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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,N-Dimethylformamide
Product number W610938
Brand 3ASenrise
CAS number 68-12-2

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 3), H226
Acute toxicity, Oral (Category 5), H303
Acute toxicity, Inhalation (Category 4), H332
Acute toxicity, Dermal (Category 4), H312
Serious eye damage/eye irritation (Category 2A), H319
Reproductive toxicity (Category 1B), H360

2.2 GHS label elements, including precautionary statements

Pictogram



Signal word: Danger

Hazard statement(s)

H319 Causes serious eye irritation.
H226 Flammable liquid and vapour.
H360 May damage fertility or the unborn child.

H303 May be harmful if swallowed.

H312+H332 Harmful in contact with skin or if inhaled.

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.

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

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.

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+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

H226 Flammable liquid and vapour.

2.4 Health hazards

H319 Causes serious eye irritation.

H312 Harmful in contact with skin.

H332 Harmful if inhaled.

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,N-Dimethylformamide

Formula	C3H7NO
Molecular Weight	73.09
CAS	68-12-2
Concentration	≥99.9%, HPLC/ACS

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 (NOx) Combustible. Vapors are heavier than air and may spread along floors. Forms explosive mixtures with air at elevated temperatures. 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 liquid
b) Odor	amine-like
c) pH	7 at 200 g/l at 20 ° C
d) Melting point/freezing point	-61 ° C
e) Initial boiling point and boiling range	153 ° C at 1,013 hPa
f) Upper/lower flammability or explosive limits	Upper explosion limit: 16 %(V) Lower explosion limit: 2.2 %(V)
g) Flash point	57.5 ° C – closed cup
h) Evaporation rate	No data available
i) Vapor pressure	3.77 hPa at 20 ° C
j) Vapor density	No data available
k) Density	0.944 g/cm ³ at 25 ° C
l) Water solubility	1,000 g/l at 20 ° C completely miscible
m) Partition coefficient: n-octanol/water	No data available
n) Autoignition temperature	435 ° C at 1,013 hPa
o) Decomposition temperature	> 350 ° C
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

various plastics, Copper, Copper alloys, Tin, 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 – 3,010 mg/kg

LC50 Inhalation

No data available

LD50 Dermal

– Rabbit – 1,500 mg/kg

11.2 Skin corrosion/irritation

Skin – Rabbit Result: No skin irritation – 20 h

11.3 Serious eye damage/eye irritation

Eyes – Rabbit Result: Irritating to eyes.

11.4 Respiratory or skin sensitization

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

11.5 Germ cell mutagenicity

Test Type: sister chromatid exchange assay Test system: Chinese hamster ovary cells Metabolic activation: with and without metabolic activation Result: negative Test Type: unscheduled DNA synthesis assay Test system: human diploid fibroblasts Metabolic ac

11.6 Carcinogenicity

No data available

11.7 Reproductive toxicity

May damage 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 – 28 d – NOAEL (No observed adverse effect level) – 238 mg/kg – LOAEL (Lowest observed adverse effect level) – 475 mg/kg Remarks: Subacute toxicity Vomiting Diarrhea Abdominal pain Warning: intolerance for alcohol can occur up to 4 days after dimethylformamide exposure. N,N-dimethylformamide is considered to be a potent liver toxin. To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated. After absorption: Headache Dizziness Drowsiness Damage to: Kidney Liver This substance should be handled with particular care.

12 ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish:

flow-through test LC50 – *Lepomis macrochirus* (Bluegill sunfish) – 7,100 mg/l – 96 h

Toxicity to daphnia and other aquatic:

static test EC50 - Daphnia magna (Water flea) - 13,100 mg/l - 48 h

Toxicity to algae:

static test ErC50 - Desmodesmus subspicatus (green algae) - > 1,000 mg/l - 72 h

Toxicity to bacteria:

static test EC50 - Vibrio fischeri - 12,300 - 17,500 mg/l - 5 min

12.2 Persistence and degradability

Biodegradability aerobic - Exposure time 21 d Result: 100 % - Readily biodegradable. (OECD Test Guideline 301E) Biochemical Oxygen 900 mg/g Demand (BOD) Remarks: (Lit.) Theoretical oxygen 1,863 mg/g demand Remarks: (Lit.)

12.3 Bioaccumulative potential

Bioaccumulation Cyprinus carpio (Carp) - 56 d at 25 ° C - 0.002 mg/l (N,N-dimethylformamide) Bioconcentration factor (BCF): 0.3 - 1.2

12.4 Mobility in soil

No data available

12.5 Other adverse effects

Stability in water - ca. 50 d Remarks: reaction with hydroxyl radicals (calculated) (Lit.)

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: 2265 IMDG: 2265 IATA: 2265

14.2 UN proper shipping name

ADR/RID: N, N-DIMETHYLFORMAMIDE

IMDG: N, N-DIMETHYLFORMAMIDE

IATA-DGR: N, N-Dimethylformamide

14.3 Transport hazard class(es)

ADR/RID: 3 IMDG: 3 IATA: 3

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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