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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 N-Methyl-2-pyrrolidinone
Product number W420444
Brand 3ASenrise
CAS number 872-50-4

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 liquids (Category 4), H227
Acute toxicity, Oral (Category 5), H303
Skin corrosion/irritation (Category 2), H315
Serious eye damage/eye irritation (Category 2A), H319
Reproductive toxicity (Category 1B), H360
Specific target organ toxicity - single exposure (Category 3), respiratory tract irritation, H335

2.2 GHS label elements, including precautionary statements

Pictogram



Signal word: Danger

Hazard statement(s)

H315 Causes skin irritation.
H319 Causes serious eye irritation.

H227 Combustible liquid.

H335 May cause respiratory irritation.

H360 May damage fertility or the unborn child.

H303 May be harmful if swallowed.

Precautionary statement(s)

Prevention

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

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

P264 Wash hands thoroughly after handling.

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

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

P201 Obtain special instructions before use.

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

Response

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

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

P332+P313 IF SKIN irritation occurs: Get medical advice/attention.

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

P337+P313 IF eye irritation persists: Get medical advice/attention.

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

P304+P340+P312 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/ doctor if you feel unwell.

Storage

P405 Store locked up.

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

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

Disposal

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

2.3 Physical and chemical hazards

H227 Combustible liquid.

2.4 Health hazards

H315 Causes skin irritation.

H319 Causes serious eye irritation.

H335 May cause respiratory irritation.

H360 May damage fertility or the unborn child.

H303 May be harmful if swallowed.

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 | N-Methyl-2-pyrrolidinone |
| Formula | C ₅ H ₉ N ₀ |
| Molecular Weight | 99.13 |

CAS

872-50-4

Concentration

99.5%, Extra Dry, Water \leq 50 ppm (by K.F.), EnergySeal

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) Combustible. Vapors are heavier than air and may spread along floors. Forms explosive mixtures with air on intense heating. Development of hazardous combustion gases or vapours possible in the event of fire.

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 | Colorless to light yellow to light brown liquid |
| b) Odor | amine-like |
| c) pH | 8.5 – 10.0 at 100 g/l at 20 ° C |
| d) Melting point/freezing point | -24.2 ° C at 1,013 hPa |
| e) Initial boiling point and boiling range | 202 ° C at 1,013.25 hPa |
| f) Upper/lower flammability or explosive limits | Upper explosion limit: 9.5 %(V) Lower explosion limit: 1.3 %(V) |
| g) Flash point | 91 ° C – closed cup |
| h) Evaporation rate | No data available |
| i) Vapor pressure | 0.32 hPa at 20 ° C |
| j) Vapor density | No data available |
| k) Density | 1.03 g/cm ³ at 25 ° C |
| l) Water solubility | 1.000 g/l at 20 ° C – soluble |
| m) Partition coefficient: n-octanol/water | No data available |
| n) Autoignition temperature | 245 ° 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

No data available

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 – 4,150 mg/kg

LC50 Inhalation

– Rat – male and female – 4 h – > 5.1 mg/l – aerosol

LD50 Dermal

– Rat – male and female – > 5,000 mg/kg

11.2 Skin corrosion/irritation

Skin – Rabbit Result: Irritating to skin. – 24 h

11.3 Serious eye damage/eye irritation

Eyes – Rabbit Result: Eye irritation

11.4 Respiratory or skin sensitization

Local lymph node assay (LLNA) – Mouse Result: negative

11.5 Germ cell mutagenicity

Test Type: Ames test Test system: Salmonella typhimurium Metabolic activation: with and without metabolic activation Method: OECD Test Guideline 471 Result: negative Test Type: In vitro mammalian cell gene mutation test Test system: Chinese hamster ovary

11.6 Carcinogenicity

No data available

11.7 Reproductive toxicity

May damage the unborn child.

11.8 Specific target organ toxicity - single exposure

Inhalation – May cause respiratory irritation. – Respiratory system

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 – Rabbit – male – Dermal – 20 d – NOAEL (No observed adverse effect level) – 826 mg/kg – LOAEL (Lowest observed adverse effect level) – 1,653 mg/kg Remarks: Subacute toxicity Prolonged or repeated exposure may cause: Vomiting, Diarrhea, Abdominal pain, Rats exposed to 1-methyl-2-pyrrolidinone at a concentration of 1 mg/L as an aerosol for 10 days showed depletion of hematopoietic cells in the bone marrow and atrophy of the lymphoid tissues of the thymus, spleen, and lymph nodes. To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated. Bone marrow – Irregularities – Based on Human Evidence

12 ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish:

static test LC50 – Oncorhynchus mykiss (rainbow trout) – > 500 mg/l – 96 h

Toxicity to daphnia and other aquatic:

EC50 – Daphnia magna (Water flea) – ca. 4,897 mg/l – 48 h

Toxicity to algae:

static test EC50 – Desmodesmus subspicatus (green algae) – 672.8 mg/l – 72 h

Toxicity to bacteria:

No data available

12.2 Persistence and degradability

Biodegradability aerobic – Exposure time 28 d Result: 73 % – Readily biodegradable.

Biochemical Oxygen 1.100 mg/g Demand (BOD) Chemical Oxygen Demand \ (COD\) 1.600 mg/g

12.3 Bioaccumulative potential

No data available

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: – IMDG: – IATA: –

14.2 UN proper shipping name

ADR/RID: Not dangerous goods

IMDG: Not dangerous goods

IATA-DGR: Not dangerous goods

14.3 Transport hazard class(es)

ADR/RID: – IMDG: – IATA: –

14.4 Packaging group

ADR/RID: – IMDG: – IATA: –

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

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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