Material Safety Data Sheet

Version No.: 2.0 (Rev. date : 2021-01-21)

VB Buffer

1. Product and company identification

Product Name : VB Buffer

Recommended Use : In vitro diagnostics

Supply Information

○ Company : Bioneer

○ Address : 8-11 Munpyeongseo-ro, Daedeok-gu, Daejeon 34302, Republic of korea

○ Emergency telephone number : 82-42-930-8777

2. Hazards identification

A. Classification of the hazardous chemical

Acute toxicity (oral): Class 3

Specific target organ toxicity (single exposure) : Class 3 (Respiratory system irritation)

Skin corrosion/irritation: Class 2

Extreme eye damage/eye irritation : Class 1

Chronic aquatic hazard : Class 4

B. Label elements, including precautionary statements

Pictogram

Signal word Danger

Hazard statements

H301 Hazardous if swallowed

H315 Irritation on skin

H318 Extreme irritation to eyes

H335 May cause respiratory irritation.

H413 May cause long-term harmful effects to aquatic organisms

C. Precautionary statements

- Prevention :

P261 Avoid breathing dust/fume/gas/mist/vapours/spray.

P264 Wash hands thoroughly after handling.

P270 Do not eat, drink or smoke when using this product.

P271 Use only outdoors or in a well-ventilated area.

P273 Do not dispose of the environment

P280 Wear protecive glove/protective clothing/eye protection/face protection

- Response :

P301+P310 Seek medical attention if swallowed and feeling uncomfortable

P302+P352 IF ON SKIN: Gently wash with plenty of soap and water.

P304+P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P310

P312 Call a medical center or doctor/physician you feel unwell.

P330 Rinse mouth.

P332+P313 If skin irritation occurs: Get medical advice/ attention.

P362+P364 Take off contaminated clothing and wash before reuse.

- Storage :

P403+P235 Store in a well-ventilated place. Keep cool.

P405 Store locked up.

- Disposal :

P501 Dispose of contents/container to information seted forth in the relevant laws and regulations.

D. Other Risks·Hazards Not Included in Risk·Hazard Classification

Health 3 Fire 1 Reactivity 0

3. Composition/information on ingredients

Chemical name	Synonyms	CAS No.	Weight (%)
Guanidine hydrochloride	Guanidinium chloride	50-01-1	< 80%
Polysorbate 80		9050-57-1	< 20%

4. First aid measures

A. Eye contact

If in eyes, rinse carefully with water for a few minutes.

If possible, remove contact lenses.

Keep washing.

If eye irritation persists, seek medical attention and advice.

B. Skin Contact

If skin irritation occurs, seek medical attention and advice.

Take off contaminated clothing.

For hot substances, soak affected areas in a large amount of cold water to eliminate heat

Take urgent medical attention.

Remove contaminated clothing and shoes and isolate contaminated areas

Flush skin and eyes with water for at least 20 minutes immediately upon contact with substance

Prevent the spread of contaminated areas on minor skin contact.

C. Inhalation : If exposed to excess dust or fume, remove with clean air and take medical attention if cough or other symptoms occur.

D. Ingestion

Do not feed anything by mouth to an unconscious person. Take immediate medical attention.

E. Notes to Physician

If swallowed and feel uncomfortable, consult a medical institution (doctor).

Rinse mouth.

If you eat or inhale the substance, do not breathe in the oral cavity and use appropriate respiratory medical equipment.

5. Fire-fighting measures

A. Proper (improper) extinguishing Media

Use of alcohol, carbon dioxide or water spray in the digestion of this substance

Use dry sand or dirt during choking digestion

B. Special hazards fromchemiclas

The container may explode when heated.

May cause irritating and very toxic gases by burning or pyrolysis during burning

Some may be burned but do not ignite easily

Non-flammable, the substance itself is not burned, but can be decomposed during heating to cause corrosive/toxic fume

C. Firefighting Protection and Precautions

Some may be transported at high temperatures

Leaking water can cause contamination

May cause skin and eye burns during contact

Let the ditch be dug up for the disposal of the extinguishing water and keep the material from scattering.

If you are not dangerous, move the container in the fire area

After the extinguishing of the tank fire, the container is cooled with plenty of water

If there is a high tone in the tank fire or if the tank is discolored, pull back immediately

When the tank fires, pull back from the tank in flames

6. Accidental release measures

A. Personal Precautions

Avoid inhalation of dust, fume, gas, mist, vapor and spray.

Immediately wipe off any spills and follow preventive measures in the protective section.

Remove all ignition sources

If you are not at risk, stop the leak.

Do not touch the damaged container or leaking water without wearing adequate protection.

Cover with plastic sheet and spread

Prevent dust formation

Be aware of the materials and conditions that should be avoided

B. Environmental precautions :

Avoid ingress into water, sewers, basements and confined spaces

Do not dispose to the environment

C. Methods and material for containment and cleaning up

For small leaks, absorb into sand, non-combustible material and soak in container

High volume leak liquid leak water away ditch

With a clean shovel, drain the leak into a clean, dry container, loosen and move the container out of the leak area.

Cover the plastic sheet with a powder leak to prevent diffusion and keep it dry.

Absorb the spills into an inert material (e.g. dry sand or soil) and put it in a chemical waste container.

Absorb liquids and flush contaminated areas with detergent and water.

7. Handling and storage

A. Handling precautions

Avoid inhalation of dust, fume, gas, mist, vapor and spray.

Wash the treated area thoroughly after handling.

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

Only handle outdoors or in well-ventilated places.

After the container has been emptied, the product residue may still remain, so follow all the MDS/label precautions.

Please use the handling/storage carefully.

Carefully open the forehead before opening.

Be aware of the materials and conditions that should be avoided

Work with reference to engineering management and personal protective equipment

Beware of high temperatures

B. Storage precautions

Drain the empty drum completely and prevent it from being properly put back on the drum regulator or place it properly.

Store container tightly sealed in a well-ventilated place.

Keep away from food and drinks.

8. Exposure controls / personal protection

A. Chemical Exposure Standards, Biological Exposure Standards Etc. : No data available

B. Proper physical management : In case of dust, fume or mist during operation, ventilate air pollution to be maintained below exposure criteria. Facilities for storing or using this material should be equipped with a washing machine and safety shower.

C. Personal protection

○ Respiratory protection

Wear a respirator that is certified by the Occupational Safety and Health agency to match the physical and chemical properties of the exposed material.

Wear an oxygen-deficient (< 19.6%), Pine-mask, or self-feeding respirator.

In the case of gas/liquid materials, the following respiratory protection is recommended-isolation type full-type mask (for organic compounds (acidic gas gas)) or isolated formula, whereas mold mask (for organic compounds (acid Gas Castle Gas)) or direct connection type full-type mask (for organic compounds (acidic gas if acid gas)) or, whereas the type gas mask (for organic compounds (acidic gas)) or motorized gas mask

○ Eyes protection : No data available.

○ Hands protection : No data available.

○ Body protection : No data available

9. Physical and chemical properties

A. Appearance : Achromatic

B. Odor : No information

C. Odor threshold : No information

D. pH : No information

E. Freezing/Melting point : No information

F. Boiling point and Range : No information

G. Flash point : No information

H. Evaporation speed : No information

I. Flammability (Solid, Gas) : No information

J. Ignition or explosion range : No information

K. Vapor pressure : No information

L. Solubility : No information

M. Vapor density : No information

N. Specific weight : No information

O. n-Octanol/Water solubility coefficient : No information

P. Self-Flammability : No information

Q. Decomposition temperature : No information

R. Viscosity : No information

S. Molecular weight : No information

10. Stability and Reactivity

A. Chemical stability and toxic reaction potential

Stable under normal pressure conditions

May cause irritation or toxic fumes in the event of fire

Inhalation of substances may be harmful

Some liquids may cause dizziness and choking vapors

The container may explode when heated.

Some may be burned but do not ignite easily

Non-flammable, the substance itself is not burned, but can be decomposed during heating to cause corrosive/toxic fume

May cause irritation, corrosive, toxic gas in the event of fire

B. Conditions to avoid

Heat, sparks, flames, etc. Ignition source

C. Conditions to avoid

Flammable materials, reducing materials, metals

D. Hazardous decomposition products

May cause irritating and very toxic gases by burning or pyrolysis during burning

Irritant, toxic gases

11. Toxicological information

A. Probable exposure paths

Irritation, nausea, vomiting skin irritation, skin disorders eye irritation

Short-term exposure causes irritation, chest pain and shortness of breath

Short-termor prolonged exposure causes irritation, allergic reactions

B. Health hazard information

○ Acute toxicity :

- Oral

Guanidine hydrochloride LD50 475 ㎎/㎏ Rat

Polysorbate 80 LD50 34.5 Rat

- Skin

Guanidine hydrochloride LD50 2000 ㎎/㎏ Rabbit

Polysorbate 80 No information

- Inhalation

Guanidine hydrochloride LC50 5.319 ㎎/ℓ 4 hr Rat

Polysorbate 80 No information

○ Skin corrosion/irritation :

Guanidine hydrochloride Serious irritation Rabbit

Polysorbate 80 No irritation to human skin

○ Serious eye damage/eye irritation :

Guanidine hydrochloride Medium irritation Rabbit

Polysorbate 80 Necrosis to rabbit cornea

○ Respiratory or skin sensitization : No information

○ Carcinogenicity : No information

○ Germ cell mutagenicity: No information

○ Reproductive toxicity : No information

○ Specific target organ toxicity (single exposure) :

Guanidine hydrochloride Irritation to respiratory system

Polysorbate 80 No information

○ Specific target organ toxicity (repeated exposure) : No information

○ Aspiration hazard: No information

12. Ecological information

A. Biological toxicity :

- Fish

Guanidine hydrochloride LC50 1758 ㎎/ℓ 48 hr

Polysorbate 80 No information

- Crustacean

No information

- Algae

No information

B. Persistency and Degradability : No information

C. Bioconcentration : No information

D. Soil mobility : No information

E. Other toxic effects : No information

13. Disposal considerations

A. Disposal method : Dispose of contents and containers in accordance with the regulations, as specified in the Waste Control Act.

B. Disposal considerations : Please take into account the precautions set forth in the Waste Control Act.

14. Transport information

A. UN No : No classification information

B. UN proper shipping name : No classification information

C. Transport hazard class : No classification information

D. Packaging group : No classification information

E. Environmental hazards : No classification information

F. Special Safety Measures for Users Regarding Shipping or Shipping Measures : No classification information

15. Regulatory information

A. Industrial safety and health regulation : No information

B. Hazardous chemical management regulation : No information

C. Dangerous material management regulation : No information

D. Waste management regulation : No information

E. Other domestic and international regulations : No information

16. Other information

A. Source of Information

Guanidium chloride

Corporate Solution From Thomson Micromedex(http://csi.micromedex.com)

ECB-ESIS(European chemical Substances Information System)(http://ecb.jrc.it/esis) ECOTOX Database, EPA(http://cfpub.epa.gov/ecotox)

IUCLID Chemical Data Sheet, EC-ECB

International Chemical Safety Cards(ICSC)(http://www.nihs.go.jp/ICSC) TOXNET, U.S. National Library of Medicine(http://toxnet.nlm.nih.gov)

The Chemical Database, The Department of Chemistry at the University of Akron(http://ull.chemistry.uakron.edu/erd)

(http://hazmat.nema.go.kr) (http://ncis.nier.go.kr)

Polysorbate 80

NLM;ChemIDplus(Oral) IUCLID(Skin corrosive/irritation) NLM;HSDB(Serious eye damage/irritation) NLM; HSDB

NLM;ChemIDplus, NLM; HSDB, EPISUIET(Fish)

B. Initial Issue Date : 2018-02-19

C. Revision Count and Latest Revision Date : 2, 2021-01-21

D. Others

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