Material Safety Data Sheet

Version No.: 1.0(Revision Date: 2013-04-26)

Binding/Washing buffer

1. PRODUCT AND COMPANY IDENTIFICATION

A. Product name : Binding/Washing buffer

B. Recommended use : Research use only

C. Supplier : Bioneer corporation

○ Address : 8-11, Munpyeongseoro, Daedeok-gu, Daejeon 306-220 Republic of Korea

○ Telephone : +82-42-930-8777

2. HAZARDS IDENTIFICATION

A. Emergency Overview

Harmful if swallowed
Irritating to eyes, respiratory system and skin
May cause sensitization by inhalation and skin contact

B. GHS Label elements, including precautionary statements

○ Pictogram

○ Signal word : Warning

○ Hazard statement(s) :

H290 : May be corrosive to metals

H311 : Toxic in contact with skin

H315 : Causes skin irritation

H319 : Causes serious eye irritation.

H330 : Fatal if inhaled

H361 : Suspected of damaging fertility or the unborn child

○ Precautionary statements :

Prevention :

P201 : Obtain special instructions before use.

P202 : Do not handle until all safety precautions have been read and understood.

P234 : Keep only in original container.

P260 : Do not breathe dust/fume/gas/mist/vapours/spray.

P264 : Wash thoroughly after handling.

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

P273 : Avoid release to the environment.

P280 : Wear protective gloves/protective clothing/eye protection/face protection.

P281 : Use personal protective equipment as required.

P284 : Wear respiratory protection.

Response :

P301+P312 : IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell

P302+P352 : IF ON SKIN: Wash with 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.

P308+P313 : IF exposed or concerned: Get medical advice/attention.

P310 : Immediately call a POISON CENTER or doctor/physician

P312 : Call a POISON CENTER or doctor/physician if you feel unwell.

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

P337+P313 : If eye irritation persists get medical advice/attention

P361 : Remove/Take off immediately all contaminated clothing.

P362 : Take off contaminated clothing and wash before reuse.

P363 : Wash contaminated clothing before reuse

P391 : Collect spillage

Storage :

P403+P233 : Store in a well ventilated place. Keep container tightly closed

P405 : Store locked up

P406 : Store in a corrosive resistant/… container with a resistant inner liner.

Disposal :

P501 : Dispose of contents/container to … .

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS-No	Weight (%)
(4-(2-HYDROXYETHYL)-1-PIPERAZINE ETH	7365-45-9	2~5%
Sodium Chloride	7647-14-5	1~3%
Imidazole	288-32-4	0.01~1%
Glycerol	56-81-5	5~15%
b-mercaptoethanol	60-24-2	0.01~1%
water	7732-18-5	91.98~75%

4. FIRST AID MEASURES

A. Eye Contact : Rinse immediately with plenty of water, also under the eyelids, for at few minutes. Remove contact lenses. If symptoms persist, call a physician.

B. Skin Contact : If skin problems occur, discontinue use. If skin irritation persists, call a physician. May cause an allergic skin reaction.

C. Inhalation : Immediately call a doctor/physician.

D. Ingestion : Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.

E. Most important symptoms/effects, acute and delayed: None known.

F. Notes to Physician: May cause sensitization of susceptible persons.

5. FIRE-FIGHTING MEASURES

A. Suitable extinguishing media : Dry chemical, CO_2, water spray or alcohol-resistant foam

B. Special Hazard : Emits toxic fumes under fire conditions.

C. Special protective equipment forfire-fighters : As in any fire, wear self-contained breathing apparatus and full protective gear

6. ACCIDENTAL RELEASE MEASURES

A. Personal precautions : Use personal protective equipment. Avoid contact with skin, eyes and clothing.

B. Environmental precautions : Should not be released into the environment.

C. Methods for cleaning up : No information available.

7. HANDLING AND STORAGE

A. Advice on safe handling : Avoid inhalation. Avoid contact with eyes, skin, and clothing.

Avoid prolonged or repeated exposure.

B. Storage condition : Keep containers tightly closed in a dry, cool and well-ventilated place.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

A. Exposure Guidelinges : Not applicable.

B. Engineering Measures : Safety shower and eye bath. Mechanical exhaust required.

C. Personal Protective Equipment

○ Eye protection : No special protective equipment required.

○ Hand protection : Impervious gloves.

○ Skin and body protection : No special protective equipment required.

9. PHYSICAL AND CHEMICAL PROPERTIES

A. (4-(2-HYDROXYETHYL)-1-PIPERAZINE ETH

Physical state : solid, white

pH : No information avaliable

Melting/freezing point : 236℃

Boiling point/boiling range : No information avaliable

Flash point : No information avaliable

Evaporation rate : No information avaliable

Flammability (solid, gas) : No information available

Flammability Limits in Air (Upper/Lower) : No information available

Vapor pressure : No information available

Vapor Density : No information available

Relative Density : No information available

Water solubility : No information available

Solubility in other solvents : No information available

Partition coefficient :n-octanol/water :No information available

Autoignition temperature : No information available .

Decomposition temperature : No information available

Viscosity of product : No information avaliable

Molecular weight : 238.31

B. Sodium Chloride

Physical state : solid, white

pH : 6.7 (6.7~7.3)

Melting/freezing point : 801℃

Boiling point/boiling range : 1413℃

Flash point : No information avaliable

Evaporation rate : No information avaliable

Flammability (solid, gas) : No information available

Flammability Limits in Air (Upper/Lower) : No information available

Vapor pressure : 1mmHg

Vapor Density : No information available

Relative Density : No information available

Water solubility : 360g/L

Solubility in other solvents : No information available

Partition coefficient :n-octanol/water :-0.46

Autoignition temperature : No information available .

Decomposition temperature : No information available

Viscosity of product : No information avaliable

Molecular weight : 58.44

C. Imidazole

Physical state : solid, None or yellow

pH : 9.8

Melting/freezing point : 801℃

Boiling point/boiling range : 1413℃

Flash point : No information avaliable

Evaporation rate : No information avaliable

Flammability (solid, gas) : No information available

Flammability Limits in Air (Upper/Lower) : No information available

Vapor pressure : 0.0462mmHg

Vapor Density : No information available

Relative Density : No information available

Water solubility : 159g/L

Solubility in other solvents : No information available

Partition coefficient :n-octanol/water :-0.08

Autoignition temperature : No information available

Decomposition temperature : No information available

Viscosity of product : No information avaliable

Molecular weight : 68.08

D. Glycerol

Physical state : liquid, None

pH : No information avaliable

Melting/freezing point : 20℃

Boiling point/boiling range : 171℃

Flash point : 160℃

Evaporation rate : No information avaliable

Flammability (solid, gas) : No information available

Flammability Limits in Air (Upper/Lower) : 19/2.7%

Vapor pressure : 0.0025mmHg

Vapor Density : No information available

Relative Density : No information available

Water solubility : 1000g/L

Solubility in other solvents : 1.2313

Partition coefficient :n-octanol/water : No information available

Autoignition temperature : 370℃

Decomposition temperature : 290℃

Viscosity of product : 954cP

Molecular weight : 92.09

E. ß-Mercaptoethanol

Physical state : liquid, None

pH : 4.5-6

Melting/freezing point : <-50℃

Boiling point/boiling range : 154~161℃

Flash point : 70.5℃

Evaporation rate : No information avaliable

Flammability (solid, gas) : No information available

Flammability Limits in Air (Upper/Lower) : 18/2.3%

Vapor pressure : 1.756mmHg

Vapor Density : No information available

Relative Density : No information available

Water solubility : No information available

Solubility in other solvents : 1.1143

Partition coefficient :n-octanol/water : -0.056

Autoignition temperature : 295℃

Decomposition temperature : No information available

Viscosity of product : 3.43cP

Molecular weight : 78.13

F. Water

Physical state : liquid, None

pH : 7

Melting/freezing point : 0℃

Boiling point/boiling range : 100℃

Flash point : No information avaliable

Evaporation rate : No information avaliable

Flammability (solid, gas) : No information available

Flammability Limits in Air (Upper/Lower) : No information available

Vapor pressure : 23.8mmHg

Vapor Density : No information available

Relative Density : No information available

Water solubility : 100g/100mL

Solubility in other solvents : 1

Partition coefficient :n-octanol/water : -1.38

Autoignition temperature : No information available

Decomposition temperature : No information available

Viscosity of product : No information available

Molecular weight : 18.02

10. STABILITY AND REACTIVITY

A. Stability : Stable under normal conditions.

B. Hazardous reactions : No information available

C. Conditions to avoid : Combustible materials, Reducing materials

D. Materials to avoid : ignition sources

E. Hazardous decomposition products : Causticity/toxic hume, toxic gas

11. TOXICOLOGICAL INFORMATION

Principle Routes of Exposure : Skin Contact. Eye Contact. Inhalation.

Inhalation : Irritating to respiratory system.

Skin Contact : Irritating to skin.

Ingestion : Harmful if swallowed.

Eye Contact : Irritating to eyes.

12. ECOLOGICAL INFORMATION

A. Acute Toxicity : No information available

B. Persistence and degradability : No information available.

C. Bioaccumulative potential : No information available.

D. Mobility : No information available

E. Other adverse effects : No information available

13. DISPOSAL CONSIDERATIONS

A. Waste from Residues / Unused Products : Dispose of in accordance with local regulations.
B. Contaminated packaging : Dispose of in accordance with local regulations.

14. TRANSPORT INFORMATION

A. UN/ID no : No information available

B. Proper shipping name : No information available

C. Hazard Class : No information available

D. Packing group : No information available

E. Description : No information available

F. Emergency Response Guide Number : No information available

15. REGULATORY INFORMATION

A. Occupational health and safety act : No information available

B. TCCA regulations : No information available

C. Dangerous goods safety management act : No information available

D. Waste management regulation : No information available

E. International regulations : No information available

16. OTHER INFORMATION

A. Issuing date : 26-April-2013

B. Revision date : 26-April-2013

C. Disclaimer
The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. BIONEER corporation shall not be held liable for any damage resulting from handling or from contact with the above product.