REAGENTS DUKSAN

# SAFETY DATA SHEET

## HEPES Buffer for molecular biology, 99.5%

**Date of issue: 2019-07-23** **Revision date: 2019-07-23** **Version: R0001.0002**

## 1. IDENTIFICATION

### A. Product name

- HEPES Buffer for molecular biology, 99.5%

### B. Recommended use and restriction on use

- General use : for experimental, research and industrial use
- Restriction on use : Never drink, Not used except for experimental, research and industrial applications.

### C. Manufacturer / Supplier / Distributor information

○ **Manufacturer information**

- Company name :
- Address :
- Emergency telephone number :

○ **Supplier/Distributer information**

- Company name : DUKSAN PURE CHEMICALS
- Address : 53,SINWONRO 133BEONGIL, DANWONGU, ANSANSHI, GYUNGGIDO, KOREA
- Telephone number : 82-31-495-4055
- Emergency telephone number :
- Fax number : 82-31-495-4058

## 2. HAZARD IDENTIFICATION

### A. GHS Classification

- Not applicable

### B. GHS label elements

○ **Hazard symbols**

- Not applicable

○ **Signal words**

- Not applicable

○ **Hazard statements**

- Not applicable

○ **Precautionary statements**

**1) Prevention**

- Not applicable

**2) Response**

- Not applicable

**3) Storage**

- Not applicable

**4) Disposal**

- Not applicable

### C. Other hazards which do not result in classification : (NFPA Classification)

○ **NFPA grade (0 ~ 4 level)**

- Health : 1 , Flammability : 1, Reactivity : 0

## 3. COMPOSITION/INFORMATION ON INGREDIENTS

| Chemical Name | Trade names and Synonyms | CAS No. | Content(%) |
|---|---|---|---|
| 4-(2-Hydroxyethyl)piperazin-1-ylethanesulphonic acid | - | 7365-45-9 | 100 |

## 4. FIRST AID MEASURES

### A. Eye contact

- Do not rub your eyes.
- Immediately flush eyes with plenty of water for at least 15 minutes and call a doctor/physician.

### B. Skin contact

- Flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.
- Wash contaminated clothing thoroughly before re-using.

### C. Inhalation contact

- When exposed to large amounts of steam and mist, move to fresh air.
- Take specific treatment if needed.

### D. Ingestion contact

- Please be advised by doctor whether induction of vomit is demanded or not.
- Rinse your mouth with water immediately.

### E. Delayed and immediate effects and also chronic effects from short and long term exposure

- Not available

### F. Notes to physician

- Notify medical personnel of contaminated situations and have them take appropriate protective measures.

## 5. FIREFIGHTING MEASURES

### A. Suitable (Unsuitable) extinguishing media

- Dry chemical, carbon dioxide, regular foam extinguishing agent, spray
- Avoid use of water jet for extinguishing

### B. Specific hazards arising from the chemical

- Not available

### C. Special protective actions for firefighters

- Cool containers with water until well after fire is out.
- Avoid inhalation of materials or combustion by-products.
- Use appropriate extinguishing measure suitable for surrounding fire.
- Wear appropriate protective equipment.
- Keep containers cool with water spray.

## 6. ACCIDENTAL RELEASE MEASURES

### A. Personal precautions, protective equipment and emergency procedures

- Ventilate closed spaces before entering.
- Must work against the wind, let the upwind people to evacuate.
- Do not touch spilled material. Stop leak if you can do it without risk.
- Remove all sources of ignition.

### B. Environmental precautions

- Prevent runoff and contact with waterways, drains or sewers.
- If large amounts have been spilled, inform the relevant authorities.

### C. Methods and materials for containment and cleaning up

- Large spill : Stay upwind and keep out of low areas. Dike for later disposal.
- Notification to central government, local government. When emissions at least of the standard amount
- Dispose of waste in accordance with local regulation.
- Appropriate container for disposal of spilled material collected.
- Small liquid state spills: Appropriate container for disposal of spilled material collected.
- Put the spilled material in an appropriate containers and clean the contaminated area

## 7. HANDLING AND STORAGE

### A. Precautions for safe handling

- Avoid contact with incompatible materials.
- Comply with all applicable laws and regulations for handling
- Get the manual before use.
- Dealing only with a well-ventilated place.

### B. Conditions for safe storage, including any incompatibilities

- Keep in the original container.
- Please pay attention to incompatibilities materials and conditions to avoid.
- Keep sealed when not in use.
- Prevent static electricity and keep away from combustible materials or heat sources.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### A. Exposure limits

○ **ACGIH TLV**

- [4-(2-Hydroxyethyl)piperazin-1-ylethanesulphonic acid] : Not available

○ **OSHA PEL**

- [4-(2-Hydroxyethyl)piperazin-1-ylethanesulphonic acid] : Not applicable

### B. Engineering controls

- Business owner is recommended to maintain below recommended exposure limits for the working place with general exhaust of gas/vapour/mist/fume.

### C. Individual protection measures, such as personal protective equipment

○ **Respiratory protection**

- Under conditions of frequent use or heavy exposure, Respiratory protection may be needed.
- Respiratory protection is ranked in order from minimum to maximum.
- Consider warning properties before use.
- Dust, mist, fume-purifying respiratory protection
- Air-purifying respirator with high-efficiency particulate filtering
- Any respiratory protection with a electromotion fan(for dust, mist, fume-purifying)
- Self-contained breathing apparatus with a corpuscle filter of high efficiency
- For Unknown Concentration or Immediately Dangerous to Life or Health : Any supplied-air respirator with full facepiece and operated in a pressure-demand or other positive-pressure mode in combination with a separate escape supply. Any self-contained breathing apparatus with a full facepiece.

○ **Eye protection**

- Wear primary eye protection such as splash resistant safety goggles with a secondary protection face shield.
- Provide an emergency eye wash station and quick drench shower in the immediate work area.

○ **Hand protection**

- Wear appropriate glove.

○ **Skin protection**

- Wear appropriate clothing.

○ **Others**

- Not available

## 9. PHYSICAL AND CHEMICAL PROPERTIES

| | |
|---|---|
| A. Appearance | |
| - Appearance | Solid(Other) |
| - Color | white |
| B. Odor | Not available |
| C. Odor threshold | Not available |
| D. pH | Not available |
| E. Melting point/Freezing point | 234 ℃ |
| F. Initial Boiling Point/Boiling Ranges | Not available |
| G. Flash point | Not available |
| H. Evaporation rate | Not available |
| I. Flammability(solid, gas) | Not available |
| J. Upper/Lower Flammability or explosive limits | Not available |
| K. Vapour pressure | Not available |
| L. Solubility | Not available |
| M. Vapour density | Not available |
| N. Specific gravity(Relative density) | Not available |
| O. Partition coefficient of n-octanol/water | -4.07 |
| P. Autoignition temperature | Not available |
| Q. Decomposition temperature | Not available |
| R. Viscosity | Not available |
| S. Molecular weight | 238.31 |

## 10. STABILITY AND REACTIVITY

### A. Chemical Stability

- This material is stable under recommended storage and handling conditions.

### B. Possibility of hazardous reactions

- Hazardous Polymerization will not occur.

### C. Conditions to avoid

- Avoid contact with incompatible materials and condition.
- Avoid : Accumulation of electrostatic charges, Heating, Flames and hot surfaces

### D. Incompatible materials

- Not available

### E. Hazardous decomposition products

- May emit flammable vapour if involved in fire.

## 11. TOXICOLOGICAL INFORMATION

### A. Information on the likely routes of exposure

○ **(Respiratory tracts)**

- Not available

○ **(Oral)**

- Not available

○ **(Eye·Skin)**

- Not available

### B. Delayed and immediate effects and also chronic effects from short and long term exposure

○ **Acute toxicity**

*** Oral**

- [4-(2-Hydroxyethyl)piperazin-1-ylethanesulphonic acid] : LD50 > 2,000mg/kg Rat (ECHA)

*** Dermal**

- [4-(2-Hydroxyethyl)piperazin-1-ylethanesulphonic acid] : Not available

*** Inhalation**

- [4-(2-Hydroxyethyl)piperazin-1-ylethanesulphonic acid] : Not available

○ **Skin corrosion/irritation**

- Not available

○ **Serious eye damage/irritation**

- Not available

○ **Respiratory sensitization**

- Not available

○ **Skin sensitization**

- Not available

○ **Carcinogenicity**

*** IARC**

- [4-(2-Hydroxyethyl)piperazin-1-ylethanesulphonic acid] : Not available

*** OSHA**

- [4-(2-Hydroxyethyl)piperazin-1-ylethanesulphonic acid] : Not available

*** ACGIH**

- [4-(2-Hydroxyethyl)piperazin-1-ylethanesulphonic acid] : Not available

*** NTP**

- [4-(2-Hydroxyethyl)piperazin-1-ylethanesulphonic acid] : Not available

*** EU CLP**

- [4-(2-Hydroxyethyl)piperazin-1-ylethanesulphonic acid] : Not available

○ **Germ cell mutagenicity**

- Not available

○ **Reproductive toxicity**

- Not available

○ **STOT-single exposure**

- Not available

○ **STOT-repeated exposure**

- Not available

○ **Aspiration hazard**

- Not available

## 12. ECOLOGICAL INFORMATION

### A. Ecotoxicity

○ **Fish**

- [4-(2-Hydroxyethyl)piperazin-1-ylethanesulphonic acid] : Not available

○ **Crustaceans**

- [4-(2-Hydroxyethyl)piperazin-1-ylethanesulphonic acid] : LC50 54263.082 ㎎/ℓ 48 hr (Estimate)

○ **Algae**

- [4-(2-Hydroxyethyl)piperazin-1-ylethanesulphonic acid] : EC50 3237.037 ㎎/ℓ 96 hr (Estimate)

### B. Persistence and degradability

○ **Persistence**

- [4-(2-Hydroxyethyl)piperazin-1-ylethanesulphonic acid] : log Kow -4.070 (NLM)

○ **Degradability**

- [4-(2-Hydroxyethyl)piperazin-1-ylethanesulphonic acid] : Not available

### C. Bioaccumulative potential

○ **Bioaccumulative potential**

- [4-(2-Hydroxyethyl)piperazin-1-ylethanesulphonic acid] : BCF 3.162 (Estimate)

○ **Biodegration**

- [4-(2-Hydroxyethyl)piperazin-1-ylethanesulphonic acid] : Cut-off value = 0.0859 : non-degradable (BIOWON 6) (Estimate)

### D. Mobility in soil

- [4-(2-Hydroxyethyl)piperazin-1-ylethanesulphonic acid] : Koc 0.01354 (Low potential for soil adsorption) (Estimate)

### E. Other adverse effects

- Not available

## 13. DISPOSAL CONSIDERATIONS

### A. Disposal methods

- Since more than two kinds of designated waste is mixed, it is difficult to treat separately, then can be reduction or stabilization by incineration or similar process.
- If water separation is possible, pre-process with Water separation process.
- Dispose by incineration.

### B. Special precautions for disposal

- The user of this product must dispose by oneself or entrust it to a waste disposer, a person who recycles other's waste or establishes and operates waste disposal facilities.
- Dispose of waste in accordance with all applicable laws and regulations.

## 14. TRANSPORT INFORMATION

### A. UN No. (IMDG CODE/IATA DGR)

- Not applicable

### B. Proper shipping name

- Not applicable

### C. Hazard Class

- Not applicable

### D. IMDG CODE/IATA DGR Packing group

- Not applicable

### E. Marine pollutant

- Not applicable

### F. Special precautions for user related to transport or transportation measures

- Local transport follows in accordance with Dangerous goods Safety Management Law.
- Package and transport follow in accordance with Department of Transportation (DOT) and other regulatory agency requirements.
- EmS FIRE SCHEDULE : Not available
- EmS SPILLAGE SCHEDULE : Not available
- Air transport(IATA): Not subject to IATA regulations.

## 15. REGULATORY INFORMATION

### A. National and/or international regulatory information

○ **POPs Management Law**

- [4-(2-Hydroxyethyl)piperazin-1-ylethanesulphonic acid] : Not applicable

○ **Information of EU Classification**

*** Classification**

- [4-(2-Hydroxyethyl)piperazin-1-ylethanesulphonic acid] : Not applicable

○ **U.S. Federal regulations**

*** OSHA PROCESS SAFETY (29CFR1910.119)**

- [4-(2-Hydroxyethyl)piperazin-1-ylethanesulphonic acid] : Not applicable

*** CERCLA Section 103 (40CFR302.4)**

- [4-(2-Hydroxyethyl)piperazin-1-ylethanesulphonic acid] : Not applicable

*** EPCRA Section 302 (40CFR355.30)**

- [4-(2-Hydroxyethyl)piperazin-1-ylethanesulphonic acid] : Not applicable

*** EPCRA Section 304 (40CFR355.40)**

- [4-(2-Hydroxyethyl)piperazin-1-ylethanesulphonic acid] : Not applicable

*** EPCRA Section 313 (40CFR372.65)**

- [4-(2-Hydroxyethyl)piperazin-1-ylethanesulphonic acid] : Not applicable

○ **Rotterdam Convention listed ingredients**

- [4-(2-Hydroxyethyl)piperazin-1-ylethanesulphonic acid] : Not applicable

○ **Stockholm Convention listed ingredients**

- [4-(2-Hydroxyethyl)piperazin-1-ylethanesulphonic acid] : Not applicable

○ **Montreal Protocol listed ingredients**

- [4-(2-Hydroxyethyl)piperazin-1-ylethanesulphonic acid] : Not applicable

## 16. OTHER INFORMATION

### A. Reference

- The information contained herein is believed to be accurate. It is provided independently of any sale of the product for purpose of hazard communication. It is not intended to constitute performance information concerning the product. No express warranty, or implied warranty of merchantability or fitness for a particular purpose is made with respect to the product or the information contained herein.
- This Safety Data Sheet was compiled with data and information from the following sources: KOSHA, NITE, ESIS, NLM, SIDS, IPCS

### B. Issue date

- 2019-07-23

### C. Revision number and Last date revised

- 1 times, 2019-07-23

### D. Other

- This SDS is prepared according to the Globally Harmonized System (GHS).