

Material Safety Data Sheet

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

1.1 Product identifiers

Product name	tert-Butyl methyl ether
Product number	W330510
Brand	3ASenrise
CAS number	1634-04-4

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

Skin corrosion/irritation (Category 2), H315

2.2 GHS label elements, including precautionary statements

Pictogram



Signal word: Danger

Hazard statement(s)

H315 Causes skin irritation.

H225 Highly Flammable liquid and vapour.

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.
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.
P332+P313 IF SKIN irritation occurs: Get medical advice/attention.
P370+P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.

Storage

- 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

- H315 Causes skin irritation.

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	tert-Butyl methyl ether
Formula	C ₅ H ₁₂ O
Molecular Weight	88.15
CAS	1634-04-4
Concentration	99%, Extra Dry, with molecular sieves, Water ≤ 10 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

Carbon dioxide (CO₂) Foam Dry powder

5.2 Special hazards arising from the substance or mixture

Carbon oxides Combustible. Pay attention to flashback. Vapors are heavier than air and may spread along floors. Development of hazardous combustion gases or vapours possible in the event of fire. Forms explosive mixtures with air at ambient temperatures.

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	characteristic
c) pH	No data available
d) Melting point/freezing point	-108.6 ° C at 1,013 hPa
e) Initial boiling point and boiling range	55.3 ° C at 1,013 hPa
f) Upper/lower flammability or explosive limits	Upper explosion limit: 8.5 %(V) Lower explosion limit: 1.6 %(V)
g) Flash point	-28 ° C - closed cup
h) Evaporation rate	No data available
i) Vapor pressure	330 hPa at 25 ° C
j) Vapor density	No data available
k) Density	0.74 g/cm ³ at 20 ° C
l) Water solubility	42 g/l at 20 ° C
m) Partition coefficient: n-octanol/water	No data available
n) Autoignition temperature	460 ° C at 1013.0 hPa
o) Decomposition temperature	Distillable in an undecomposed state at normal pressure.
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

rubber, various plastics

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 - > 2,000 mg/kg

LC50 Inhalation

- Rat - male and female - 4 h - 85 mg/l - vapor

LD50 Dermal

- Rat - male and female - > 2,000 mg/kg

11.2 Skin corrosion/irritation

Skin - Rabbit Result: Skin irritation - 4 h Remarks: Drying-out effect resulting in rough and chapped skin.

11.3 Serious eye damage/eye irritation

Eyes - Rabbit Result: No eye irritation

11.4 Respiratory or skin sensitization

Maximization Test – Guinea pig Result: negative

11.5 Germ cell mutagenicity

Test Type: In vitro mammalian cell gene mutation test Test system: Chinese hamster lung cells
Metabolic activation: with and without metabolic activation Method: OECD Test Guideline 476
Result: negative Test Type: Ames test Test system: Salmonella typhim

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

Repeated dose toxicity – Rat – male and female – Oral – 90 d – NOAEL (No observed adverse effect level) – 3,000 mg/kg Remarks: Subchronic toxicity Nausea, Vomiting, Dizziness, Central nervous system depression, Aspiration or inhalation may cause chemical pneumonitis. MTBE (methyl-tert-butyl ether) is reported to metabolize to tert-butyl alcohol and formaldehyde by microsomal demethylation, MTBE (methyl-tert-butyl ether) should be considered a "potential human carcinogen" due to an increase in leydig interstitial cell tumors of testes in male rats and an increase in lymphomas, leukemias, and uterine sarcomas in female rats. In another unpublished study MTBE was shown to be carcinogenic due to "increased incidence of a rare type of kidney tumor" in male rats and an "increase in the incidence of hepatocellular adenomas" in female mice. 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:

semi-static test LC50 – Menidia beryllina – 574 mg/l – 96 h

Toxicity to daphnia and other aquatic:

flow-through test EC50 – Americamysis bahia (Mysid) – 187 mg/l – 96 h

Toxicity to algae:

static test IC50 – Pseudokirchneriella subcapitata (green algae) – 491 mg/l – 96 h

Toxicity to bacteria:

static test EC10 – Pseudomonas putida – 710 mg/l – 18 h

12.2 Persistence and degradability

Biodegradability aerobic – Exposure time 28 d Result: 0 % – Not readily biodegradable.

12.3 Bioaccumulative potential

Bioaccumulation Cyprinus carpio (Carp) – 28 d at 25 ° C(tert-butyl methyl ether)

Bioconcentration factor (BCF): 1.5

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: 2398 IMDG: 2398 IATA: 2398

14.2 UN proper shipping name

ADR/RID: TERT-BUTYL METHYL ETHER

IMDG: TERT-BUTYL METHYL ETHER

IATA-DGR: tert-Butyl methyl ether

14.3 Transport hazard class(es)

ADR/RID: 3 IMDG: 3 IATA: 3

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.

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