



**ZYMO RESEARCH**

*The Beauty of Science is to Make Things Simple*

03/02/2017

**Kit Components**

Product code	Description
--------------	-------------

<b>D4068, D4068T</b>	<b>Quick-DNA Miniprep Plus Kit (50 preps &amp; 10 preps)</b>
----------------------	--

Components:

D3001-2-5	Proteinase K
D3001-2-C	Proteinase K Storage Buffer
D4068-1-12	BioFluid & Cell Buffer
D4068-2-6	Solid Tissue Buffer
D4068-3-25	Genomic Binding Buffer
D3004-5-15	DNA Pre-Wash Buffer
D3004-2-50	g-DNA Wash Buffer
D3004-4-1	DNA Elution Buffer



**Safety Data Sheet**  
acc. to OSHA HCS

Printing date 03/02/2017

Reviewed on 12/07/2015

**1 Identification**

- **Product identifier**
- **Trade name: Proteinase K**
- **Article number:** D3001-2-5, D3001-2-20, 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.



**Safety Data Sheet**  
*acc. to OSHA HCS*

Printing date 03/02/2017

Reviewed on 12/07/2015

**Trade name: Proteinase K**

(Contd. of page 1)

**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.
- **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.

(Contd. on page 3)



## Safety Data Sheet acc. to OSHA HCS

Printing date 03/02/2017

Reviewed on 12/07/2015

Trade name: Proteinase K

(Contd. of page 2)

· **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.

US

(Contd. on page 4)



Safety Data Sheet
acc. to OSHA HCS

Printing date 03/02/2017

Reviewed on 12/07/2015

Trade name: Proteinase K

(Contd. of page 3)

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:

Organic solvents: 0.0 %

VOC content: 0.0 g/l / 0.00 lb/gl

Other information: No further relevant information available.



Safety Data Sheet
acc. to OSHA HCS

Printing date 03/02/2017

Reviewed on 12/07/2015

Trade name: Proteinase K

(Contd. of page 4)

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
Results of PBT and vPvB assessment
PBT: Not applicable.
vPvB: Not applicable.

(Contd. on page 6)



Safety Data Sheet acc. to OSHA HCS

Printing date 03/02/2017

Reviewed on 12/07/2015

Trade name: Proteinase K

(Contd. of page 5)

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: Regulatory 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.

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 (extremely hazardous substances), Section 313 (Specific toxic chemical listings), and TSCA (Toxic Substances Control Act).

(Contd. on page 7)



**Safety Data Sheet**  
acc. to OSHA HCS

Printing date 03/02/2017

Reviewed on 12/07/2015

**Trade name: Proteinase K**

(Contd. of page 6)

· **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** 03/02/2017 / -

· **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)

(Contd. on page 8)





**ZYMO RESEARCH**

*The Beauty of Science is to Make Things Simple*

Page 8/8

**Safety Data Sheet**  
*acc. to OSHA HCS*

Printing date 03/02/2017

Reviewed on 12/07/2015

**Trade name: Proteinase K**

(Contd. of page 7)

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 03/02/2017

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.



Safety Data Sheet
acc. to OSHA HCS

Printing date 03/02/2017

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: CAS: 56-81-5 glycerol, ≤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: CAS: 56-81-5 glycerol, 45 mg/m3

(Contd. on page 3)



Safety Data Sheet acc. to OSHA HCS

Printing date 03/02/2017

Reviewed on 11/13/2015

Trade name: Proteinase K Storage Buffer

(Contd. of page 2)

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, Information about protection against explosions and fires, Conditions for safe storage, 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)

8 Exposure controls/personal protection

- Additional information about design of technical systems, 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, Exposure controls, Personal protective equipment, General protective and hygienic measures, Breathing equipment, Protection of hands, Material of gloves

(Contd. on page 4)



**Safety Data Sheet**  
acc. to OSHA HCS

Printing date 03/02/2017

Reviewed on 11/13/2015

**Trade name: Proteinase K Storage Buffer**

(Contd. of page 3)

- **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

- **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.

(Contd. on page 5)



**Safety Data Sheet**  
acc. to OSHA HCS

Printing date 03/02/2017

Reviewed on 11/13/2015

**Trade name: Proteinase K Storage Buffer**

(Contd. of page 4)

- **Solvent content:**
- Organic solvents:** 50.0 %
- VOC content:** 0.0 g/l / 0.00 lb/gl
- **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.

(Contd. on page 6)



Safety Data Sheet
acc. to OSHA HCS

Printing date 03/02/2017

Reviewed on 11/13/2015

Trade name: Proteinase K Storage Buffer

(Contd. of page 5)

- 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: Description and Regulation 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.

(Contd. on page 7)



**Safety Data Sheet**  
*acc. to OSHA HCS*

Printing date 03/02/2017

Reviewed on 11/13/2015

**Trade name: Proteinase K Storage Buffer**

(Contd. of page 6)

**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

(Contd. on page 8)





**ZYMO RESEARCH**

*The Beauty of Science is to Make Things Simple*

Page 8/8

**Safety Data Sheet**  
**acc. to OSHA HCS**

Printing date 03/02/2017

Reviewed on 11/13/2015

**Trade name: Proteinase K Storage Buffer**

(Contd. of page 7)

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

· **Contact:** sds@zymoresearch.com

· **Date of preparation / last revision** 03/02/2017 / -

· **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 03/02/2017

Reviewed on 06/16/2016

**1 Identification**

- **Product identifier**
- **Trade name: BioFluid & Cell Buffer**
- **Article number:** D4068-1-12, D4068-1-25, D4068-1-45, D4068-1-2.50
- **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)



Safety Data Sheet acc. to OSHA HCS

Printing date 03/02/2017

Reviewed on 06/16/2016

Trade name: BioFluid & Cell Buffer

(Contd. of page 1)

Precautionary statements

- Do not breathe mist/vapours/spray.
Wear protective gloves/protective clothing/eye protection/face protection.
Avoid release to the environment.
Wash thoroughly after handling.
Do not eat, drink or smoke when using this product.
Use only outdoors or in a well-ventilated area.
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.
Immediately call a POISON CENTER/doctor.
Specific treatment (see on this label).
IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell.
IF INHALED: Remove person to fresh air and keep comfortable for breathing.
Wash contaminated clothing before reuse.
If swallowed: Rinse mouth. Do NOT induce vomiting.
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 of the substances listed below with nonhazardous additions.

Dangerous components:

Table with 3 columns: CAS number, chemical name, and percentage. Includes entries for guanidinium thiocyanate (CAS: 593-84-0, ≤70%) and Polyethylene glycol octylphenol ether (CAS: 9002-93-1, ≤10%).



**Safety Data Sheet**  
*acc. to OSHA HCS*

Printing date 03/02/2017

Reviewed on 06/16/2016

**Trade name: BioFluid & Cell Buffer**

(Contd. of page 2)

#### **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:**

CO<sub>2</sub>, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.

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

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.

Ensure adequate ventilation.

(Contd. on page 4)



Safety Data Sheet
acc. to OSHA HCS

Printing date 03/02/2017

Reviewed on 06/16/2016

Trade name: BioFluid & Cell Buffer

(Contd. of page 3)

- 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

Table with 3 rows: PAC-1, PAC-2, PAC-3. Columns include CAS number, chemical name, and concentration (e.g., 0.98 mg/m3, 11 mg/m3, 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: Keep away from foodstuffs, beverages and feed.

(Contd. on page 5)



Safety Data Sheet
acc. to OSHA HCS

Printing date 03/02/2017

Reviewed on 06/16/2016

Trade name: BioFluid & Cell 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, Light red, 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: Not applicable.

Flammability (solid, gaseous): Not applicable.

(Contd. on page 6)



Safety Data Sheet
acc. to OSHA HCS

Printing date 03/02/2017

Reviewed on 06/16/2016

Trade name: BioFluid & Cell Buffer

(Contd. of page 5)

Table with 2 columns: Property and Value. Rows include 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.
Hazardous decomposition products: Product will not undergo self-decomposition, so no such products will be generated.

(Contd. on page 7)



Safety Data Sheet acc. to OSHA HCS

Printing date 03/02/2017

Reviewed on 06/16/2016

Trade name: BioFluid & Cell Buffer

(Contd. of page 6)

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.
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.

(Contd. on page 8)





Safety Data Sheet
acc. to OSHA HCS

Printing date 03/02/2017

Reviewed on 06/16/2016

Trade name: BioFluid & Cell Buffer

(Contd. of page 7)

- 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), IMDG, IATA (8 Corrosive substances), Packing group (III), and Environmental hazards (Not applicable).

(Contd. on page 9)



Safety Data Sheet
acc. to OSHA HCS

Printing date 03/02/2017

Reviewed on 06/16/2016

Trade name: BioFluid & Cell Buffer

(Contd. of page 8)

Table with 2 columns: Hazard/Regulation and Description. Rows include EMS Number, Stowage Category, Transport in bulk, DOT, IMDG, and UN Model Regulation.

15 Regulatory information

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

Table with 2 columns: Regulation and Status. Rows include Section 355, Section 313, TSCA, Proposition 65, and various cancer/toxicity listings.

(Contd. on page 10)



**Safety Data Sheet**  
acc. to OSHA HCS

Printing date 03/02/2017

Reviewed on 06/16/2016

**Trade name: BioFluid & Cell Buffer**

(Contd. of page 9)

· **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.

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

Avoid release to the environment.

Wash thoroughly after handling.

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

Use only outdoors or in a well-ventilated area.

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.

Immediately call a POISON CENTER/doctor.

Specific treatment (see on this label).

IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell.

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

Wash contaminated clothing before reuse.

If swallowed: Rinse mouth. Do NOT induce vomiting.

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

(Contd. on page 11)



**ZYMO RESEARCH**

*The Beauty of Science is to Make Things Simple*

Page 11/11

**Safety Data Sheet**  
**acc. to OSHA HCS**

Printing date 03/02/2017

Reviewed on 06/16/2016

**Trade name: BioFluid & Cell Buffer**

(Contd. of page 10)

USA

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

· **Contact:** sds@zymoresearch.com

· **Date of preparation / last revision** 03/02/2017 / -

· **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

US



**Safety Data Sheet**  
acc. to OSHA HCS

Printing date 03/02/2017

Reviewed on 06/16/2016

**1 Identification**

- **Product identifier**
- **Trade name:** Solid Tissue Buffer
- **Article number:** D4068-2-6, D4068-2-10, D4068-2-22, D4068-2-2.5
- **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.



**Safety Data Sheet**  
acc. to OSHA HCS

Printing date 03/02/2017

Reviewed on 06/16/2016

**Trade name: Solid Tissue 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:**

CAS: 6381-92-6	Edetate Disodium, Dihydrate	≤20%
CAS: 151-21-3	sodium dodecyl sulphate	≤2.5%

**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.
- **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.

(Contd. on page 3)



## Safety Data Sheet

acc. to OSHA HCS

Printing date 03/02/2017

Reviewed on 06/16/2016

**Trade name: Solid Tissue Buffer**

(Contd. of page 2)

**· Protective Action Criteria for Chemicals**

**· PAC-1:**

CAS: 6381-92-6	Edetate Disodium, Dihydrate	30 mg/m <sup>3</sup>
CAS: 151-21-3	sodium dodecyl sulphate	3.9 mg/m <sup>3</sup>

**· PAC-2:**

CAS: 6381-92-6	Edetate Disodium, Dihydrate	330 mg/m <sup>3</sup>
CAS: 151-21-3	sodium dodecyl sulphate	43 mg/m <sup>3</sup>

**· PAC-3:**

CAS: 6381-92-6	Edetate Disodium, Dihydrate	2,000 mg/m <sup>3</sup>
CAS: 151-21-3	sodium dodecyl sulphate	260 mg/m <sup>3</sup>

### 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

(Contd. on page 4)



Safety Data Sheet
acc. to OSHA HCS

Printing date 03/02/2017

Reviewed on 06/16/2016

Trade name: Solid Tissue Buffer

(Contd. of page 3)

- 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.

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.

(Contd. on page 5)





Safety Data Sheet
acc. to OSHA HCS

Printing date 03/02/2017

Reviewed on 06/16/2016

Trade name: Solid Tissue Buffer

(Contd. of page 4)

Table with 2 columns: Property (Viscosity, Solvent content, Solids content, Other information) and Value (Not determined, 0.0%, 20.0%, 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:

LD/LC50 values that are relevant for classification:

CAS: 6381-92-6 Edetate Disodium, Dihydrate

Oral LD50 2000 mg/kg (rat)

- 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.

(Contd. on page 6)



Safety Data Sheet
acc. to OSHA HCS

Printing date 03/02/2017

Reviewed on 06/16/2016

Trade name: Solid Tissue Buffer

(Contd. of page 5)

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:
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

- 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

(Contd. on page 7)



Safety Data Sheet acc. to OSHA HCS

Printing date 03/02/2017

Reviewed on 06/16/2016

Trade name: Solid Tissue Buffer

(Contd. of page 6)

Table with 2 columns: Hazard/Precaution and Status. Rows include Environmental hazards, Special precautions for user, Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code, and 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): CAS: 151-21-3 sodium dodecyl sulphate

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

(Contd. on page 8)



**ZYMO RESEARCH**

*The Beauty of Science is to Make Things Simple*

Page 8/8

**Safety Data Sheet**  
**acc. to OSHA HCS**

Printing date 03/02/2017

Reviewed on 06/16/2016

**Trade name: Solid Tissue Buffer**

(Contd. of page 7)

· **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** 03/02/2017 / -

· **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

US



**Safety Data Sheet**  
acc. to OSHA HCS

Printing date 03/02/2017

Reviewed on 06/16/2016

**1 Identification**

- **Product identifier**
- **Trade name: Genomic Binding Buffer**
- **Article number:** D4068-3-25, D4068-3-45, D4068-3-85, D4068-3-5-S
- **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.



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.

STOT SE 3      H336 May cause drowsiness or dizziness.

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** GHS02, GHS05, GHS07
- **Signal word** Danger

(Contd. on page 2)



Safety Data Sheet
acc. to OSHA HCS

Printing date 03/02/2017

Reviewed on 06/16/2016

Trade name: Genomic Binding Buffer

(Contd. of page 1)

Hazard-determining components of labeling:

guanidinium thiocyanate

Hazard statements

- Highly flammable liquid and vapor.
Harmful if swallowed, in contact with skin or if inhaled.
Causes severe skin burns and eye damage.
May cause drowsiness or dizziness.
Harmful to aquatic life with long lasting effects.

Precautionary statements

- Keep away from heat/sparks/open flames/hot surfaces. No smoking.
Use explosion-proof electrical/ventilating/lighting/equipment.
Do not breathe dusts or mists.
Wear protective gloves/protective clothing/eye protection/face protection.
Ground/bond container and receiving equipment.
Use only non-sparking tools.
Avoid release to the environment.
Take precautionary measures against static discharge.
Wash thoroughly after handling.
Do not eat, drink or smoke when using this product.
Use only outdoors or in a well-ventilated area.
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.
Immediately call a POISON CENTER/doctor.
Specific treatment (see on this label).
IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell.
IF INHALED: Remove person to fresh air and keep comfortable for breathing.
Wash contaminated clothing before reuse.
If swallowed: Rinse mouth. Do NOT induce vomiting.
In case of fire: Use for extinction: CO2, powder or water spray.
Take off contaminated clothing and wash it before reuse.
Store in a well-ventilated place. Keep container tightly closed.
Store in a well-ventilated place. Keep cool.
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)



(Contd. on page 3)



Safety Data Sheet
acc. to OSHA HCS

Printing date 03/02/2017

Reviewed on 06/16/2016

Trade name: Genomic Binding Buffer

(Contd. of page 2)

- 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, ingredient name, and percentage. Includes entries for guanidinium thiocyanate (≤70%) and propan-2-ol (≤30%).

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.
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.
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.

(Contd. on page 4)



Safety Data Sheet
acc. to OSHA HCS

Printing date 03/02/2017

Reviewed on 06/16/2016

Trade name: Genomic Binding Buffer

(Contd. of page 3)

- 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
Environmental precautions:
Methods and material for containment and cleaning up:
Reference to other sections
Protective Action Criteria for Chemicals

PAC-1:

Table with 3 columns: CAS number, chemical name, and concentration. Rows include guanidinium thiocyanate (0.98 mg/m3) and propan-2-ol (400 ppm).

PAC-2:

Table with 3 columns: CAS number, chemical name, and concentration. Rows include guanidinium thiocyanate (11 mg/m3) and propan-2-ol (2000\* ppm).

PAC-3:

Table with 3 columns: CAS number, chemical name, and concentration. Rows include guanidinium thiocyanate (65 mg/m3) and propan-2-ol (12000\*\* ppm).

7 Handling and storage

- Handling:
Precautions for safe handling
Information about protection against explosions and fires:
Conditions for safe storage, including any incompatibilities

(Contd. on page 5)





Safety Data Sheet
acc. to OSHA HCS

Printing date 03/02/2017

Reviewed on 06/16/2016

Trade name: Genomic Binding Buffer

(Contd. of page 4)

- Storage:
Requirements to be met by storerooms and receptacles: Store in a cool location.
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. Store in cool, dry conditions in well sealed receptacles.
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 Work under a chemical fume hood when using this product. Ensure eyewash station and safety showers are readily accessible.
Components with limit values that require monitoring at the workplace: The following constituent is the only constituent of the product which has a PEL, TLV or other recommended exposure limit. At this time, the remaining constituent has no known exposure limits.

CAS: 67-63-0 propan-2-ol

Table with 2 columns: Limit Type (PEL, REL, TLV, BEI) and Value (Long-term value, Short-term value, etc.) for propan-2-ol.

Ingredients with biological limit values:

CAS: 67-63-0 propan-2-ol

Table with 2 columns: Limit Type (BEI) and Value (40 mg/L) and associated details (Medium, Time, Parameter) for propan-2-ol.

- 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.
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.

(Contd. on page 6)



Safety Data Sheet acc. to OSHA HCS

Printing date 03/02/2017

Reviewed on 06/16/2016

Trade name: Genomic Binding Buffer

(Contd. of page 5)

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:	Clear
Odor:	Alcohol-like
Odor threshold:	Not determined.

pH-value: Not determined.

Change in condition

Melting point/Melting range:	Undetermined.
Boiling point/Boiling range:	82 °C (180 °F)

Flash point: 13 °C (55 °F)

Flammability (solid, gaseous): Not applicable.

Ignition temperature: 425 °C (797 °F)

Decomposition temperature: Not determined.

Auto igniting: Product is not selfigniting.

(Contd. on page 7)



Safety Data Sheet
acc. to OSHA HCS

Printing date 03/02/2017

Reviewed on 06/16/2016

Trade name: Genomic Binding Buffer

(Contd. of page 6)

Table with 2 columns: Property and Value. Rows include: Danger of explosion, Explosion limits (Lower: 2.0 Vol %, Upper: 12.0 Vol %), Vapor pressure at 20 °C (68 °F): 43 hPa (32 mm Hg), Density at 20 °C (68 °F): 901.83551 g/cm³ (525.817 lbs/gal), Solubility in / Miscibility with Water: Fully miscible, Partition coefficient (n-octanol/water): Not determined, Viscosity (Dynamic, Kinematic): Not determined, Solvent content (Organic solvents, VOC content): 30.0 %, Solids content: 70.0 %, Other information: No further relevant information available.

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.

(Contd. on page 8)



Safety Data Sheet acc. to OSHA HCS

Printing date 03/02/2017

Reviewed on 06/16/2016

Trade name: Genomic Binding Buffer

(Contd. of page 7)

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)

CAS: 67-63-0 propan-2-ol

3

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.
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.

(Contd. on page 9)



Safety Data Sheet acc. to OSHA HCS

Printing date 03/02/2017

Reviewed on 06/16/2016

Trade name: Genomic Binding Buffer

(Contd. of page 8)

- 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: Hazard information (UN-Number, UN proper shipping name, Transport hazard class(es), Class, Label) and corresponding values (UN2924, Flammable liquids, corrosive, n.o.s. (Isopropanol, guanidinium thiocyanate), 3 Flammable liquids, 3, 8, 3 Flammable liquids, 3/8).

(Contd. on page 10)



Safety Data Sheet acc. to OSHA HCS

Printing date 03/02/2017

Reviewed on 06/16/2016

Trade name: Genomic Binding Buffer

(Contd. of page 9)

IATA



Class: 3 Flammable liquids
Label: 3 (8)

Packing group: II
DOT, IMDG, IATA: II

Environmental hazards: Not applicable.

Special precautions for user: Warning: Flammable liquids
Danger code (Kemler): 338
EMS Number: F-E,S-C
Stowage Category: B
Stowage Code: SW2 Clear of living quarters.

Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code: Not applicable.

Transport/Additional information:

DOT
Quantity limitations: On passenger aircraft/rail: 1 L
On cargo aircraft only: 5 L

IMDG
Limited quantities (LQ): 1L
Excepted quantities (EQ): Code: E2
Maximum net quantity per inner packaging: 30 ml
Maximum net quantity per outer packaging: 500 ml

UN Model Regulation: UN 2924 FLAMMABLE LIQUIDS, CORROSIVE, N.O.S. (ISOPROPANOL, GUANIDINIUM THIOCYANATE), 3 (8), 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):

CAS: 67-63-0 propan-2-ol

TSCA (Toxic Substances Control Act):

All ingredients are listed.

(Contd. on page 11)



Safety Data Sheet
acc. to OSHA HCS

Printing date 03/02/2017

Reviewed on 06/16/2016

Trade name: Genomic Binding Buffer

(Contd. of page 10)

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: 67-63-0 propan-2-ol

A4

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 GHS02, GHS05, GHS07

Signal word Danger

Hazard-determining components of labeling:

guanidinium thiocyanate

Hazard statements

- Highly flammable liquid and vapor.
Harmful if swallowed, in contact with skin or if inhaled.
Causes severe skin burns and eye damage.
May cause drowsiness or dizziness.
Harmful to aquatic life with long lasting effects.

Precautionary statements

- Keep away from heat/sparks/open flames/hot surfaces. No smoking.
Use explosion-proof electrical/ventilating/lighting/equipment.
Do not breathe dusts or mists.
Wear protective gloves/protective clothing/eye protection/face protection.
Ground/bond container and receiving equipment.
Use only non-sparking tools.
Avoid release to the environment.
Take precautionary measures against static discharge.
Wash thoroughly after handling.
Do not eat, drink or smoke when using this product.
Use only outdoors or in a well-ventilated area.
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.
Immediately call a POISON CENTER/doctor.

(Contd. on page 12)



**Safety Data Sheet**  
*acc. to OSHA HCS*

Printing date 03/02/2017

Reviewed on 06/16/2016

**Trade name: Genomic Binding Buffer**

(Contd. of page 11)

Specific treatment (see on this label).  
 IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell.  
 IF INHALED: Remove person to fresh air and keep comfortable for breathing.  
 Wash contaminated clothing before reuse.  
 If swallowed: Rinse mouth. Do NOT induce vomiting.  
 In case of fire: Use for extinction: CO2, powder or water spray.  
 Take off contaminated clothing and wash it before reuse.  
 Store in a well-ventilated place. Keep container tightly closed.  
 Store in a well-ventilated place. Keep cool.  
 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** 03/02/2017 / -

• **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  
 BEI: Biological Exposure Limit  
 Flam. Liq. 2: Flammable liquids – Category 2  
 Acute Tox. 4: Acute toxicity – Category 4  
 Skin Corr. 1C: Skin corrosion/irritation – Category 1C

(Contd. on page 13)





**ZYMO RESEARCH**

*The Beauty of Science is to Make Things Simple*

Page 13/13

***Safety Data Sheet***  
***acc. to OSHA HCS***

*Printing date 03/02/2017*

*Reviewed on 06/16/2016*

***Trade name: Genomic Binding Buffer***

(Contd. of page 12)

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

STOT SE 3: Specific target organ toxicity (single exposure) – Category 3

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

US



**Safety Data Sheet**  
*acc. to OSHA HCS*

Printing date 03/02/2017

Reviewed on 02/02/2016

**1 Identification**

- **Product identifier**
- **Trade name:** DNA Pre-Wash Buffer
- **Article number:** D3004-5-15, D3004-5-30, D3004-5-50, D3004-5-250
- **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.  
STOT SE 3 H336 May cause drowsiness or dizziness.

- **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  
propan-2-ol
- **Hazard statements**  
Highly flammable liquid and vapor.  
Harmful if swallowed.  
Causes skin irritation.  
Causes serious eye irritation.  
May cause drowsiness or dizziness.

(Contd. on page 2)



**Safety Data Sheet**  
acc. to OSHA HCS

Printing date 03/02/2017

Reviewed on 02/02/2016

**Trade name: DNA Pre-Wash Buffer**

(Contd. of page 1)

**· Precautionary statements**

- Keep away from heat/sparks/open flames/hot surfaces. No smoking.
- Use explosion-proof electrical/ventilating/lighting/equipment.
- Avoid breathing dust/fume/gas/mist/vapors/spray
- Wear protective gloves / eye protection / face protection.
- Wear protective gloves / eye protection / face protection.
- Ground/bond container and receiving 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.
- Use only outdoors or in a well-ventilated area.
- 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).
- IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell.
- IF INHALED: Remove person to fresh air and keep comfortable for breathing.
- If skin irritation occurs: Get medical advice/attention.
- If eye irritation persists: Get medical advice/attention.
- Rinse mouth.
- In case of fire: Use for extinction: CO2, powder or water spray.
- Take off contaminated clothing and wash it before reuse.
- Store in a well-ventilated place. Keep container tightly closed.
- Store in a well-ventilated place. Keep cool.
- 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.

US

(Contd. on page 3)



**Safety Data Sheet**  
acc. to OSHA HCS

Printing date 03/02/2017

Reviewed on 02/02/2016

**Trade name: DNA Pre-Wash Buffer**

(Contd. of page 2)

**3 Composition/information on ingredients**

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

· **Dangerous components:**

CAS: 67-63-0	propan-2-ol	≤50%
CAS: 50-01-1	guanidinium chloride	≤50%

**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.

(Contd. on page 4)



Safety Data Sheet
acc. to OSHA HCS

Printing date 03/02/2017

Reviewed on 02/02/2016

Trade name: DNA Pre-Wash Buffer

(Contd. of page 3)

- 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.

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)

8 Exposure controls/personal protection

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

CAS: 67-63-0 propan-2-ol

Table with 2 columns: Exposure Limit Type (PEL, REL, TLV, BEI) and Value (e.g., Long-term value: 980 mg/m³, 400 ppm)

- Ingredients with biological limit values:

CAS: 67-63-0 propan-2-ol

(Contd. on page 5)



Safety Data Sheet
acc. to OSHA HCS

Printing date 03/02/2017

Reviewed on 02/02/2016

Trade name: DNA Pre-Wash Buffer

(Contd. of page 4)

BEI 40 mg/L
Medium: urine
Time: end of shift at end of workweek
Parameter: Acetone (background, nonspecific)

- 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:
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
Penetration time of glove material
Eye protection:



Tightly sealed goggles

9 Physical and chemical properties

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

Form: Liquid
Color: Clear

(Contd. on page 6)



## Safety Data Sheet

acc. to OSHA HCS

Printing date 03/02/2017

Reviewed on 02/02/2016

Trade name: DNA Pre-Wash Buffer

(Contd. of page 5)

· <b>Odor:</b>	Alcohol-like
· <b>Odor threshold:</b>	Not determined.
· <b>pH-value:</b>	Not determined.
· <b>Change in condition</b>	
<b>Melting point/Melting range:</b>	Undetermined.
<b>Boiling point/Boiling range:</b>	>80 °C (>176 °F)
· <b>Flash point:</b>	13 °C (55 °F)
· <b>Flammability (solid, gaseous):</b>	Not applicable.
· <b>Ignition temperature:</b>	425 °C (797 °F)
· <b>Decomposition temperature:</b>	Not determined.
· <b>Auto igniting:</b>	Product is not selfigniting.
· <b>Danger of explosion:</b>	Product is not explosive. However, formation of explosive air/vapor mixtures are possible.
· <b>Explosion limits:</b>	
<b>Lower:</b>	2.0 Vol %
<b>Upper:</b>	12.0 Vol %
· <b>Vapor pressure at 20 °C (68 °F):</b>	43 hPa (32 mm Hg)
· <b>Density:</b>	Not determined.
· <b>Relative density</b>	Not determined.
· <b>Vapor density</b>	Not determined.
· <b>Evaporation rate</b>	Not determined.
· <b>Solubility in / Miscibility with</b>	
<b>Water:</b>	Fully miscible.
· <b>Partition coefficient (n-octanol/water):</b>	Not determined.
· <b>Viscosity:</b>	
<b>Dynamic:</b>	Not determined.
<b>Kinematic:</b>	Not determined.
· <b>Solvent content:</b>	
<b>Organic solvents:</b>	49.0 %
<b>VOC content:</b>	49.0 %
	490.0 g/l / 4.09 lb/gl
· <b>Other information</b>	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.

(Contd. on page 7)



Safety Data Sheet
acc. to OSHA HCS

Printing date 03/02/2017

Reviewed on 02/02/2016

Trade name: DNA Pre-Wash Buffer

(Contd. of page 6)

- 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:

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.
Sensitization: No sensitizing effects known.

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)

CAS: 67-63-0 propan-2-ol

3

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.

US

(Contd. on page 8)





Safety Data Sheet acc. to OSHA HCS

Printing date 03/02/2017

Reviewed on 02/02/2016

Trade name: DNA Pre-Wash Buffer

(Contd. of page 7)

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: Hazard/Requirement and Details. Rows include UN-Number (UN1219), UN proper shipping name (Isopropanol mixture), Transport hazard class(es) (3 Flammable liquids), Packing group (II), and Special precautions for user (Warning: Flammable liquids).

(Contd. on page 9)



Safety Data Sheet acc. to OSHA HCS

Printing date 03/02/2017

Reviewed on 02/02/2016

Trade name: DNA Pre-Wash Buffer

(Contd. of page 8)

Table with 2 columns: Regulation/Information and Value. Rows include: 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):
CAS: 67-63-0 | propan-2-ol

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: 67-63-0 | propan-2-ol | A4

(Contd. on page 10)



Safety Data Sheet
acc. to OSHA HCS

Printing date 03/02/2017

Reviewed on 02/02/2016

Trade name: DNA Pre-Wash Buffer

(Contd. of page 9)

· 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 GHS02, GHS07

· Signal word Danger

· Hazard-determining components of labeling:

guanidinium chloride

propan-2-ol

· Hazard statements

Highly flammable liquid and vapor.

Harmful if swallowed.

Causes skin irritation.

Causes serious eye irritation.

May cause drowsiness or dizziness.

· Precautionary statements

Keep away from heat/sparks/open flames/hot surfaces. No smoking.

Use explosion-proof electrical/ventilating/lighting/equipment.

Avoid breathing dust/fume/gas/mist/vapors/spray

Wear protective gloves / eye protection / face protection.

Wear protective gloves / eye protection / face protection.

Ground/bond container and receiving 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.

Use only outdoors or in a well-ventilated area.

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).

IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell.

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

If skin irritation occurs: Get medical advice/attention.

If eye irritation persists: Get medical advice/attention.

Rinse mouth.

In case of fire: Use for extinction: CO2, powder or water spray.

Take off contaminated clothing and wash it before reuse.

Store in a well-ventilated place. Keep container tightly closed.

Store in a well-ventilated place. Keep cool.

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.

US

(Contd. on page 11)

**Safety Data Sheet**  
*acc. to OSHA HCS*

Printing date 03/02/2017

Reviewed on 02/02/2016

**Trade name: DNA Pre-Wash Buffer**

(Contd. of page 10)

**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** 03/02/2017 / -**· 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 &amp; Health

TLV: Threshold Limit Value

PEL: Permissible Exposure Limit

REL: Recommended Exposure Limit

BEI: Biological 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

STOT SE 3: Specific target organ toxicity (single exposure) – Category 3



**Safety Data Sheet**  
acc. to OSHA HCS

Printing date 03/02/2017

Reviewed on 12/08/2016

**1 Identification**

- **Product identifier**
- **Trade name:** g-DNA Wash Buffer
- **Article number:** D3004-2-50, D3004-2-100, D3004-2-200, D3004-2-250, D3004-2-400
- **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. 3 H226 Flammable liquid and vapor.



GHS07

Eye Irrit. 2A H319 Causes serious eye irritation.

STOT SE 3 H336 May cause drowsiness or dizziness.

- **Label elements**

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

· **Hazard pictograms** GHS02, GHS07

· **Signal word** Warning

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

propan-2-ol

ethanol

- **Hazard statements**

Flammable liquid and vapor.

Causes serious eye irritation.

May cause drowsiness or dizziness.

- **Precautionary statements**

Keep away from heat/sparks/open flames/hot surfaces. No smoking.

Use explosion-proof electrical/ventilating/lighting/equipment.

Avoid breathing dust/fume/gas/mist/vapors/spray

(Contd. on page 2)



Safety Data Sheet acc. to OSHA HCS

Printing date 03/02/2017

Reviewed on 12/08/2016

Trade name: g-DNA Wash Buffer

(Contd. of page 1)

Wear protective gloves / eye protection / face protection.
Ground/bond container and receiving equipment.
Use only non-sparking tools.
Take precautionary measures against static discharge.
Wash thoroughly after handling.
Use only outdoors or in a well-ventilated area.
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.
IF INHALED: Remove person to fresh air and keep comfortable for breathing.
Call a POISON CENTER/doctor if you feel unwell.
If eye irritation persists: Get medical advice/attention.
In case of fire: Use for extinction: CO2, powder or water spray.
Store in a well-ventilated place. Keep container tightly closed.
Store in a well-ventilated place. Keep cool.
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, and 2 rows: CAS: 64-17-5 ethanol <=25%, CAS: 67-63-0 propan-2-ol <=25%

(Contd. on page 3)



**Safety Data Sheet**  
*acc. to OSHA HCS*

Printing date 03/02/2017

Reviewed on 12/08/2016

**Trade name: g-DNA Wash Buffer**

(Contd. of page 2)

#### **4 First-aid measures**

- **Description of first aid measures**
- **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. 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**  
Inhalation of vapors, mists or sprays can cause drowsiness, dizziness, and other central nervous system effects.  
Accidental eye contact can cause serious irritation.
- **Indication of any immediate medical attention and special treatment needed**  
No further relevant information available.

#### **5 Fire-fighting measures**

- **Extinguishing media**
- **Suitable extinguishing agents:**  
CO<sub>2</sub>, 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:**  
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).  
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.

#### **7 Handling and storage**

- **Handling:**
- **Precautions for safe handling**  
Ensure good ventilation/exhaustion at the workplace.  
Prevent formation of aerosols.

(Contd. on page 4)



Safety Data Sheet
acc. to OSHA HCS

Printing date 03/02/2017

Reviewed on 12/08/2016

Trade name: g-DNA Wash Buffer

(Contd. of page 3)

- Information about protection against explosions and fires: Keep ignition sources away - Do not smoke. Protect against electrostatic charges.
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: Keep receptacle tightly sealed.
Specific end use(s) No further relevant information available.

8 Exposure controls/personal protection

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

Components with limit values that require monitoring at the workplace:

CAS: 64-17-5 ethanol

Table with 2 columns: PEL, REL, TLV and their corresponding values for ethanol.

CAS: 67-63-0 propan-2-ol

Table with 2 columns: PEL, REL, TLV and their corresponding values for propan-2-ol.

Ingredients with biological limit values:

CAS: 67-63-0 propan-2-ol

Table with 2 columns: BEI and its corresponding values and parameters for propan-2-ol.

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

- Exposure controls
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. Avoid contact with the eyes and skin.

(Contd. on page 5)





**Safety Data Sheet**  
acc. to OSHA HCS

Printing date 03/02/2017

Reviewed on 12/08/2016

**Trade name: g-DNA Wash Buffer**

(Contd. of page 4)

· **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:**

· <b>Form:</b>	Liquid
· <b>Color:</b>	Clear
· <b>Odor:</b>	Alcohol-like
· <b>Odor threshold:</b>	Not determined.

· **pH-value:** Not determined.

· **Change in condition**

· <b>Melting point/Melting range:</b>	Undetermined.
· <b>Boiling point/Boiling range:</b>	Undetermined.

· **Flash point:** >30 °C (>86 °F)

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

· **Ignition temperature:** 425 °C (797 °F)

· **Decomposition temperature:** Not determined.

(Contd. on page 6)



Safety Data Sheet
acc. to OSHA HCS

Printing date 03/02/2017

Reviewed on 12/08/2016

Trade name: g-DNA Wash Buffer

(Contd. of page 5)

Table with 2 columns: Property and Value. Rows include: Auto igniting, Danger of explosion, Explosion limits (Lower: 2.0 Vol %, Upper: 15.0 Vol %), Vapor pressure at 20 °C (68 °F): 59 hPa (44 mm Hg), Density, Relative density, Vapor density, Evaporation rate, Solubility in / Miscibility with Water: Fully miscible, Partition coefficient (n-octanol/water): Not determined, Viscosity (Dynamic, Kinematic), Solvent content (Organic solvents: 50.0 %, VOC content: 50.0 %, 500.0 g/l / 4.17 lb/gl), Other information: No further relevant information available.

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 carbon monoxide and carbon dioxide
· 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
May be harmful by inhalation. Material is irritating to mucous membranes and upper respiratory tract.

(Contd. on page 7)



Safety Data Sheet
acc. to OSHA HCS

Printing date 03/02/2017

Reviewed on 12/08/2016

Trade name: g-DNA Wash Buffer

(Contd. of page 6)

- Acute toxicity:
Primary irritant effect:
on the skin: No irritant effect.
on the eye: Causes severe eye irritation
Sensitization: No sensitizing effects known.
Additional toxicological information: Inhalation of vapors/mists, and sprays of this product can cause dizziness, drowsiness and other central nervous system effects.

Carcinogenic categories

IARC (International Agency for Research on Cancer)

Table with 2 columns: CAS number, ingredient name, and hazard value. Rows include ethanol (CAS: 64-17-5, value 1) and propan-2-ol (CAS: 67-63-0, value 3).

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

(Contd. on page 8)



Safety Data Sheet acc. to OSHA HCS

Printing date 03/02/2017

Reviewed on 12/08/2016

Trade name: g-DNA Wash Buffer

(Contd. of page 7)

- 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 (UN1993), UN proper shipping name (Flammable liquids, n.o.s. (Isopropanol, Ethanol)), Transport hazard class(es) (3 Flammable liquids), Packing group (III), and Environmental hazards (Not applicable).

(Contd. on page 9)



Safety Data Sheet acc. to OSHA HCS

Printing date 03/02/2017

Reviewed on 12/08/2016

Trade name: g-DNA Wash Buffer

(Contd. of page 8)

- 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

Table with regulatory information including Section 355, Section 313, TSCA, Proposition 65, Carcinogenic categories, EPA, and TLV.

(Contd. on page 10)



**Safety Data Sheet**  
acc. to OSHA HCS

Printing date 03/02/2017

Reviewed on 12/08/2016

**Trade name: g-DNA Wash Buffer**

(Contd. of page 9)

**· 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** GHS02, GHS07

· **Signal word** Warning

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

propan-2-ol

ethanol

· **Hazard statements**

Flammable liquid and vapor.

Causes serious eye irritation.

May cause drowsiness or dizziness.

· **Precautionary statements**

Keep away from heat/sparks/open flames/hot surfaces. No smoking.

Use explosion-proof electrical/ventilating/lighting/equipment.

Avoid breathing dust/fume/gas/mist/vapors/spray

Wear protective gloves / eye protection / face protection.

Ground/bond container and receiving equipment.

Use only non-sparking tools.

Take precautionary measures against static discharge.

Wash thoroughly after handling.

Use only outdoors or in a well-ventilated area.

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.

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

Call a POISON CENTER/doctor if you feel unwell.

If eye irritation persists: Get medical advice/attention.

In case of fire: Use for extinction: CO2, powder or water spray.

Store in a well-ventilated place. Keep container tightly closed.

Store in a well-ventilated place. Keep cool.

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

(Contd. on page 11)



**ZYMO RESEARCH**

*The Beauty of Science is to Make Things Simple*

Page 11/11

**Safety Data Sheet**  
**acc. to OSHA HCS**

Printing date 03/02/2017

Reviewed on 12/08/2016

**Trade name: g-DNA Wash Buffer**

(Contd. of page 10)

· **Contact:** sds@zymoresearch.com

· **Date of preparation / last revision** 03/02/2017 / -

· **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

BEI: Biological Exposure Limit

Flam. Liq. 3: Flammable liquids – Category 3

Eye Irrit. 2A: Serious eye damage/eye irritation – Category 2A

STOT SE 3: Specific target organ toxicity (single exposure) – Category 3

US



**Safety Data Sheet**  
acc. to OSHA HCS

Printing date 03/02/2017

Reviewed on 12/03/2015

**1 Identification**

- **Product identifier**
- **Trade name:** DNA Elution Buffer
- **Article number:** D3004-4-1, D3004-4-4, D3004-4-10, D3004-4-16, D3004-4-50
- **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.





**Safety Data Sheet**  
acc. to OSHA HCS

Printing date 03/02/2017

Reviewed on 12/03/2015

**Trade name: DNA Elution 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:** 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.
- **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
CAS: 6381-92-6	Edetate Disodium, Dihydrate	30 mg/m3

(Contd. on page 3)

**Safety Data Sheet**  
acc. to OSHA HCS

Printing date 03/02/2017

Reviewed on 12/03/2015

**Trade name: DNA Elution Buffer**

(Contd. of page 2)

**· PAC-2:**

CAS: 1185-53-1	2-amino-2-(hydroxymethyl)propane-1,3-diolhydrochloride	130 mg/m3
CAS: 6381-92-6	Edetate Disodium, Dihydrate	330 mg/m3

**· PAC-3:**

CAS: 1185-53-1	2-amino-2-(hydroxymethyl)propane-1,3-diolhydrochloride	790 mg/m3
CAS: 6381-92-6	Edetate Disodium, Dihydrate	2,000 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:**  
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.

(Contd. on page 4)



**Safety Data Sheet**  
acc. to OSHA HCS

Printing date 03/02/2017

Reviewed on 12/03/2015

**Trade name: DNA Elution Buffer**

(Contd. of page 3)

- **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.

(Contd. on page 5)



**Safety Data Sheet**  
acc. to OSHA HCS

Printing date 03/02/2017

Reviewed on 12/03/2015

**Trade name: DNA Elution Buffer**

(Contd. of page 4)

· <b>Solvent content:</b>	
<b>Organic solvents:</b>	0.0 %
<b>VOC content:</b>	0.0 g/l / 0.00 lb/gl
· <b>Solids content:</b>	
	2.0 %
· <b>Other information</b>	
	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.

(Contd. on page 6)



Safety Data Sheet acc. to OSHA HCS

Printing date 03/02/2017

Reviewed on 12/03/2015

Trade name: DNA Elution Buffer

(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, 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.



Safety Data Sheet
acc. to OSHA HCS

Printing date 03/02/2017

Reviewed on 12/03/2015

Trade name: DNA Elution Buffer

(Contd. of page 6)

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

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

(Contd. on page 8)



**ZYMO RESEARCH**

*The Beauty of Science is to Make Things Simple*

Page 8/8

**Safety Data Sheet**  
**acc. to OSHA HCS**

Printing date 03/02/2017

Reviewed on 12/03/2015

**Trade name: DNA Elution Buffer**

(Contd. of page 7)

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

· **Contact:** sds@zymoresearch.com

· **Date of preparation / last revision** 03/02/2017 / -

· **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