



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

Printing date 12/21/2018

Reviewed on 03/22/2017

**1 Identification**

- **Product identifier**
- **Trade name:** DNA Prep Buffer
- **Article number:** D7001-2-10, D7001-2-25, D7001-2-200
- **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.

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

- **Label elements**
- **GHS label elements** The product is classified and labeled according to the Globally Harmonized System (GHS).
- **Hazard pictograms** GHS05, GHS07
- **Signal word** Danger
- **Hazard-determining components of labeling:**  
guanidinium thiocyanate
- **Hazard statements**  
Harmful if swallowed.  
Causes severe skin burns and eye damage.  
Harmful to aquatic life with long lasting effects.
- **Precautionary statements**  
If medical advice is needed, have product container or label at hand.  
Keep out of reach of children.  
Read label before use.

(Contd. on page 2)



Safety Data Sheet
acc. to OSHA HCS

Printing date 12/21/2018

Reviewed on 03/22/2017

Trade name: DNA Prep Buffer

(Contd. of page 1)

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

Classification system:

NFPA ratings (scale 0 - 4)



HMIS-ratings (scale 0 - 4)



Other hazards

Results of PBT and vPvB assessment

- PBT: Not applicable.
vPvB: Not applicable.

3 Composition/information on ingredients

Chemical characterization: Mixtures

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

Dangerous components:

Table with 2 columns: CAS number and percentage. Rows include CAS: 593-84-0 (guanidinium thiocyanate, 50%) and CAS: 56-81-5 (glycerol, 50%).

(Contd. on page 3)



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

Printing date 12/21/2018

Reviewed on 03/22/2017

**Trade name: DNA Prep 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:**  
Wash eyes immediately, for at least 15 minutes, with large amounts of water, holding upper and lower lids open. Remove contact lenses, if present and it is easy to do so. Get medical attention immediately.
- **After swallowing:**  
Rinse mouth  
DO NOT induce vomiting.
- **Information for doctor:**
- **Most important symptoms and effects, both acute and delayed** No further relevant information available.
- **Indication of any immediate medical attention and special treatment needed**  
No further relevant information available.

**5 Fire-fighting measures**

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

**6 Accidental release measures**

- **Personal precautions, protective equipment and emergency procedures**  
Wear self-contained breathing apparatus for responding to non-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.

(Contd. on page 4)



Safety Data Sheet
acc. to OSHA HCS

Printing date 12/21/2018

Reviewed on 03/22/2017

Trade name: DNA Prep Buffer

(Contd. of page 3)

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

Protective Action Criteria for Chemicals

PAC-1:

Table with 3 columns: CAS number, chemical name, and concentration. Rows include guanidinium thiocyanate (0.98 mg/m³) and glycerol (45 mg/m³).

PAC-2:

Table with 3 columns: CAS number, chemical name, and concentration. Rows include guanidinium thiocyanate (11 mg/m³) and glycerol (180 mg/m³).

PAC-3:

Table with 3 columns: CAS number, chemical name, and concentration. Rows include guanidinium thiocyanate (65 mg/m³) and glycerol (1,100 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:
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.

(Contd. on page 5)



Safety Data Sheet
acc. to OSHA HCS

Printing date 12/21/2018

Reviewed on 03/22/2017

Trade name: DNA Prep Buffer

(Contd. of page 4)

CAS: 56-81-5 glycerol

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

TLV TLV withdrawn-insufficient data human occup. exp.

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

Exposure controls

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.

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



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

Printing date 12/21/2018

Reviewed on 03/22/2017

**Trade name: DNA Prep Buffer**

(Contd. of page 5)

**9 Physical and chemical properties**

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

**· General Information**

**· Appearance:**

<b>Form:</b>	Liquid
<b>Color:</b>	Colorless
<b>· Odor:</b>	No information available
<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>	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:**

<b>Lower:</b>	0.9 Vol %
<b>Upper:</b>	0.0 Vol %

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

**· Density at 20 °C (68 °F):** 644.63 g/cm<sup>3</sup> (5,379.43735 lbs/gal)

**· Relative density** Not determined.

**· Vapor density** Not determined.

**· Evaporation rate** Not determined.

**· Solubility in / Miscibility with**

**Water:** Fully miscible.

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

**· Viscosity:**

<b>Dynamic:</b>	Not determined.
<b>Kinematic:</b>	Not determined.

**· Solvent content:**

<b>Organic solvents:</b>	50.0 %
<b>VOC content:</b>	0.00 %
	0.0 g/l / 0.00 lb/gal

**Solids content:** 50.0 %

(Contd. on page 7)



Safety Data Sheet
acc. to OSHA HCS

Printing date 12/21/2018

Reviewed on 03/22/2017

Trade name: DNA Prep Buffer

(Contd. of page 6)

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.

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.

US

(Contd. on page 8)



Safety Data Sheet
acc. to OSHA HCS

Printing date 12/21/2018

Reviewed on 03/22/2017

Trade name: DNA Prep Buffer

(Contd. of page 7)

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.

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

UN-Number

DOT, IMDG, IATA

UN1760

UN proper shipping name

DOT

IMDG, IATA

Corrosive liquids, n.o.s. (guanidinium thiocyanate)

CORROSIVE LIQUID, N.O.S. (guanidinium thiocyanate)

(Contd. on page 9)





Safety Data Sheet acc. to OSHA HCS

Printing date 12/21/2018

Reviewed on 03/22/2017

Trade name: DNA Prep Buffer

(Contd. of page 8)

· Transport hazard class(es)

· DOT



· Class 8 Corrosive substances
· Label 8

· IMDG, IATA



· Class 8 Corrosive substances
· Label 8

· Packing group III
· DOT, IMDG, IATA

· Environmental hazards: Not applicable.

· Special precautions for user Warning: Corrosive substances
· Danger code (Kemler): 80
· EMS Number: F-A,S-B
· Stowage Category A
· 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: 5 L
On cargo aircraft only: 60 L

· IMDG
· Limited quantities (LQ) 5L
· Excepted quantities (EQ) Code: E1
Maximum net quantity per inner packaging: 30 ml
Maximum net quantity per outer packaging: 1000 ml

· UN "Model Regulation": UN 1760 CORROSIVE LIQUIDS, N.O.S. (GUANIDINIUM THIOCYANATE), 8, III

US

(Contd. on page 10)



Safety Data Sheet
acc. to OSHA HCS

Printing date 12/21/2018

Reviewed on 03/22/2017

Trade name: DNA Prep Buffer

(Contd. of page 9)

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

Hazard pictograms GHS05, GHS07

Signal word Danger

Hazard-determining components of labeling:

guanidinium thiocyanate

Hazard statements

Harmful if swallowed.

Causes severe skin burns and eye damage.

Harmful to aquatic life with long lasting effects.

Precautionary statements

If medical advice is needed, have product container or label at hand.

Keep out of reach of children.

Read label before use.

Do not breathe dusts or mists.

Wash thoroughly after handling.

(Contd. on page 11)

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

Printing date 12/21/2018

Reviewed on 03/22/2017

**Trade name: DNA Prep Buffer**

(Contd. of page 10)

Do not eat, drink or smoke when using this product.  
Avoid release to the environment.  
Wear protective gloves/protective clothing/eye protection/face protection.  
If swallowed: Call a poison center/doctor if you feel unwell.  
If swallowed: Rinse mouth. Do NOT induce vomiting.  
If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.  
IF INHALED: Remove person to fresh air and keep comfortable for breathing.  
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.  
Continue rinsing.  
Immediately call a poison center/doctor.  
Specific treatment (see on this label).  
Wash contaminated clothing before reuse.  
Store locked up.  
Dispose of contents/container in accordance with local/regional/national/international regulations.  
• **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

**16 Other information**

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

• **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** 12/21/2018 / -• **Abbreviations and acronyms:**

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