity:

CAS: 593-84-0 guanidinium thiocyanate

EC50 42.4 mg/kg (daphnia)

- Persistence and degradability No further relevant information available.
Behavior in environmental systems:
Bioaccumulative potential No further relevant information available.
Mobility in soil No further relevant information available.
Additional ecological information:
General notes:
Water hazard class 2 (Self-assessment): hazardous for water
Do not allow product to reach ground water, water course or sewage system.

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Must not reach bodies of water or drainage ditch undiluted or unneutralized. Danger to drinking water if even small quantities leak into the ground.

Results of PBT and vPvB assessment

- PBT: Not applicable.
vPvB: Not applicable.
Other adverse effects: No further relevant information available.

13 Disposal considerations

- Waste treatment methods
Recommendation: Dispose of contents in accordance with local/regional/national, and international recommendations.
Uncleaned packagings:
Recommendation: Dispose of container in accordance with local/regional/national and international recommendations.
Recommended cleansing agent: Water, if necessary with cleansing agents.

14 Transport information

Table with 2 columns: Property and Value. Rows include UN-Number (UN1760), UN proper shipping name (Corrosive liquids, n.o.s. (guanidinium thiocyanate)), Transport hazard class(es) (8 Corrosive substances), and Packing group (III).

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Table with 2 columns: Hazard/Precaution and Description. Rows include Environmental hazards, Special precautions for user, Transport in bulk, and UN Model Regulation.

15 Regulatory information

- Safety, health and environmental regulations/legislation specific for the substance or mixture
Sara

Table with 2 columns: Regulatory Section and Status. Rows include Section 355, Section 313, TSCA, Proposition 65, and various chemical listings.

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· Chemicals known to cause developmental toxicity:

None of the ingredients is listed.

· Carcinogenic categories

· EPA (Environmental Protection Agency)

None of the ingredients is listed.

· TLV (Threshold Limit Value established by ACGIH)

None of the ingredients is listed.

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

None of the ingredients is listed.

· GHS label elements The product is classified and labeled according to the Globally Harmonized System (GHS).

· Hazard pictograms GHS05, GHS07

· Signal word Danger

· Hazard-determining components of labeling:

guanidinium thiocyanate

· Hazard statements

Harmful if swallowed, in contact with skin or if inhaled.

Causes severe skin burns and eye damage.

Harmful to aquatic life with long lasting effects.

· Precautionary statements

Do not breathe mist/vapours/spray.

Wash thoroughly after handling.

Do not eat, drink or smoke when using this product.

Use only outdoors or in a well-ventilated area.

Avoid release to the environment.

Wear protective gloves/protective clothing/eye protection/face protection.

If swallowed: Call a poison center/doctor if you feel unwell.

If swallowed: Rinse mouth. Do NOT induce vomiting.

If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.

IF INHALED: Remove person to fresh air and keep comfortable for breathing.

If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.

Continue rinsing.

Immediately call a poison center/doctor.

Specific treatment (see on this label).

Take off contaminated clothing and wash it before reuse.

Wash contaminated clothing before reuse.

Store locked up.

Dispose of contents/container in accordance with local/regional/national/international regulations.

· Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

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.

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ZYMO RESEARCH

The Beauty of Science is to Make Things Simple

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· **Department issuing SDS:**

Zymo Research Corp.
Safety Department
17062 Murphy Ave.
Irvine, CA 92614
USA

Phone: 1-949-679-1190 or 1-888-882-9682

· **Contact:** sds@zymoresearch.com

· **Date of preparation / last revision** 03/28/2018 / -

· **Abbreviations and acronyms:**

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

ACGIH: American Conference of Governmental Industrial Hygienists

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

NFPA: National Fire Protection Association (USA)

HMIS: Hazardous Materials Identification System (USA)

VOC: Volatile Organic Compounds (USA, EU)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

NIOSH: National Institute for Occupational Safety

OSHA: Occupational Safety & Health

TLV: Threshold Limit Value

PEL: Permissible Exposure Limit

REL: Recommended Exposure Limit

Acute Tox. 4: Acute toxicity – Category 4

Skin Corr. 1C: Skin corrosion/irritation – Category 1C

Eye Dam. 1: Serious eye damage/eye irritation – Category 1

Aquatic Chronic 3: Hazardous to the aquatic environment - long-term aquatic hazard – Category 3

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1 Identification

- **Product identifier**
- **Trade name:** Cell-free Recovery Buffer
- **Article number:** R1072-3-20
- **Application of the substance / the mixture** Laboratory Reagent
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**
Zymo Research Corp.
17062 Murphy Ave.
Irvine, CA 92614
USA
Phone: 1-949-679-1190 or 1-888-882-9682
sds@zymoresearch.com
- **Information department:** Product safety department
- **Emergency telephone number:**
During normal business hours (8 am to 5 pm Pacific Standard Time): +1 (949) 679 1190

2 Hazard(s) identification

- **Classification of the substance or mixture**



GHS05 Corrosion

Skin Corr. 1C H314 Causes severe skin burns and eye damage.
 Eye Dam. 1 H318 Causes serious eye damage.



GHS07

Acute Tox. 4 H302 Harmful if swallowed.
 Acute Tox. 4 H312 Harmful in contact with skin.
 Acute Tox. 4 H332 Harmful if inhaled.

.....

Aquatic Chronic 3 H412 Harmful to aquatic life with long lasting effects.

- **Label elements**
- **GHS label elements** The product is classified and labeled according to the Globally Harmonized System (GHS).
- **Hazard pictograms** GHS05, GHS07
- **Signal word** Danger
- **Hazard-determining components of labeling:**
guanidinium thiocyanate
- **Hazard statements**
Harmful if swallowed, in contact with skin or if inhaled.
Causes severe skin burns and eye damage.
Harmful to aquatic life with long lasting effects.

(Contd. on page 2)



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Precautionary statements

- Do not breathe mist/vapours/spray.
Wash thoroughly after handling.
Do not eat, drink or smoke when using this product.
Use only outdoors or in a well-ventilated area.
Avoid release to the environment.
Wear protective gloves/protective clothing/eye protection/face protection.
If swallowed: Call a poison center/doctor if you feel unwell.
If swallowed: Rinse mouth. Do NOT induce vomiting.
If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
IF INHALED: Remove person to fresh air and keep comfortable for breathing.
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.
Continue rinsing.
Immediately call a poison center/doctor.
Specific treatment (see on this label).
Take off contaminated clothing and wash it before reuse.
Wash contaminated clothing before reuse.
Store locked up.
Dispose of contents/container in accordance with local/regional/national/international regulations.

Classification system:

NFPA ratings (scale 0 - 4)



HMIS-ratings (scale 0 - 4)



Other hazards

Results of PBT and vPvB assessment

- PBT: Not applicable.
vPvB: Not applicable.

3 Composition/information on ingredients

Chemical characterization: Mixtures

Description: Mixture of the substances listed below with nonhazardous additions.

Dangerous components:

Table with 2 columns: CAS number and Component name. Row 1: CAS: 593-84-0, guanidinium thiocyanate, 70%



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4 First-aid measures

· **Description of first aid measures**

· **General information:**

Immediately remove any clothing soiled by the product.

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

· **After inhalation:**

Supply fresh air. If required, provide artificial respiration if trained to do so. Keep patient warm. Consult doctor if symptoms persist.

In case of unconsciousness place patient stably in side position for transportation.

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

· **After eye contact:** Rinse opened eye for several minutes under running water. Then consult a doctor.

· **After swallowing:**

Rinse mouth

DO NOT induce vomiting.

· **Information for doctor:**

· **Most important symptoms and effects, both acute and delayed** No further relevant information available.

· **Indication of any immediate medical attention and special treatment needed**

No further relevant information available.

5 Fire-fighting measures

· **Extinguishing media**

· **Suitable extinguishing agents:**

CO₂, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.

Use fire fighting measures that suit the environment.

· **Special hazards arising from the substance or mixture**

Products of thermal decomposition of this material would include hydrogen cyanide, ammonia, and oxides of carbon, nitrogen and sulfur.

· **Advice for firefighters**

· **Protective equipment:** Wear self-contained breathing apparatus for fighting fires involving this material

6 Accidental release measures

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

Wear self-contained breathing apparatus for responding to non-incident release of this material in which there is the potential for inhalation of vapors, mists or sprays

Wear protective equipment. Keep unprotected persons away.

· **Environmental precautions:**

Dilute with plenty of water.

Do not allow to enter sewers/ surface or ground water.

· **Methods and material for containment and cleaning up:**

Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).

Use neutralizing agent.

Dispose contaminated material as waste according to item 13.

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- Ensure adequate ventilation.
Reference to other sections
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

Protective Action Criteria for Chemicals

PAC-1:

Table with 3 columns: CAS number, chemical name, and concentration (0.98 mg/m³)

PAC-2:

Table with 3 columns: CAS number, chemical name, and concentration (11 mg/m³)

PAC-3:

Table with 3 columns: CAS number, chemical name, and concentration (65 mg/m³)

7 Handling and storage

- Handling:
Precautions for safe handling
Information about protection against explosions and fires: No special measures required.
Conditions for safe storage, including any incompatibilities
Storage:
Requirements to be met by storerooms and receptacles: No special requirements.
Information about storage in one common storage facility: Do not store together with acids or strong oxidizers.
Further information about storage conditions: Keep receptacle tightly sealed.
Specific end use(s) Laboratory reagent

8 Exposure controls/personal protection

- Additional information about design of technical systems: No further data; see item 7.
Control parameters
Components with limit values that require monitoring at the workplace:
Additional information: The lists that were valid during the creation were used as basis.
Exposure controls
The appropriate protective equipment under anticipated circumstances of use include lab-coat, safety glasses with side-shields and gloves.

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Trade name: Cell-free Recovery Buffer

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- **Personal protective equipment:**
- **General protective and hygienic measures:**
Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing.
Wash hands before breaks and at the end of work.
Avoid contact with the eyes and skin.
- **Breathing equipment:**
In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.
- **Protection of hands:**



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation. Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

- **Material of gloves**
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.
- **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:**



Tightly sealed goggles

9 Physical and chemical properties

- **Information on basic physical and chemical properties**
- **General Information**
- **Appearance:**

Form:	Liquid
Color:	Light yellow
- **Odor:** Odorless
- **Odor threshold:** Not determined.
- **pH-value:** Not determined.
- **Change in condition**

Melting point/Melting range:	Undetermined.
Boiling point/Boiling range:	Undetermined.

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Trade name: Cell-free Recovery Buffer

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Table with hazard information: Flash point, Flammability, Ignition temperature, Decomposition temperature, Auto igniting, Danger of explosion, Explosion limits, Vapor pressure, Density, Solubility in Water, Partition coefficient, Viscosity, Solvent content, Solids content, Other information.

10 Stability and reactivity

- Reactivity: No further relevant information available.
Chemical stability: This product is normally stable under anticipated circumstances of use and storage.
Thermal decomposition / conditions to be avoided: Products of thermal decomposition of this material would include hydrogen cyanide, ammonia, and oxides of carbon nitrogen and sulfur.
Possibility of hazardous reactions: No dangerous reactions known.
Conditions to avoid: Avoid exposing product to extreme temperatures or incompatible chemicals.
Incompatible materials: Acids and strong oxidizers.

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Trade name: Cell-free Recovery Buffer

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- Hazardous decomposition products:
Product will not undergo self-decomposition, so no such products will be generated.

11 Toxicological information

- Information on toxicological effects
Acute toxicity:

LD/LC50 values that are relevant for classification:

CAS: 593-84-0 guanidinium thiocyanate

Oral LD50 593 mg/kg (rat)

- Primary irritant effect:
on the skin: Caustic effect on skin and mucous membranes.
on the eye: Strong caustic effect.
Sensitization: No sensitizing effects known.

Additional toxicological information:

The product shows the following dangers according to internally approved calculation methods for preparations:
Harmful
Corrosive
Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.

Carcinogenic categories

IARC (International Agency for Research on Cancer)

None of the ingredients is listed.

NTP (National Toxicology Program)

None of the ingredients is listed.

OSHA-Ca (Occupational Safety & Health Administration)

None of the ingredients is listed.

12 Ecological information

Toxicity

Aquatic toxicity:

CAS: 593-84-0 guanidinium thiocyanate

EC50 42.4 mg/kg (daphnia)

- Persistence and degradability No further relevant information available.
Behavior in environmental systems:
Bioaccumulative potential No further relevant information available.
Mobility in soil No further relevant information available.
Additional ecological information:
General notes:
Water hazard class 2 (Self-assessment): hazardous for water
Do not allow product to reach ground water, water course or sewage system.

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Trade name: Cell-free Recovery Buffer

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Must not reach bodies of water or drainage ditch undiluted or unneutralized. Danger to drinking water if even small quantities leak into the ground.

Results of PBT and vPvB assessment

- PBT: Not applicable.
vPvB: Not applicable.
Other adverse effects: No further relevant information available.

13 Disposal considerations

- Waste treatment methods
Recommendation: Dispose of contents in accordance with local/regional/national, and international recommendations.
Uncleaned packagings:
Recommendation: Dispose of container in accordance with local/regional/national and international recommendations.
Recommended cleansing agent: Water, if necessary with cleansing agents.

14 Transport information

Table with 2 columns: Field (UN-Number, DOT, IMDG, IATA, UN proper shipping name, Transport hazard class(es), Class, Label, Packing group) and Value (UN1760, Corrosive liquids, n.o.s. (guanidinium thiocyanate), CORROSIVE LIQUID, N.O.S. (guanidinium thiocyanate), 8 Corrosive substances, III)

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Table with hazard information including Environmental hazards, Special precautions for user, Transport in bulk, and UN Model Regulation.

15 Regulatory information

- Safety, health and environmental regulations/legislation specific for the substance or mixture
Sara

Table with regulatory information including Section 355, Section 313, TSCA, Proposition 65, and chemicals known to cause cancer/reproductive toxicity.

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· Chemicals known to cause developmental toxicity:

None of the ingredients is listed.

· Carcinogenic categories

· EPA (Environmental Protection Agency)

None of the ingredients is listed.

· TLV (Threshold Limit Value established by ACGIH)

None of the ingredients is listed.

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

None of the ingredients is listed.

· GHS label elements The product is classified and labeled according to the Globally Harmonized System (GHS).

· Hazard pictograms GHS05, GHS07

· Signal word Danger

· Hazard-determining components of labeling:

guanidinium thiocyanate

· Hazard statements

Harmful if swallowed, in contact with skin or if inhaled.

Causes severe skin burns and eye damage.

Harmful to aquatic life with long lasting effects.

· Precautionary statements

Do not breathe mist/vapours/spray.

Wash thoroughly after handling.

Do not eat, drink or smoke when using this product.

Use only outdoors or in a well-ventilated area.

Avoid release to the environment.

Wear protective gloves/protective clothing/eye protection/face protection.

If swallowed: Call a poison center/doctor if you feel unwell.

If swallowed: Rinse mouth. Do NOT induce vomiting.

If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.

IF INHALED: Remove person to fresh air and keep comfortable for breathing.

If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.

Continue rinsing.

Immediately call a poison center/doctor.

Specific treatment (see on this label).

Take off contaminated clothing and wash it before reuse.

Wash contaminated clothing before reuse.

Store locked up.

Dispose of contents/container in accordance with local/regional/national/international regulations.

· Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

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.

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· **Department issuing SDS:**

Zymo Research Corp.

Safety Department

17062 Murphy Ave.

Irvine, CA 92614

USA

Phone: 1-949-679-1190 or 1-888-882-9682

· **Contact:** sds@zymoresearch.com

· **Date of preparation / last revision** 03/28/2018 / -

· **Abbreviations and acronyms:**

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

ACGIH: American Conference of Governmental Industrial Hygienists

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

NFPA: National Fire Protection Association (USA)

HMIS: Hazardous Materials Identification System (USA)

VOC: Volatile Organic Compounds (USA, EU)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

NIOSH: National Institute for Occupational Safety

OSHA: Occupational Safety & Health

TLV: Threshold Limit Value

PEL: Permissible Exposure Limit

REL: Recommended Exposure Limit

Acute Tox. 4: Acute toxicity – Category 4

Skin Corr. 1C: Skin corrosion/irritation – Category 1C

Eye Dam. 1: Serious eye damage/eye irritation – Category 1

Aquatic Chronic 3: Hazardous to the aquatic environment - long-term aquatic hazard – Category 3



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1 Identification

- **Product identifier**
- **Trade name:** RNA Prep Buffer
- **Article number:** R1060-2-10, R1060-2-25, R1060-2-100
- **Application of the substance / the mixture** Laboratory Reagent
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**
Zymo Research Corp.
17062 Murphy Ave.
Irvine, CA 92614
USA
Phone: 1-949-679-1190 or 1-888-882-9682
sds@zymoresearch.com
- **Information department:** Product safety department
- **Emergency telephone number:**
During normal business hours (8 am to 5 pm Pacific Standard Time): +1 (949) 679 1190

2 Hazard(s) identification

- **Classification of the substance or mixture**



GHS02 Flame

Flam. Liq. 2 H225 Highly flammable liquid and vapor.



GHS07

Acute Tox. 4 H302 Harmful if swallowed.
 Skin Irrit. 2 H315 Causes skin irritation.
 Eye Irrit. 2A H319 Causes serious eye irritation.

- **Label elements**
- **GHS label elements** The product is classified and labeled according to the Globally Harmonized System (GHS).
- **Hazard pictograms** GHS02, GHS07
- **Signal word** Danger
- **Hazard-determining components of labeling:**
guanidinium chloride
ethanol
- **Hazard statements**
Highly flammable liquid and vapor.
Harmful if swallowed.
Causes skin irritation.
Causes serious eye irritation.
- **Precautionary statements**
Keep away from heat/sparks/open flames/hot surfaces. - No smoking.

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Trade name: RNA Prep Buffer

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- Keep container tightly closed.
Ground/bond container and receiving equipment.
Use explosion-proof electrical/ventilating/lighting/equipment.
Use only non-sparking tools.
Take precautionary measures against static discharge.
Wash thoroughly after handling.
Do not eat, drink or smoke when using this product.
Wear protective gloves / eye protection / face protection.
If swallowed: Call a poison center/doctor if you feel unwell.
If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.
Continue rinsing.
Specific treatment (see on this label).
Rinse mouth.
If skin irritation occurs: Get medical advice/attention.
If eye irritation persists: Get medical advice/attention.
Take off contaminated clothing and wash it before reuse.
In case of fire: Use for extinction: CO2, powder or water spray.
Store in a well-ventilated place. Keep cool.
Dispose of contents/container in accordance with local/regional/national/international regulations.

Classification system:

NFPA ratings (scale 0 - 4)



HMIS-ratings (scale 0 - 4)



Other hazards

Results of PBT and vPvB assessment

PBT: Not applicable.

vPvB: Not applicable.

3 Composition/information on ingredients

Chemical characterization: Mixtures

Description: Mixture of the substances listed below with nonhazardous additions.

Dangerous components:

Table with 3 columns: CAS number, chemical name, and concentration. Rows include ethanol (CAS: 64-17-5, ≤100%) and guanidinium chloride (CAS: 50-01-1, ≤40%).

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Trade name: RNA Prep Buffer

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4 First-aid measures

- **Description of first aid measures**
- **General information:**
Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.
- **After inhalation:** In case of unconsciousness place patient stably in side position for transportation.
- **After skin contact:** Immediately wash with water and soap and rinse thoroughly.
- **After eye contact:**
Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
- **After swallowing:** Do not induce vomiting; immediately call for medical help.
- **Information for doctor:**
- **Most important symptoms and effects, both acute and delayed** No further relevant information available.
- **Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

5 Fire-fighting measures

- **Extinguishing media**
- **Suitable extinguishing agents:**
CO₂, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- **Advice for firefighters**
- **Protective equipment:** Wear protective clothing.

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**
Wear protective equipment. Keep unprotected persons away.
- **Environmental precautions:**
Prevent seepage into sewage system, workpits and cellars.
Dilute with plenty of water.
- **Methods and material for containment and cleaning up:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Dispose contaminated material as waste according to item 13.
Ensure adequate ventilation.
- **Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.
- **Protective Action Criteria for Chemicals**

· **PAC-I:**

CAS: 64-17-5	ethanol	1,800 ppm
CAS: 50-01-1	guanidinium chloride	1.4 mg/m ³

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Table with 3 columns: Component Name, CAS Number, and Concentration. Rows include PAC-2 and PAC-3 components like ethanol and guanidinium chloride.

7 Handling and storage

- Handling:
Precautions for safe handling
Information about protection against explosions and fires:
Conditions for safe storage, including any incompatibilities
Storage:
Requirements to be met by storerooms and receptacles:
Information about storage in one common storage facility:
Further information about storage conditions:
Specific end use(s) Laboratory reagent

8 Exposure controls/personal protection

- Additional information about design of technical systems:
Control parameters
Components with limit values that require monitoring at the workplace:

Table with 2 columns: Exposure Limit Type and Value. Rows include PEL, REL, and TLV for ethanol.

- Additional information:
Exposure controls
Personal protective equipment:
General protective and hygienic measures:

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Trade name: RNA Prep Buffer

(Contd. of page 4)

Immediately remove all soiled and contaminated clothing.
Wash hands before breaks and at the end of work.
Avoid contact with the eyes and skin.

Breathing equipment:

In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.

Protection of hands:



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

Material of gloves

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

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:



Tightly sealed goggles

9 Physical and chemical properties

Information on basic physical and chemical properties

General Information

Appearance:

Table with 2 columns: Property (Form, Color, Odor, Odor threshold) and Value (Liquid, Yellow tint, Odorless, Not determined).

pH-value: Not determined.

Change in condition

Table with 2 columns: Property (Melting point/Melting range, Boiling point/Boiling range) and Value (Undetermined, Undetermined).

Flash point: 13 °C (55.4 °F)

Flammability (solid, gaseous): Not applicable.

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Table with 2 columns: Property and Value. Rows include Ignition temperature (425 °C), Decomposition temperature (Not determined), Auto igniting (Product is not selfigniting), Danger of explosion (Product is not explosive), Explosion limits (Lower: 3,5 Vol %, Upper: 15,0 Vol %), Vapor pressure at 20 °C (59 hPa), Density (Not determined), Solubility in Water (Fully miscible), Partition coefficient (Not determined), Viscosity (Not determined), Solvent content (Organic solvents: 80,0 %, VOC content: 80,0 %), and Other information (No further relevant information available).

10 Stability and reactivity

- Reactivity No further relevant information available.
· Chemical stability
· Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications.
· Possibility of hazardous reactions No dangerous reactions known.
· Conditions to avoid No further relevant information available.
· Incompatible materials: No further relevant information available.
· Hazardous decomposition products: No dangerous decomposition products known.

US

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Trade name: RNA Prep Buffer

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11 Toxicological information

- Information on toxicological effects
Acute toxicity:

LD/LC50 values that are relevant for classification:

CAS: 50-01-1 guanidinium chloride

Oral LD50 475 mg/kg (rat)

Primary irritant effect:

- on the skin: Irritant to skin and mucous membranes.
on the eye: Irritating effect.

Additional toxicological information:

The product shows the following dangers according to internally approved calculation methods for preparations:
Harmful
Irritant

Carcinogenic categories

IARC (International Agency for Research on Cancer)

None of the ingredients is listed.

NTP (National Toxicology Program)

None of the ingredients is listed.

OSHA-Ca (Occupational Safety & Health Administration)

None of the ingredients is listed.

12 Ecological information

Toxicity

- Aquatic toxicity: No further relevant information available.
Persistence and degradability: No further relevant information available.
Behavior in environmental systems:

Bioaccumulative potential: No further relevant information available.

Mobility in soil: No further relevant information available.

Additional ecological information:

General notes: Not known to be hazardous to water.

Results of PBT and vPvB assessment

PBT: Not applicable.

vPvB: Not applicable.

Other adverse effects: No further relevant information available.

13 Disposal considerations

Waste treatment methods

Recommendation:

Dispose of contents in accordance with local/regional/national, and international recommendations.

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Trade name: RNA Prep Buffer

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- Uncleaned packagings:
· Recommendation:
· Recommended cleansing agent: Water, if necessary with cleansing agents.

14 Transport information

- UN-Number
· DOT, IMDG, IATA
· UN proper shipping name
· DOT
· IMDG
· IATA

- Transport hazard class(es)
· DOT
· Class
· Label



- IMDG, IATA
· Class
· Label



- Packing group
· DOT, IMDG, IATA
· Environmental hazards:
· Special precautions for user
· Danger code (Kemler):
· EMS Number:
· Stowage Category

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

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Trade name: RNA Prep Buffer

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Transport/Additional information:

DOT

Quantity limitations

On passenger aircraft/rail: 5 L
On cargo aircraft only: 60 L

IMDG

Limited quantities (LQ)

Excepted quantities (EQ)

1L
Code: E2
Maximum net quantity per inner packaging: 30 ml
Maximum net quantity per outer packaging: 500 ml

UN Model Regulation:

UN 1170 ETHANOL MIXTURE, 3, II

15 Regulatory information

Safety, health and environmental regulations/legislation specific for the substance or mixture

Sara

Section 355 (extremely hazardous substances):

None of the ingredients is listed.

Section 313 (Specific toxic chemical listings):

None of the ingredients is listed.

TSCA (Toxic Substances Control Act):

All ingredients are listed.

Proposition 65

Chemicals known to cause cancer:

None of the ingredients is listed.

Chemicals known to cause reproductive toxicity for females:

None of the ingredients is listed.

Chemicals known to cause reproductive toxicity for males:

None of the ingredients is listed.

Chemicals known to cause developmental toxicity:

None of the ingredients is listed.

Carcinogenic categories

EPA (Environmental Protection Agency)

None of the ingredients is listed.

TLV (Threshold Limit Value established by ACGIH)

CAS: 64-17-5 ethanol

A3

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

None of the ingredients is listed.

GHS label elements The product is classified and labeled according to the Globally Harmonized System (GHS).

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Trade name: RNA Prep Buffer

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- **Hazard pictograms** GHS02, GHS07
- **Signal word** Danger
- **Hazard-determining components of labeling:**
 - guanidinium chloride
 - ethanol
- **Hazard statements**
 - Highly flammable liquid and vapor.
 - Harmful if swallowed.
 - Causes skin irritation.
 - Causes serious eye irritation.
- **Precautionary statements**
 - Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
 - Keep container tightly closed.
 - Ground/bond container and receiving equipment.
 - Use explosion-proof electrical/ventilating/lighting/equipment.
 - Use only non-sparking tools.
 - Take precautionary measures against static discharge.
 - Wash thoroughly after handling.
 - Do not eat, drink or smoke when using this product.
 - Wear protective gloves / eye protection / face protection.
 - If swallowed: Call a poison center/doctor if you feel unwell.
 - If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
 - If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
 - Specific treatment (see on this label).
 - Rinse mouth.
 - If skin irritation occurs: Get medical advice/attention.
 - If eye irritation persists: Get medical advice/attention.
 - Take off contaminated clothing and wash it before reuse.
 - In case of fire: Use for extinction: CO₂, powder or water spray.
 - Store in a well-ventilated place. Keep cool.
 - Dispose of contents/container in accordance with local/regional/national/international regulations.
- **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

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 SDS:**
 - Zymo Research Corp.
 - Safety Department
 - 17062 Murphy Ave.
 - Irvine, CA 92614
 - USA
 - Phone: 1-949-679-1190 or 1-888-882-9682
- **Contact:** sds@zymoresearch.com
- **Date of preparation / last revision** 03/28/2018 / -

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Trade name: RNA Prep Buffer

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· Abbreviations and acronyms:

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
IATA: International Air Transport Association
GHS: Globally Harmonised System of Classification and Labelling of Chemicals
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
VOC: Volatile Organic Compounds (USA, EU)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
TLV: Threshold Limit Value
PEL: Permissible Exposure Limit
REL: Recommended Exposure Limit
Flam. Liq. 2: Flammable liquids – Category 2
Acute Tox. 4: Acute toxicity – Category 4
Skin Irrit. 2: Skin corrosion/irritation – Category 2
Eye Irrit. 2A: Serious eye damage/eye irritation – Category 2A

US



Safety Data Sheet
acc. to OSHA HCS

Printing date 03/28/2018

Reviewed on 12/16/2016

1 Identification

- **Product identifier**
- **Trade name:** RNA Wash Buffer (Concentrate)
- **Article number:** R1003-3-6, R1003-3-12, R1003-3-24, R1003-3-48
- **Application of the substance / the mixture** Laboratory Reagent
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**
Zymo Research Corp.
17062 Murphy Ave.
Irvine, CA 92614
USA
Phone: 1-949-679-1190 or 1-888-882-9682
sds@zymoresearch.com
- **Information department:** Product safety department
- **Emergency telephone number:**
During normal business hours (8 am to 5 pm Pacific Standard Time): +1 (949) 679 1190

2 Hazard(s) identification

- **Classification of the substance or mixture**
The product is not classified according to the Globally Harmonized System (GHS).

- **Label elements**
- **GHS label elements** Void
- **Hazard pictograms** Void
- **Signal word** Void
- **Hazard statements** Void
- **Classification system:**
- **NFPA ratings (scale 0 - 4)**



- **HMIS-ratings (scale 0 - 4)**



- **Other hazards**
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.



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Trade name: RNA Wash Buffer (Concentrate)

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3 Composition/information on ingredients

- Chemical characterization: Mixtures
Description: Mixture of the substances listed below with nonhazardous additions.
Dangerous components: Void

4 First-aid measures

- Description of 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. Then consult a doctor.
After swallowing: Do not induce vomiting; immediately call for medical help.
Information for doctor:
Most important symptoms and effects, both acute and delayed No further relevant information available.
Indication of any immediate medical attention and special treatment needed
No further relevant information available.

5 Fire-fighting measures

- Extinguishing media
Suitable extinguishing agents: CO2, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam. Use fire fighting measures that suit the environment.
Advice for firefighters
Protective equipment: Wear protective clothing.

6 Accidental release measures

- Personal precautions, protective equipment and emergency procedures Wear protective clothing.
Environmental precautions: Dilute with plenty of water. Do not allow to enter sewers/ surface or ground water.
Methods and material for containment and cleaning up: Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Reference to other sections
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.
Protective Action Criteria for Chemicals

PAC-1:

CAS: 1185-53-1 | 2-amino-2-(hydroxymethyl)propane-1,3-diolhydrochloride | 12 mg/m³

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Trade name: RNA Wash Buffer (Concentrate)

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Table with 3 columns: CAS number, Chemical name, and Concentration (mg/m³). Rows include Edetate Disodium, Dihydrate and 2-amino-2-(hydroxymethyl)propane-1,3-diolhydrochloride under PAC-2 and PAC-3 categories.

7 Handling and storage

- Handling:
Precautions for safe handling: No special measures required.
Information about protection against explosions and fires: No special measures required.
Conditions for safe storage, including any incompatibilities
Storage:
Requirements to be met by storerooms and receptacles: No special requirements.
Information about storage in one common storage facility: Not required.
Further information about storage conditions: None.
Specific end use(s): Laboratory reagent

8 Exposure controls/personal protection

- Additional information about design of technical systems: No further data; see item 7.
Control parameters
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.
Exposure controls
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: The glove material has to be impermeable and resistant to the product/ the substance/ the preparation. Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture. Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation
Material of gloves: The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

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Trade name: RNA Wash Buffer (Concentrate)

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- **Penetration time of glove material**
The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
- **Eye protection:** Goggles recommended during refilling.

9 Physical and chemical properties

· **Information on basic physical and chemical properties**

· **General Information**

· **Appearance:**

- **Form:** Liquid
- **Color:** Clear
- **Odor:** Odorless
- **Odor threshold:** Not determined.

· **pH-value:** Not determined.

· **Change in condition**

- **Melting point/Melting range:** Undetermined.
- **Boiling point/Boiling range:** Undetermined.

· **Flash point:** Not applicable.

· **Flammability (solid, gaseous):** Not applicable.

· **Ignition temperature:**

· **Decomposition temperature:** Not determined.

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

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

· **Explosion limits:**

- **Lower:** Not Applicable
- **Upper:** Not Applicable

· **Vapor pressure:** Not determined.

- **Density:** Not determined.
- **Relative density** Not determined.
- **Vapor density** Not determined.
- **Evaporation rate** Not determined.

· **Solubility in / Miscibility with**

· **Water:** Fully miscible.

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

· **Viscosity:**

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

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Trade name: RNA Wash Buffer (Concentrate)

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- Solvent content:
VOC content: 0.00 %
0.0 g/l / 0.00 lb/gl
Solids content: 2.0 %
Other information: No further relevant information available.

10 Stability and reactivity

- Reactivity: No further relevant information available.
Chemical stability
Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications.
Possibility of hazardous reactions: No dangerous reactions known.
Conditions to avoid: No further relevant information available.
Incompatible materials: No further relevant information available.
Hazardous decomposition products: No dangerous decomposition products known.

11 Toxicological information

- Information on toxicological effects
Acute toxicity:
Primary irritant effect:
on the skin: No irritant effect.
on the eye: No irritating effect.
Sensitization: No sensitizing effects known.
Additional toxicological information:
The product is not subject to classification according to internally approved calculation methods for preparations:
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.

Carcinogenic categories

IARC (International Agency for Research on Cancer)

None of the ingredients is listed.

NTP (National Toxicology Program)

None of the ingredients is listed.

OSHA-Ca (Occupational Safety & Health Administration)

None of the ingredients is listed.

12 Ecological information

- Toxicity
Aquatic toxicity: No further relevant information available.
Persistence and degradability: No further relevant information available.

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Reviewed on 12/16/2016

Trade name: RNA Wash Buffer (Concentrate)

(Contd. of page 5)

- Behavior in environmental systems: Bioaccumulative potential No further relevant information available. Mobility in soil No further relevant information available. Additional ecological information: General notes: Water hazard class 1 (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. Results of PBT and vPvB assessment: PBT: Not applicable. vPvB: Not applicable. Other adverse effects No further relevant information available.

13 Disposal considerations

- Waste treatment methods Recommendation: Smaller quantities can be disposed of with household waste. Uncleaned packagings: Recommendation: Dispose of container in accordance with local/regional/national and international recommendations. Recommended cleansing agent: Water, if necessary with cleansing agents.

14 Transport information

Table with 2 columns: Hazard/Requirement and Status. Rows include UN-Number, UN proper shipping name, Transport hazard class(es), Packing group, Environmental hazards, Special precautions for user, Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code, and UN Model Regulation.



Safety Data Sheet
acc. to OSHA HCS

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Reviewed on 12/16/2016

Trade name: RNA Wash Buffer (Concentrate)

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15 Regulatory information

- *Safety, health and environmental regulations/legislation specific for the substance or mixture*
- *Sara*

· **Section 355 (extremely hazardous substances):**

None of the ingredients is listed.

· **Section 313 (Specific toxic chemical listings):**

None of the ingredients is listed.

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

CAS: 1185-53-1 | 2-amino-2-(hydroxymethyl)propane-1,3-diolhydrochloride

· **TSCA new (21st Century Act) (Substances not listed)**

· **Proposition 65**

· **Chemicals known to cause cancer:**

None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for females:**

None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for males:**

None of the ingredients is listed.

· **Chemicals known to cause developmental toxicity:**

None of the ingredients is listed.

· **Carcinogenic categories**

· **EPA (Environmental Protection Agency)**

None of the ingredients is listed.

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

None of the ingredients is listed.

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

None of the ingredients is listed.

· **GHS label elements** Void

· **Hazard pictograms** Void

· **Signal word** Void

· **Hazard statements** Void

· **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

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 SDS:**

Zymo Research Corp.

Safety Department

17062 Murphy Ave.

Irvine, CA 92614

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Reviewed on 12/16/2016

Trade name: RNA Wash Buffer (Concentrate)

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USA

Phone: 1-949-679-1190 or 1-888-882-9682

· **Contact:** sds@zymoresearch.com

· **Date of preparation / last revision** 03/28/2018 / -

· **Abbreviations and acronyms:**

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

ACGIH: American Conference of Governmental Industrial Hygienists

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

NFPA: National Fire Protection Association (USA)

HMIS: Hazardous Materials Identification System (USA)

VOC: Volatile Organic Compounds (USA, EU)

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

NIOSH: National Institute for Occupational Safety

OSHA: Occupational Safety & Health

TLV: Threshold Limit Value

PEL: Permissible Exposure Limit

REL: Recommended Exposure Limit

US



Safety Data Sheet
acc. to OSHA HCS

Printing date 03/28/2018

Reviewed on 12/16/2016

1 Identification

- **Product identifier**
- **Trade name:** DNase/RNase Free Water
- **Article number:** W1001-1, W1001-4, W1001-6, W1001-10, W1001-30, W1001-100, W1001-200
- **CAS Number:**
7732-18-5
- **EC number:**
231-791-2
- **Application of the substance / the mixture** Laboratory Reagent
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**
Zymo Research Corp.
17062 Murphy Ave.
Irvine, CA 92614
USA
Phone: 1-949-679-1190 or 1-888-882-9682
sds@zymoresearch.com
- **Information department:** Product safety department
- **Emergency telephone number:**
During normal business hours (8 am to 5 pm Pacific Standard Time): +1 (949) 679 1190

2 Hazard(s) identification

- **Classification of the substance or mixture**
The substance is not classified according to the Globally Harmonized System (GHS).

- **Label elements**
- **GHS label elements** Void
- **Hazard pictograms** Void
- **Signal word** Void
- **Hazard statements** Void
- **Classification system:**
- **NFPA ratings (scale 0 - 4)**



- **HMIS-ratings (scale 0 - 4)**



- **Other hazards**
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.

(Contd. on page 2)



Safety Data Sheet
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Printing date 03/28/2018

Reviewed on 12/16/2016

Trade name: DNase/RNase Free Water

· **vPvB:** Not applicable.

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3 Composition/information on ingredients

- **Chemical characterization: Substances**
- **CAS No. Description**
7732-18-5 water, distilled, conductivity or of similar purity
- **Identification number(s)**
- **EC number:** 231-791-2

4 First-aid measures

- **Description of 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. Then consult a doctor.
- **After swallowing:** Do not induce vomiting; immediately call for medical help.
- **Information for doctor:**
- **Most important symptoms and effects, both acute and delayed** No further relevant information available.
- **Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

5 Fire-fighting measures

- **Extinguishing media**
- **Suitable extinguishing agents:**
CO₂, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
Use fire fighting measures that suit the environment.
- **Advice for firefighters**
- **Protective equipment:** Wear protective clothing.

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures** Wear protective clothing.
- **Environmental precautions:** Dilute with plenty of water.
- **Methods and material for containment and cleaning up:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
- **Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

(Contd. on page 3)



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acc. to OSHA HCS

Printing date 03/28/2018

Reviewed on 12/16/2016

Trade name: DNase/RNase Free Water

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Protective Action Criteria for Chemicals

PAC-1:

Substance is not listed.

PAC-2:

Substance is not listed.

PAC-3:

Substance is not listed.

7 Handling and storage

Handling:

- Precautions for safe handling: No special measures required.
Information about protection against explosions and fires: No special measures required.

Conditions for safe storage, including any incompatibilities

- Storage:
Requirements to be met by storerooms and receptacles: No special requirements.
Information about storage in one common storage facility: Not required.
Further information about storage conditions: None.
Specific end use(s): Laboratory reagent

8 Exposure controls/personal protection

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

Control parameters

- Components with limit values that require monitoring at the workplace: Not required.
Additional information: The lists that were valid during the creation were used as basis.

Exposure controls

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:

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

Material of gloves

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.

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 4)



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Reviewed on 12/16/2016

Trade name: DNase/RNase Free Water

(Contd. of page 3)

Eye protection: Goggles recommended during refilling.

9 Physical and chemical properties

Information on basic physical and chemical properties

General Information

Appearance:

Form: Liquid
Color: Clear
Odor: Odorless
Odor threshold: Not determined.

pH-value: Not determined.

Change in condition

Melting point/Melting range: 0 °C (32 °F)
Boiling point/Boiling range: 100 °C (212 °F)

Flash point: Not applicable.

Flammability (solid, gaseous): Not applicable.

Ignition temperature:

Decomposition temperature: Not determined.

Auto igniting: Not determined.

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

Explosion limits:

Lower: Not Applicable
Upper: Not Applicable

Vapor pressure at 20 °C (68 °F): 23 hPa (17.3 mm Hg)

Density at 20 °C (68 °F): 1 g/cm³ (8.345 lbs/gal)

Relative density: Not determined.

Vapor density: Not determined.

Evaporation rate: Not determined.

Solubility in / Miscibility with

Water: Fully miscible.

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

Viscosity:

Dynamic at 20 °C (68 °F): 0.952 mPas
Kinematic: Not determined.
Water: 100.0 %
VOC content: 0.00 %
0.0 g/l / 0.00 lb/gl

Solids content: 0.0 %

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Reviewed on 12/16/2016

Trade name: DNase/RNase Free Water

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Other information No further relevant information available.

10 Stability and reactivity

- Reactivity, Chemical stability, Thermal decomposition / conditions to be avoided, Possibility of hazardous reactions, Conditions to avoid, Incompatible materials, Hazardous decomposition products

11 Toxicological information

- Information on toxicological effects, Acute toxicity, Primary irritant effect, Sensitization, Additional toxicological information

IARC (International Agency for Research on Cancer)

Substance is not listed.

NTP (National Toxicology Program)

Substance is not listed.

OSHA-Ca (Occupational Safety & Health Administration)

Substance is not listed.

12 Ecological information

- Toxicity, Aquatic toxicity, Persistence and degradability, Behavior in environmental systems, Bioaccumulative potential, Mobility in soil, Additional ecological information, General notes

(Contd. on page 6)



Safety Data Sheet
acc. to OSHA HCS

Printing date 03/28/2018

Reviewed on 12/16/2016

Trade name: DNase/RNase Free Water

(Contd. of page 5)

- Results of PBT and vPvB assessment
PBT: Not applicable.
vPvB: Not applicable.
Other adverse effects No further relevant information available.

13 Disposal considerations

- Waste treatment methods
Recommendation: Smaller quantities can be disposed of with household waste.
Uncleaned packagings:
Recommendation: Dispose of container in accordance with local/regional/national and international recommendations.
Recommended cleansing agent: Water, if necessary with cleansing agents.

14 Transport information

Table with 2 columns: Description and Regulation status. Rows include UN-Number, DOT, ADN, IMDG, IATA; UN proper shipping name; Transport hazard class(es); Packing group; Environmental hazards; Special precautions for user; Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code; UN Model Regulation.

15 Regulatory information

- Safety, health and environmental regulations/legislation specific for the substance or mixture
Sara

Section 355 (extremely hazardous substances):
Substance is not listed.

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Printing date 03/28/2018

Reviewed on 12/16/2016

Trade name: DNase/RNase Free Water

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Section 313 (Specific toxic chemical listings):

Substance is not listed.

TSCA (Toxic Substances Control Act):

Substance is listed.

Proposition 65

Chemicals known to cause cancer:

Substance is not listed.

Chemicals known to cause reproductive toxicity for females:

Substance is not listed.

Chemicals known to cause reproductive toxicity for males:

Substance is not listed.

Chemicals known to cause developmental toxicity:

Substance is not listed.

Carcinogenic categories

EPA (Environmental Protection Agency)

Substance is not listed.

TLV (Threshold Limit Value established by ACGIH)

Substance is not listed.

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

Substance is not listed.

GHS label elements Void

Hazard pictograms Void

Signal word Void

Hazard statements Void

Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

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 SDS:

Zymo Research Corp.

Safety Department

17062 Murphy Ave.

Irvine, CA 92614

USA

Phone: 1-949-679-1190 or 1-888-882-9682

Contact: sds@zymoresearch.com

Date of preparation / last revision 03/28/2018 / -

Abbreviations and acronyms:

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

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Trade name: DNase/RNase Free Water

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IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association
ACGIH: American Conference of Governmental Industrial Hygienists
EINECS: European Inventory of Existing Commercial Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
NFPA: National Fire Protection Association (USA)
HMIS: Hazardous Materials Identification System (USA)
VOC: Volatile Organic Compounds (USA, EU)
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
NIOSH: National Institute for Occupational Safety
OSHA: Occupational Safety & Health
TLV: Threshold Limit Value
PEL: Permissible Exposure Limit
REL: Recommended Exposure Limit

US