

# Material Safety Data Sheet

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

### 1.1 Product identifiers

Product name	Norbornene
Product number	D060048
Brand	3ASenrise
CAS number	498-66-8

### 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

Serious eye damage/eye irritation (Category 2A), H319

Reproductive toxicity (Category 2), H361

Short-term (acute) aquatic hazard (Category 2), H401

Long-term (chronic) aquatic hazard (Category 2), H411

### 2.2 GHS label elements, including precautionary statements

#### Pictogram



**Signal word: Danger**

#### Hazard statement(s)

H228 Flammable solid.

H319 Causes serious eye irritation.

H361 Suspected of damaging fertility or the unborn child.

H411 Toxic to aquatic life with long lasting effects.

## 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.

P264 Wash hands thoroughly after handling.

P273 Avoid release to the environment.

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

### Response

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

P308+P313 IF exposed or concerned: Get medical advice/attention.

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.

P391 Collect spillage. Hazardous to the aquatic environment

### 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

H319 Causes serious eye irritation.

H361 Suspected of damaging fertility or the unborn child.

## 2.5 Environmental hazards Code

H401 Toxic to aquatic life.

H411 Toxic to aquatic life with long lasting effects.

## 2.6 Other hazards

No data available

## 3 COMPOSITION/INFORMATION ON INGREDIENTS

### Substance / Mixture: Substance

#### 3.1 Substance

Name	Norbornene
Formula	C7H10
Molecular Weight	94.16
CAS	498-66-8
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 (CO<sub>2</sub>) Dry powder

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

Carbon oxides Combustible. Vapors are heavier than air and may spread along floors. 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	White to yellow low melting point solid
b) Odor	No data available
c) pH	No data available
d) Melting point/freezing point	44 - 46 ° C
e) Initial boiling point and boiling range	96 ° C
f) Upper/lower flammability or explosive limits	No data available
g) Flash point	-8 ° C - closed cup
h) Evaporation rate	No data available
i) Vapor pressure	1,015.8 hPa at 95.66 ° C
j) Vapor density	No data available
k) Density	0.87 g/cm <sup>3</sup> at 20 ° C
l) Water solubility	0.134 g/l at 20 ° C - slightly soluble
m) Partition coefficient: n-octanol/water	No data available
n) Autoignition temperature	450 ° C
o) Decomposition temperature	No data available
p) Flammability	The substance or mixture is a flammable solid.

## 10 STABILITY AND REACTIVITY

### 10.1 Chemical stability

No data available.

### 10.2 Conditions to avoid

No data available.

### 10.3 Incompatible materials

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 - 9,577 mg/kg

LC50 Inhalation

- Rat - male and female - 4 h - > 26.59 mg/l - dust/mist

LD50 Dermal

- Rabbit - male - &gt; 4,353 mg/kg

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

Skin - Rabbit Result: No skin irritation - 24 h

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

Eyes - Rabbit Result: Eye irritation - 24 h

### **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 lung c

### **11.6 Carcinogenicity**

No data available

### **11.7 Reproductive toxicity**

Suspected of damaging fertility or the unborn child.

### **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 - 51 - 71 d - NOAEL (No observed adverse effect level) - 500 mg/kg Repeated dose toxicity - Rat - female - Inhalation - 90 d - NOAEL (No observed adverse effect level) - 582 mg/kg RTECS: RB7900000 To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

## **12 ECOLOGICAL INFORMATION**

### **12.1 Toxicity**

Toxicity to fish:

flow-through test LC50 - Danio rerio (zebra fish) - &gt; 7.3 mg/l - 96 h

Toxicity to daphnia and other aquatic:

static test EC50 - Daphnia magna (Water flea) - 7.3 mg/l - 48 h

Toxicity to algae:

static test ErC50 - Desmodesmus subspicatus (green algae) - 24.7 mg/l - 72 h static test NOEC - Desmodesmus subspicatus (green algae) - 4.1 mg/l - 72 h

Toxicity to bacteria:

static test EC50 - activated sludge - &gt; 1,000 mg/l - 3 h

### **12.2 Persistence and degradability**

Biodegradability Result: - Not biodegradable. Remarks: The 10 day time window criterion is not fulfilled.

### **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: 1325 IMDG: 1325 IATA: 1325

### **14.2 UN proper shipping name**

ADR/RID: Norbornene

IMDG: Norbornene

IATA-DGR: Norbornene

### **14.3 Transport hazard class(es)**

ADR/RID: 4.1 IMDG: 4.1 IATA: 4.1

### **14.4 Packaging group**

ADR/RID: II IMDG: II IATA: II

### **14.5 Environmental hazards**

ADR/RID: yes IMDG Marine pollutant: yes 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.

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