SECTION 1. Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Trade name:
N-(2-Hydroxy ethyl)-Piperazine ethane Sulfonic acid Sodium Salt

Synonyms:
4-(2-Hydroxyethyl)piperazine-1-ethanesulfonic acid sodium salt
HEPES.Na
HEPES Sodium Salt
N-(2-Hydroxyethyl)piperazine-N′-(2-ethanesulfonic acid) sodium salt
Sodium 4-(2-hydroxyethyl)piperazin-l-ylethanesulfonate

IUPAC name:
Sodium 1-[4-(2-hydroxyethyl)piperazin-1-yl]ethanesulfonate

CAS Number:
75277-39-3

REACH No. :
01-2120747736-43-XXXX

1.2 Relevant identified uses of the substance or mixture and uses advised against
Use in formulation
Use as intermediate (industrial)
Use as buffer in industrial sites
Reagent for development and research

1.3 Details of the supplier of the safety data sheet

Manufacturer/Supplier:
TAIWAN HOPAX CHEMS. MFG. CO., LTD
No. 28, Huadong Road, Daliao District, Kaohsiung City 83162
TAIWAN R.O.C.

Further information obtainable from:
samantha@hopax.com.tw
Telephone : +886-788-7600 Ext 314
Fax : +886-788-2892

1.4 Emergency telephone number:
Manufacturer: HOPAX: +886-788-7600 Ext 314

SECTION 2. Hazards Identification

2.1 Chemicals Classification

Not a hazardous substance or mixture according to Regulation (EC) No 1272/2008.

2.2 Label elements

Not a hazardous substance or mixture according to Regulation (EC) No 1272/2008.

Symbols/Pictograms: Not classified

Signal word: Not signal word

Hazard statement: Not classified

Precautionary Statements - Prevention

Do not eat, drink or use tobacco when using this product.
Wear respiratory protection, protective gloves and eye/face protection.
Use only in a well-ventilated area.
Wash thoroughly after handling.

Precautionary Statements - Response

If exposed or concerned, get medical advice/attention

2.3 Other hazards:

PBT status:further information relevant for the PBT assessment is necessary

SECTION 3. Composition / Information on ingredients

3.1 Substances

Chinese and English name:

N-(2-羥乙基)-哌嗪乙磺酸鈉鹽/N-(2-Hydroxy ethyl)-Piperazine ethane Sulfonic acid Sodium Salt

Formula: $C_8H_{17}N_2O_4SNa$

Molecular weight: 260.29 g/mol

Chemical Abstract Service No. (CAS No.): 75277-39-3

EC No. : 278-169-7

Ingredient (% of the content): ≧ 99.0 % (dried basis)

SECTION 4. FIRST AID MEASURES

4.1 Description of first-aid measures

General advice:

If symptoms persist, call a physician.

If inhaled:

If breathed in, move person into fresh air. If not breathing, give artificial respiration.

In case of skin contact:

Take off immediately all contaminated clothing. Wash off with soap and plenty of water.

In case of eye contact:

Flush eyes with water as a precaution.

If swallowed:
Never give anything by mouth to an unconscious person. Rinse mouth with water.

4.2 Most important symptoms and effects, both acute and delayed
Hazardous properties cannot be excluded but are unlikely when the product is handled appropriately.
Handle in accordance with good industrial hygiene and safety practice.

4.3 Indication of any immediate medical attention and special treatment needed
Show this safety data sheet to the doctor in attendance.
Note to physicians: Treat symptomatically.

SECTION 5. FIRE FIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media:
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Fire may cause evolution of: nitrogen oxides, Sulphur oxides, Sodium oxides

5.3 Advice for firefighters
Special protective equipment for firefighters
In the event of fire, wear self-contained breathing apparatus.

5.4 Further information
Suppress (knock down) gases/vapours/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Avoid dust formation. Avoid breathing vapours, mist or gas.

6.2 Environmental precautions
Do not let product enter drains.

6.3 Methods and material for containment and cleaning up
Sweep up and shovel. Keep in suitable, closed containers for disposal.

SECTION 7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Precautions for safe handling
Provide appropriate exhaust ventilation at places where dust is formed.

Hygiene measures
Change contaminated clothing. Wash hands after working with substance.

7.2 Conditions for safe storage, including any incompatibilities
Store in cool place. Keep container tightly closed in a dry and well-ventilated place. Hygroscopic.

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control parameters

Ingredients with workplace control parameters

8.2 Exposure controls

Appropriate engineering controls:
General industrial hygiene practice. Technical measures and appropriate working operations should be given priority over the use of personal protective equipment.

8.3 Personal protective equipment

Eye/Face protection:
Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection:
The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

Handle with gloves.
Gloves must be inspected prior to use.
Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product.
Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices.
Wash and dry hands.

Hand protection full contact:
Glove material: Nitrile rubber
Glove thickness: 0.11 mm
Break through time: > 480 min

Splash contact:
Glove material: Nitrile rubber
Glove thickness: 0.11 mm
Break through time: > 480 min

Body Protection
Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the specific work-place., The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection:
Respiratory protection is not required.
Where protection from nuisance levels of dusts are desired, use type N95 (US) or type P1 (EN 143) dust masks. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Hygiene measures and considerations:
Handle in accordance with good industrial hygiene and safety practice.
When using do not eat, drink or smoke. Wash contaminated clothing before reuse.
Regular cleaning of equipment, work area and clothing is recommended.

Control of environmental exposure:
Do not let product enter drains.

SECTION 9. PHYSICAL/CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

General Information:

Appearance:	
Form:	Solid: particulate/powder/crystal
Colour:	White
Odor:	No data available
Odor Threshold:	No data available
pH-value:	No data available
Change in condition	
Melting point/ Freezing point:	ca.274.9 °C (ca.101 325 Pa)
Initial boiling point and boiling range:	No data available
Flash point:	As the substance decomposes before melting, a boiling point study does not need to be conducted.
Flammability (solid, gas):	Not classified
Upper/Lower flammability or Explosive limits:	No data available
Vapor pressure:	ca. 0 Pa at 25 °C
Vapor density:	No data available
Relative density:	ca.1.504 g/cm^3 at 20 °C
Water solubility:	ca.758.7 g/l at 20 °C
Partition coefficient:	log Pow: < -3.88 at 20 °C
Auto-ignition temperature:	> 400 °C Relative self-ignition temperature for solidsdoes not ignite.
Decomposition temperature:	260 °C

Remarks on result:

The substance melted under decomposition.At the start of the test at 250 °C the test substance was a white powder. The colour of the test substance changed to brown at about 260 °C and started melting at about 270 °C.

Viscosity:	
Viscosity, kinematic:	No data available
Viscosity, dynamic:	No data available
Explosiveness:	Non explosive
Oxidizing properties:	Non oxidising

9.2 Other information

Substance type:	Organic
Surface tension	ca.63.3 mN/m at mg/L at 20 °C

SECTION 10. STABILITY AND REACTIVITY

10.1 Reactivity

The following applies in general to flammable organic substances and mixtures:
In correspondingly fine distribution, a dust explosion potential may generally be assumed when whirled up.

10.2 Chemical stability

Chemical stability
Hygroscopic

10.3 Possibility of hazardous reactions
Violent reactions possible with: Strong oxidizing agents

10.4 Conditions to avoid
Exposure to moisture

10.5 Incompatible materials
Strong oxidizing agents

10.6 Hazardous decomposition products
In combustion may emit toxic fumes.
Hazardous decomposition products formed under fire conditions. - Carbon oxides, Nitrogen oxides (NOx), Sulfur oxides, Sodium oxides

SECTION 11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute Toxicity：Oral

Species	Rat
Strain	Wistar
Sex	Male/Female
Dose descriptor	LD50
Effect level	> 2 000 mg/kg bw

Conclusions:
According to the results of this study the test material is not acute toxic, i.e. the LD50 value is expected to exceed 2000 mg/kg bw.

Skin irritation/corrosion:

Test system	Human skin model
Source species	Human
Cell type	Non-transformed keratinocytes
Duration of treatment / exposure	15 minutes

Conclusions:
The test item was determined to have no skin irritation

Eye irritation:

Species	Chicken
Duration of treatment / exposure	10 seconds

Conclusions:
The test item was determined to have no eye irritation potential.

Skin sensitisation:

Species	Guinea pig
Strain	Dunkin-Hartley
Sex	Female
Adequacy of challenge	Highest non-irritant concentration

Conclusions:
The test substance did not cause any sensitising reactions in this guinea pig maximisation test (GPMT).

Genetic toxicity: in vitro

Target gene	Salmonella typhimurium: histidine

	Escherichia coli: tryptophan

Conclusions:
The test item was determined to be non-mutagenic in a Salmonella typhimurium and Escherichia coli reverse mutation assay.

SECTION 12. ECOLOGICAL INFORMATION

12.1 Toxicity

Short-term toxicity to aquatic invertebrates:
Based on the nominal concentrations of the test item, the 48 hours-EC10, EC50 and EC100 for Daphnia magna was > 100 mg/L.

Toxicity to aquatic algae and cyanobacteria:
Duration:72 h
EC50 for freshwater algae:100 mg/L
EC10 or NOEC for freshwater algae:100 mg/L

12.2 Persistence and degradability

Biodegradation in water: screening tests

Biodegradation in water	Under test conditions no biodegradation observed
Type of water	Freshwater
Sampling time	28 Days

Conclusions:
The source substance was not readily biodegradable. Therefore, the target substance is considered to be not readily biodegradable

12.3 Bio-accumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT status:
Further information relevant for the PBT assessment is necessary

12.6 Other adverse effects
No data available

SECTION 13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product:
Offer surplus and non-recyclable solutions to a licensed disposal company.

Contaminated packaging:
Dispose of as unused product.

Recommendation:
Disposal must be made according to official regulations.

SECTION 14. TRANSPORT INFORMATION

Classified according to the criteria of the UN Model Regulations as reflected in the IMDG Code, ADR, RID and IATA.

14.1 UN-Number
ADR/RID: No data available
IMDG/IMO: No data available
ICAO/IATA: No data available

14.2 UN proper shipping name
ADR/RID: Not dangerous goods
IMDG/IMO: Not dangerous goods
ICAO/IATA: Not dangerous goods

14.3 Transport hazard class(es)
ADR/RID: No data available
IMDG/IMO: No data available
ICAO/IATA: No data available

14.4 Packing group
ADR/RID: No data available
IMDG/IMO: No data available
ICAO/IATA: No data available

14.5 Environmental hazards
ADR/RID: No
IMDG Marine pollutant/IMO: No
ICAO/IATA: No

14.6 Special precautions for user
No data available

SECTION 15. REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
This material safety data sheet complies with the requirements of Regulation (EC) No.1907/2006.

US State Regulations

U.S. California Safe Drinking Water and Toxic Enforcement Act (Proposition 65):
This product does not contain any Proposition 65 chemicals.

International Inventories

All of the components in the product are on the following Inventory lists

Chemical Name	TSCA	DSL	NDSL	IECSC	KECL	PICCS	AICS	TCSI	NZIoC
HEPES.Na	X		X	X			X	X	X

X: Listed
TSCA: United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL: Canadian Domestic Substances List/Non-Domestic Substances List
IECSC: China Inventory of Existing Chemical Substances
KECL: Korean Existing and Evaluated Chemical Substances
PICCS: Philippines Inventory of Chemicals and Chemical Substances
AICS: Australian Inventory of Chemical Substances
TSCI: Taiwan Chemical Substance Inventory

NZIoC: New Zealand Inventory of Chemicals

15.2 Chemical safety assessment:

A Chemical Safety Assessment has not been carried out.

SECTION 16. OTHER INFORMATION

Organization that prepared the MSDS	**Name**：TAIWAN HOPAX CHEMICALS MFG. CO., LTD.
	Address/telephone number: No. 28, Huadong Road, Daliao District, Kaohsiung 83162 Taiwan R.O.C. TEL.: +886-7-7887600
Creation date	2019/05/01
Revision Date	2021/07/21
Version:	2

Disclaimer

This SDS was prepared sincerely on the basis of the information we could obtain. However, any warranty shall not be given regarding the data contained and the assessment of hazards and toxicity. Prior to use, please investigate not only the hazards and toxicity information, but also the laws and regulations of the organization, area and country where the product is to be used, which shall be given the first priority.

The product is supposed to be used promptly after purchase in consideration of safety. Some new information or amendments may be added hereafter. If the product is to be used beyond the expected time of use or you have any questions, please feel free to contact us. The stated cautions are for normal handling only. In case of special handling, sufficient care should be taken in addition to the safety measures suitable for the situation. All chemical products should be treated with the recognition of "having unknown hazards and toxicity", which differ greatly depending on the conditions and handling when in use and/or the conditions and duration of storage. The product must be handled only by those who are familiar with specialized knowledge and have experience or under the guidance of those specialists throughout use from opening to storage and disposal. Safe usage conditions shall be set upon each user's own responsibility.

End of Safety Data Sheet