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Material Safety Data Sheet

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product identifiers

Product name Piperazine
Product number W820001
Brand 3ASenrise
CAS number 110-85-0

1.2 Details of the supplier of the safety data sheet

Company: Anhui Senrise Technology Co., Ltd.
Address: No.88 Weisan Road, High-Tech Industrial Development Zone, Anqing, Anhui
Post code: 246003
Tel: 400-005-6266
Fax: 0556-5555368
Email: service@3asenrise.com

1.3 Emergency telephone

Emergency telephone: 0556-5500208

1.4 Relevant identified uses of the substance or mixture and uses advised against

Identified uses: For R&D use only. Not for pharmaceutical, household or other uses.

2 HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Flammable solids (Category 1), H228
Acute toxicity, Oral (Category 5), H303
Skin corrosion/irritation (Category 1B), H314
Serious eye damage/eye irritation (Category 1), H318
Respiratory sensitization (Category 1), H334
Skin sensitization (Category 1), H317
Reproductive toxicity (Category 2), H361

2.2 GHS label elements, including precautionary statements

Pictogram



Signal word: Danger

Hazard statement(s)

H228 Flammable solid.

H303 May be harmful if swallowed.

H314 Causes severe skin burns and eye damage.

H317 May cause an allergic skin reaction.

H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.

H361 Suspected of damaging fertility or the unborn child.

Precautionary statement(s)

Prevention

P201 Obtain special instructions before use.

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

P210 Keep away from heat/sparks/open flames/hot surfaces. — No smoking.

P240 Ground/bond container and receiving equipment.

P241 Use explosion-proof electrical/ventilating/lighting/equipment.

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

P264 Wash hands thoroughly after handling.

P272 Contaminated work clothing should not be allowed out of the workplace.

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

P284 Wear respiratory protection.

Response

P301+P330+P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

P303+P361+P353 IF ON SKIN (or hair): Remove/Take off Immediately all contaminated clothing.
Rinse SKIN with water/shower.

P304+P340+P310 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
Immediately call a POISON CENTER/ doctor.

P305+P351+P338+P310 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.

P333+P313 IF SKIN irritation or rash occurs: Get medical advice/attention.

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

P370+P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.

Storage

P405 Store locked up.

Disposal

P501 Dispose of contents/ container to an approved waste disposal plant.

2.3 Physical and chemical hazards

H228 Flammable solid.

2.4 Health hazards

H303 May be harmful if swallowed.

H314 Causes severe skin burns and eye damage.

H317 May cause an allergic skin reaction.

H318 Causes serious eye damage.

H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.

H361 Suspected of damaging fertility or the unborn child.

2.5 Environmental hazards Code

No data available

2.6 Other hazards

No data available

3 COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture: Substance

3.1 Substance

Name	Piperazine
Formula	C ₄ H ₁₀ N ₂
Molecular Weight	86.14
CAS	110-85-0
Concentration	99%

4 FIRST AID MEASURES

4.1 Description of first aid measures

General advice

Consult a physician. Show this safety data sheet to the doctor in attendance.

If inhaled

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

In case of skin contact

Wash off with soap and plenty of water. Consult a physician.

In case of eye contact

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed

Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed

No data available.

5 FIREFIGHTING MEASURES

5.1 Extinguishing media

Water Foam Carbon dioxide (CO₂) Dry powder

5.2 Special hazards arising from the substance or mixture

Carbon oxides Nitrogen oxides (NO_x)

5.3 Advice for firefighters

Wear self-contained breathing apparatus for firefighting if necessary.

6 ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation.

6.2 Environmental precautions

Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up

Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations.

6.4 Reference to other section

For disposal see section 13.

7 HANDLING AND STORAGE

7.1 Precautions for safe handling

Advice on safe handling

Work under hood. Do not inhale substance/mixture. Avoid generation of vapours/aerosols.

Advice on protection against fire and explosion

Keep away from open flames, hot surfaces and sources of ignition. Take precautionary

measures against static discharge.

Hygiene measures

Change contaminated clothing. Preventive skin protection recommended. Wash hands after working with substance.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions

Keep container tightly closed in a dry and well-ventilated place. Keep away from heat and sources of ignition.

Long term storage: RT

8 EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

No data available.

8.2 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). Safety glasses.

Skin protection

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.

Body protection

Flame retardant antistatic protective clothing.

Respiratory protection

If the exposure limits are exceeded, irritation or other symptoms are experienced, use a full-face respirator.

Control of environmental exposure

Do not let product enter drains. Risk of explosion.

9 PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a) Appearance	White to light yellow solid
b) Odor	weakly amine-like
c) pH	12 at 150 g/l at 20 ° C
d) Melting point/freezing point	109 – 112 ° C
e) Initial boiling point and boiling range	145 – 146 ° C
f) Upper/lower flammability or explosive limits	Upper explosion limit: 14 %(V) Lower explosion limit: 4 %(V)
g) Flash point	No data available
h) Evaporation rate	No data available
i) Vapor pressure	0.21 hPa at 20 ° C
j) Vapor density	No data available
k) Density	1.1 g/cm ³ at 20 ° C
l) Water solubility	ca.0.9 g/l at 20 ° C – soluble
m) Partition coefficient: n-octanol/water	No data available
n) Autoignition temperature	320 ° C at 1,013 hPa
o) Decomposition temperature	No data available
p) Flammability	No data available

10 STABILITY AND REACTIVITY

10.1 Chemical stability

No data available.

10.2 Conditions to avoid

No data available.

10.3 Incompatible materials

Light metals, Metals, various alloys, Strong oxidizing agents

10.4 Hazardous decomposition products

In the event of fire: see section 5.

11 TOXICOLOGICAL INFORMATION

11.1 Acute toxicity

LD50 Oral

- Rat - male and female - 2,600 mg/kg

LC50 Inhalation

No data available

LD50 Dermal

- Rabbit - male and female - 8,300 mg/kg

11.2 Skin corrosion/irritation

Skin - Rabbit Result: Corrosive

11.3 Serious eye damage/eye irritation

Remarks: Causes serious eye damage.

11.4 Respiratory or skin sensitization

Local lymph node assay (LLNA) - Mouse Result: positive May cause allergy or asthma symptoms or breathing difficulties if inhaled.

11.5 Germ cell mutagenicity

Test Type: In vitro mammalian cell gene mutation test Test system: Mouse lymphoma test

Metabolic activation: Metabolic activation Method: OECD Test Guideline 476 Result: positive

Test Type: Ames test Test system: Salmonella typhimurium Metabolic activation

11.6 Carcinogenicity

No data available

11.7 Reproductive toxicity

Suspected of damaging the unborn child. Suspected of damaging fertility.

11.8 Specific target organ toxicity - single exposure

No data available

11.9 Specific target organ toxicity - repeated exposure

No data available

11.10 Aspiration hazard

no data available.

11.11 Additional Information

Repeated dose toxicity - Rat - male and female - Oral - NOAEL (No observed adverse effect level) - 627 mg/kg RTECS: TK7800000 Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin. Cough, Shortness of breath, Headache, Nausea, To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated. Drowsiness ataxia (impaired locomotor coordination) Unconsciousness Apathy muscular weakness Impairment of vision Other information Under given conditions, contact with nitrites or nitric acid can lead to the formation of nitrosamines, which have shown themselves to be carcinogenic in animal experiments.

12 ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish:

semi-static test LC50 – *Oryzias latipes* – > 100 mg/l – 96 h

Toxicity to daphnia and other aquatic:

semi-static test EC50 – *Daphnia magna* (Water flea) – 105.4 mg/l – 48 h

Toxicity to algae:

static test ErC50 – *Pseudokirchneriella subcapitata* (green algae) – 153.1 mg/l – 72 h

Toxicity to bacteria:

No data available

12.2 Persistence and degradability

Biodegradability aerobic – Exposure time 28 d Result: 65 % – Readily biodegradable.

12.3 Bioaccumulative potential

Bioaccumulation *Cyprinus carpio* (Carp) – 6 Weeks at 25 ° C (piperazine) Bioconcentration factor (BCF): 0.3

12.4 Mobility in soil

No data available

12.5 Other adverse effects

No data available

13 DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product

Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Observe all federal, state and local regulations when disposing of the substance.

Contaminated packaging

Disposal must be made according to official regulations.

14 TRANSPORT INFORMATION

14.1 UN number

ADR/RID: 2579 IMDG: 2579 IATA: 2579

14.2 UN proper shipping name

ADR/RID: PIPERAZINE

IMDG: PIPERAZINE

IATA-DGR: PIPERAZINE

14.3 Transport hazard class(es)

ADR/RID: 8 IMDG: 8 IATA: 8

14.4 Packaging group

ADR/RID: III IMDG: III IATA: III

14.5 Environmental hazards

ADR/RID: no IMDG Marine pollutant: no IATA: no

14.6 Special precautions for user

No data available

15. REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

Applicable regulations

Regulations on the Control over Safety of Dangerous Chemicals.

This product is included in the list of dangerous chemicals.

Please pay attention to waste disposal and meet the requirements of local regulations.

16. OTHER INFORMATION

Abbreviations and acronyms

ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road

IMDG: International Maritime Dangerous Goods

IATA: International Air Transport Association

RID: Regulation concerning the International Carriage of Dangerous Goods by Rail

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

Further information

The above safety technical information is for reference only, because many physical and chemical properties are not entirely clear. Please consult information carefully before use and use after confirmation.

Anhui Senrise Technology Co., Ltd. shall not be held liable for any damage resulting from handling or from contact with the above product. More terms of use, see invoice information for details.

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