



Safety Data Sheet
acc. to OSHA HCS

Printing date 04/23/2018

Reviewed on 03/24/2017

1 Identification

- **Product identifier**
- **Trade name:** Viral RNA Buffer
- **Article number:** R1034-1-50 & R1034-1-100
- **Application of the substance / the mixture** Laboratory Reagent
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**
Zymo Research Corp.
17062 Murphy Ave.
Irvine, CA 92614
USA
Phone: 1-949-679-1190 or 1-888-882-9682
sds@zymoresearch.com
- **Information department:** Product safety department
- **Emergency telephone number:**
During normal business hours (8 am to 5 pm Pacific Standard Time): +1 (949) 679 1190

2 Hazard(s) identification

- **Classification of the substance or mixture**



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 04/23/2018

Reviewed on 03/24/2017

Trade name: Viral RNA Buffer

(Contd. of page 1)

Precautionary statements

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

Classification system:

NFPA ratings (scale 0 - 4)



HMIS-ratings (scale 0 - 4)



Other hazards

Results of PBT and vPvB assessment

- PBT: Not applicable.
vPvB: Not applicable.

3 Composition/information on ingredients

Chemical characterization: Mixtures

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

Dangerous components:

Table with 2 columns: CAS number and percentage. Row 1: CAS: 593-84-0, guanidinium thiocyanate, 70%. Row 2: CAS: 7681-82-5, sodium iodide, 60%.



Safety Data Sheet
acc. to OSHA HCS

Printing date 04/23/2018

Reviewed on 03/24/2017

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

6 Accidental release measures

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

(Contd. on page 4)



Safety Data Sheet
acc. to OSHA HCS

Printing date 04/23/2018

Reviewed on 03/24/2017

Trade name: Viral RNA 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 sodium iodide (13 mg/m³).

PAC-2:

Table with 3 columns: CAS number, chemical name, and concentration. Rows include guanidinium thiocyanate (11 mg/m³) and sodium iodide (140 mg/m³).

PAC-3:

Table with 3 columns: CAS number, chemical name, and concentration. Rows include guanidinium thiocyanate (65 mg/m³) and sodium iodide (860 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.

CAS: 7681-82-5 sodium iodide

Table with 2 columns: TLV and description. Row: Long-term value: 0.01* ppm, *as inhalable fraction and vapor

(Contd. on page 5)



Safety Data Sheet
acc. to OSHA HCS

Printing date 04/23/2018

Reviewed on 03/24/2017

Trade name: Viral RNA Buffer

(Contd. of page 4)

- 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

9 Physical and chemical properties

- Information on basic physical and chemical properties
General Information
Appearance:
Form: Liquid
Color: Colorless
Odor: No information available
Odor threshold: Not determined.

(Contd. on page 6)



Safety Data Sheet
acc. to OSHA HCS

Printing date 04/23/2018

Reviewed on 03/24/2017

Trade name: Viral RNA Buffer

(Contd. of page 5)

Table with 2 columns: Property and Value. Rows include pH-value, Change in condition (Melting point, Boiling point), Flash point, Flammability, Ignition temperature, Decomposition temperature, Auto igniting, Danger of explosion, Explosion limits, Vapor pressure, Density, Relative density, Vapor density, Evaporation rate, Solubility in / Miscibility with Water, Partition coefficient, Viscosity, Solvent content, VOC content, Solids content, and Other information.

10 Stability and reactivity

- Reactivity: No further relevant information available.
Chemical stability
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.

(Contd. on page 7)



Safety Data Sheet
acc. to OSHA HCS

Printing date 04/23/2018

Reviewed on 03/24/2017

Trade name: Viral RNA Buffer

(Contd. of page 6)

- 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.

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.

(Contd. on page 8)



Safety Data Sheet acc. to OSHA HCS

Printing date 04/23/2018

Reviewed on 03/24/2017

Trade name: Viral RNA Buffer

(Contd. of page 7)

- Additional ecological information:
General notes: Water hazard class 2 (Self-assessment): hazardous for water
Results of PBT and vPvB assessment: PBT: Not applicable, vPvB: Not applicable, Other adverse effects: No further relevant information available.

13 Disposal considerations

- Waste treatment methods
Recommendation: Dispose of contents in accordance with local/regional/national, and international recommendations.
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: UN1760
DOT, IMDG, IATA: UN1760
UN proper shipping name: Corrosive liquids, n.o.s. (guanidinium thiocyanate)
DOT: CORROSIVE LIQUID, N.O.S. (guanidinium thiocyanate)
IMDG, IATA: CORROSIVE LIQUID, N.O.S. (guanidinium thiocyanate)
Transport hazard class(es): 8
DOT: CORROSIVE 8
Class: 8 Corrosive substances
Label: 8
IMDG, IATA: CORROSIVE 8
Class: 8 Corrosive substances

(Contd. on page 9)



Safety Data Sheet
acc. to OSHA HCS

Printing date 04/23/2018

Reviewed on 03/24/2017

Trade name: Viral RNA Buffer

(Contd. of page 8)

Table with 2 columns: Property and Value. Rows include Label (8), Packing group (III), Environmental hazards (Not applicable), Special precautions for user (Warning: Corrosive substances), Transport in bulk (Not applicable), DOT (On passenger aircraft/rail: 5 L), IMDG (5L), and UN Model Regulation (UN 1760 CORROSIVE LIQUIDS, N.O.S. (GUANIDINIUM THIOCYANATE), 8, III).

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.

(Contd. on page 10)



Safety Data Sheet
acc. to OSHA HCS

Printing date 04/23/2018

Reviewed on 03/24/2017

Trade name: Viral RNA Buffer

(Contd. of page 9)

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, 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 dusts or mists.

Wash thoroughly after handling.

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

Use only outdoors or in a well-ventilated area.

Avoid release to the environment.

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

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

If swallowed: Rinse mouth. Do NOT induce vomiting.

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

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

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

Continue rinsing.

Immediately call a poison center/doctor.

Specific treatment (see on this label).

Take off contaminated clothing and wash it before reuse.

Wash contaminated clothing before reuse.

Store locked up.

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

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

US

(Contd. on page 11)

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

Printing date 04/23/2018

Reviewed on 03/24/2017

Trade name: Viral RNA 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** 04/23/2018 / -**· Abbreviations and acronyms:**

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

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

ACGIH: American Conference of Governmental Industrial Hygienists

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

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

NFPA: National Fire Protection Association (USA)

HMIS: Hazardous Materials Identification System (USA)

VOC: Volatile Organic Compounds (USA, EU)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

NIOSH: National Institute for Occupational Safety

OSHA: Occupational Safety & Health

TLV: Threshold Limit Value

PEL: Permissible Exposure Limit

REL: Recommended Exposure Limit

Acute Tox. 4: Acute toxicity – Category 4

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

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

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