

Revision Date 01.01.2025  
Data of first issue 09.01.2017

## Material Safety Data Sheet

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

#### 1.1 Product identifiers

Product name N-Methylmorpholine  
Product number M0113453  
Brand 3ASenrise  
CAS number 109-02-4

#### 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 2), H225  
Acute toxicity, Oral (Category 4), H302  
Skin corrosion (Sub-category 1B), H314  
Serious eye damage (Category 1), H318

#### 2.2 GHS label elements, including precautionary statements

##### Pictogram



**Signal word: Danger**

##### Hazard statement(s)

H314 Causes severe skin burns and eye damage.  
H225 Highly Flammable liquid and vapour.  
H302 Harmful if swallowed.  
H313 May be harmful in contact with skin.

##### 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.

P233 Keep container tightly closed.

P240 Ground/bond container and receiving equipment.

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

P242 Use only non-sparking tools.

P243 Take precautionary measures against static discharge.

P270 Do not eat, drink or smoke when using this product.

P264 Wash hands thoroughly after handling.

## Response

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

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

P363 Wash contaminated clothing before reuse.

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

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

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.

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

P301+P312+P330 IF SWALLOWED: Call a POISON CENTER/ doctor if you feel unwell. Rinse mouth.

## Storage

P405 Store locked up.

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

H225 Highly Flammable liquid and vapour.

## 2.4 Health hazards

H314 Causes severe skin burns and eye damage.

H318 Causes serious eye damage.

H302 Harmful if swallowed.

H313 May be harmful in contact with skin.

## 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-Methylmorpholine
Formula	C <sub>5</sub> H <sub>11</sub> NO
Molecular Weight	101.15
CAS	109-02-4
Concentration	AR, ≥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**

Dry powder Dry sand

### **5.2 Special hazards arising from the substance or mixture**

Carbon oxides Nitrogen oxides (NO<sub>x</sub>) Combustible.

### **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 liquid
b) Odor	No data available
c) pH	No data available
d) Melting point/freezing point	-66 ° C
e) Initial boiling point and boiling range	115 – 116 ° C at 1.000 hPa
f) Upper/lower flammability or explosive limits	Upper explosion limit: 11.8 %(V) Lower explosion limit: 2.2 %(V)
g) Flash point	12 ° C – c.c.
h) Evaporation rate	No data available
i) Vapor pressure	No data available
j) Vapor density	No data available
k) Density	0.92 g/cm <sup>3</sup> at 25 ° C
l) Water solubility	at 20 ° C soluble
m) Partition coefficient: n-octanol/water	No data available
n) Autoignition temperature	No data available
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 - 1,442 mg/kg

LC50 Inhalation

No data available

LD50 Dermal

- Rabbit - male and female - > 3,000 mg/kg

### **11.2 Skin corrosion/irritation**

Skin - Rabbit Result: Causes burns.

### **11.3 Serious eye damage/eye irritation**

Remarks: Causes serious eye damage.

### **11.4 Respiratory or skin sensitization**

Buehler Test - Guinea pig 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 Metabolic activation: without metab

### **11.6 Carcinogenicity**

No data available

### **11.7 Reproductive toxicity**

No data available

### **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**

RTECS: QE5775000 Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin. Cough, Shortness of breath, Headache, Nausea Other dangerous properties can not be excluded. Handle in accordance with good industrial hygiene and safety practice.

## **12 ECOLOGICAL INFORMATION**

### **12.1 Toxicity**

Toxicity to fish:

LC50 - Leuciscus idus (Golden orfe) - 320 - 460 mg/l - 96 h static test LC50 - Leuciscus idus (Golden orfe) - > 316 - 464 mg/l - 96 h

Toxicity to daphnia and other aquatic:

static test EC50 - Daphnia - > 100 mg/l - 48 h

Toxicity to algae:

No data available

Toxicity to bacteria:

No data available

### **12.2 Persistence and degradability**

Biodegradability Result: > 60 % - Moderately (partly) eliminable (DOC reduction 20- 70 %).

### **12.3 Bioaccumulative potential**

Bioaccumulation Oncorhynchus mykiss (rainbow trout) - 92 d (4-methylmorpholine)

Bioconcentration factor (BCF): < 10 Remarks: Does not significantly accumulate in organisms.

## 12.4 Mobility in soil

No data available

## 12.5 Other adverse effects

Discharge into the environment must be avoided.

# 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: 2535 IMDG: 2535 IATA: 2535

## 14.2 UN proper shipping name

ADR/RID: N-METHYLMORPHOLINE

IMDG: N-METHYLMORPHOLINE

IATA-DGR: N-Methylmorpholine

## 14.3 Transport hazard class(es)

ADR/RID: 3(8) IMDG: 3(8) IATA: 3(8)

## 14.4 Packaging group

ADR/RID: II IMDG: II IATA: II

## 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.

Tel: +86 -400-005-6266 Fax: +86 -0556-5555368 E-mail: Service@3asenrise.com

Add: No.88 Weisan Road, High-Tech Industrial Development Zone, Anqing, Anhui