
SAFETY DATA SHEET

Product name: Combat BV

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Combat Technology (Dalian) Co.,Ltd encourages and expects you to read and understand the entire(M)SDS, as there is important information throughout the document. We expect you to follow the precautions identified in this document unless your use conditions would necessitate other appropriate methods or actions.

1. IDENTIFICATION

Product name: Isothiazolinone

Recommended use of the chemical and restrictions on use

Identified uses: Biocidal product

COMPANY IDENTIFICATION

Company name: Combat technology (Dalian) Co.,Ltd

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EMERGENCY TELEPHONE NUMBER

24-Hour Emergency Contact: +86 411-83702319

2. HAZARDS IDENTIFICATION

Hazard classification

This material is hazardous under the criteria of the Federal OSHA Hazard Communication Standard 29CFR 1910.1200.

Skin corrosion - Category 1B

Serious eye damage - Category 1

Skin sensitization - Category 1

Label elements

Hazard pictograms



Signal word: **DANGER!**

Hazards

Causes severe skin burns and eye damage.

May cause an allergic skin reaction.

Precautionary statements

Prevention

Avoid breathing dust/ fume/ gas/ mist/ vapors/ spray.

Wash skin thoroughly after handling.

Contaminated work clothing should not be allowed out of the workplace.

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

Response

IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Immediately call a POISON CENTER or doctor/ physician.

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 or doctor/physician. If skin irritation or rash occurs: Get medical advice/ attention. Wash contaminated clothing before reuse.

Storage

Store locked up.

Disposal

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

Other hazards

No data available

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical nature: Aqueous solution of organic and inorganic compounds This product is a mixture.

Component	CAS.	Concentration
Isothiazolinone	55965-84-9	14%
Magnesium Chloride	7786-30-3	4.0 %
Magnesium nitrate	10377-60-3	18.0%
Water	7732-18-5	64.0%

4. FIRST AID MEASURES

Description of first aid measures

Inhalation: Move to fresh air. Give artificial respiration if breathing has stopped. If symptoms persist, call a physician.

Skin contact: IMMEDIATELY get under a safety shower. Remove contaminated clothing. Wash off with soap and water. Immediate medical attention is required. Wash contaminated clothing before reuse. Do not take clothing home to be laundered. Discard contaminated shoes, belts, and other articles made of leather.

Eye contact: Rinse immediately with plenty of water for at least 15 minutes. Immediate medical attention is required.

Ingestion: Drink 1 or 2 glasses of water. IMMEDIATELY see a physician. Never give anything by mouth to an unconscious person.

Most important symptoms and effects, both acute and delayed: Aside from the information found under Description of first aid measures (above) and Indication of immediate medical attention and special treatment needed (below), any additional important symptoms and effects are described in Section 11.

Indication of any immediate medical attention and special treatment needed

Notes to physician: MATERIAL IS CORROSIVE. It may not be advisable to induce vomiting. Possible mucosal damage may contraindicate the use of gastric lavage. Measures against circulatory shock and convulsions may be necessary.

5. FIREFIGHTING MEASURES

Suitable extinguishing media: Use extinguishing media appropriate for surrounding fire.

Unsuitable extinguishing media: no data available

Special hazards arising from the substance or mixture

Hazardous combustion products: no data available

Unusual Fire and Explosion Hazards: Combustion generates toxic fumes of the following: hydrogen chloride Nitrogen oxides (NOx) sulfur oxides

Advice for firefighters

Fire Fighting Procedures: Cool containers/tanks with water spray. Minimize exposure. Do not breathe fumes. Contain run-off.

Special protective equipment for firefighters: Wear self-contained breathing apparatus and protective suit.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures: Wear a NIOSH approved (or equivalent) respirator (with organic vapor/acid gas cartridge and a dust/mist filter) during spill clean-ups and deactivation of this material. MATERIAL IS CORROSIVE. Protective clothing, including chemical splash goggles, nitrile or butyl rubber full length gloves, rubber apron, or clothing made of nitrile or butyl rubber, and rubber overshoes must be worn during spill clean-ups and deactivation of this material. If material comes in contact with the skin during clean-up operations, IMMEDIATELY remove all contaminated clothing and wash exposed skin areas with soap and water. See SECTION 4.

Environmental precautions: Do not allow material to contaminate ground water system. Prevent product from entering drains.

Methods and materials for containment and cleaning up: WARNING: KEEP SPILLS AND CLEAN-UP RESIDUALS OUT OF MUNICIPAL SEWERS AND OPEN BODIES OF WATER. Adsorb the spill with spill pillows or inert solids such as clay or vermiculite, and transfer contaminated materials to suitable containers for disposal. Deactivate spill area with freshly prepared solution of 5% sodium bicarbonate and 5% sodium hypochlorite in water. Apply solution to the spill area at a ratio of 10 volumes deactivation solution per estimated volume of residual spill to deactivate any residual active ingredient. Let stand for 30 minutes. Flush the spill area with copious amounts of water to chemical sewer (if in accordance with local procedures, permits and regulations). DO NOT add deactivation solution to the waste pail to deactivate the adsorbed material. See Section 13.

7. HANDLING AND STORAGE

Precautions for safe handling: This material is corrosive. For personal protection see section 8. Do not handle material near food, feed or drinking water.

Conditions for safe storage: Keep in a well-ventilated place. The product as supplied may evolve gas (largely carbon dioxide) slowly. To prevent the buildup of pressure the product is packaged in specially vented containers, where necessary. Keep this product in the original container when not in use. Container must be stored and transported in an upright position to prevent spilling the contents through the vent, where fitted. Do not store this material in containers made of the following: steel do not store this material near food, feed or drinking water.

CONTAINERS MAY BE HAZARDOUS WHEN EMPTY. Since emptied containers retain product residue follow all MSDS and label warnings even after container is emptied. Expiration date based only on retention of >95% actives during storage at 20°C-25°C (68°F-77°F).

Storage stability

Storage temperature: -30 - 55 °C (-22 - 131 °F)

Other data: Store in a cool and shaded area.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure limits are listed below

Component	Type of listing	Value/Notation
5-Chloro-2-methyl-4-isothiazolin-3-one	Time Weighted Average	0.23mg/m ³
2-Methyl-4-isothiazolin-3-one	Time Weighted Average	4.5 mg/m ³

Exposure controls

Engineering controls: Use local exhaust ventilation with a minimum capture velocity of 150 ft/min. (0.75 m/sec.) at the point of dust or mist evolution.

Protective measures: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.

Individual protection measures

Eye/face protection: Use chemical splash goggles and face shield (or approved equivalent). Eye protection worn must be compatible with respiratory protection system employed.

Skin protection

Hand protection: Chemical-resistant gloves should be worn whenever this material is handled. The glove(s) listed below may provide protection against permeation. (Gloves of other chemically resistant materials may not provide adequate protection): Butyl-rubber. Nitrile rubber. PVC gloves. Gloves should be removed and replaced immediately if there is any indication of degradation or chemical breakthrough. Rinse and remove gloves immediately after use. Wash hands with soap and water. NOTE: Material is a possible skin sensitizer.

Other protection: Wear as appropriate: Chemical resistant apron complete suit protecting against chemicals

Respiratory protection: Typical use of this material does not result in workplace exposures that exceed the exposure limits listed in the Exposure Limit Information Section. For those special workplace conditions where the listed exposure limits are exceeded, a respiratory protection program meeting OSHA 1910.134 and ANSI Z88.2 requirements must be followed. For concentrations up to 10 times the exposure limit, wear a properly fitted NIOSH approved (or equivalent) half-mask or full face piece air purifying respirator equipped with organic vapor cartridges and N95 filters. If oil mist is present, use R95 or P95 filters. For those unlikely situations where exposure may greatly exceed the listed exposure limits, or in any emergency situation, wear a properly fitted NIOSH approved (or equivalent) self-contained breathing apparatus in the pressure demand mode or a full face piece airline respirator in the pressure demand mode with emergency escape provision. See SECTION 6, for respirator and protective clothing requirements for spill clean-up and decontamination of this material.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Physical state	liquid
Color	Light yellow to light green
Odor	Mild
Odor Threshold	no data available
pH	1.5– 3.0
Freezing point	no data available
Boiling point (760 mmHg)	100.0°C (212.0°F)
Flash point	Non combustible
Flammability (solid, gas)	Not Applicable
Lower explosion limit	Not applicable
Upper explosion limit	Not applicable
Vapor Pressure	no data available
Water solubility	completely soluble
Auto-ignition temperature	Not Applicable
Decomposition temperature	no data available
Kinematic Viscosity	no data available
Explosive properties	no data available
Oxidizing properties	The substance or mixture is not classified as oxidizing.
Molecular weight	no data available
Percent volatility	75.00 - 80.00 %

NOTE: The physical data presented above are typical values and should not be construed as a specification.

10. STABILITY AND REACTIVITY

Reactivity: no data available

Chemical stability: no data available

Possibility of hazardous reactions: Stable under recommended storage conditions.

Product will not undergo polymerization.

Conditions to avoid: no data available

Incompatible materials: Avoid contact with the following: Oxidizing agents Amines, Reducing agents and mercaptans.

Hazardous decomposition products: Nitrogen oxides (NO_x) Sulphur oxides hydrogen chloride

11. TOXICOLOGICAL INFORMATION

Toxicological information on this product or its components appears in this section when such data is available.

Acute toxicity

Acute oral toxicity

LD50, Rat, female, 3310mg/kg

LD50, Rat, male, > 5360mg/kg

Acute dermal toxicity

LD50, Rabbit, > 5000 mg/kg

Acute inhalation toxicity

LC50, Rat, 4 Hour, dust/mist, >5.4 mg/l Estimated.

Skin corrosion/irritation

This material is corrosive.

Serious eye damage/eye irritation

Corrosive

Sensitization

Has caused allergic skin reactions when tested in guinea pigs.

Specific Target Organ Systemic Toxicity (Single Exposure)

Product test data not available.

Specific Target Organ Systemic Toxicity (Repeated Exposure)

Product test data not available.

Carcinogenicity

Did not cause cancer in laboratory animals.

Teratogenicity

Did not show teratogenic effects in animal experiments.

Reproductive toxicity

In animal studies, did not interfere with reproduction.

Mutagenicity

Not mutagenic when tested in bacterial or mammalian systems.

Aspiration Hazard

Product test data not available.

COMPONENTS INFLUENCING TOXICOLOGY:**5-Chloro-2-methyl-4-isothiazolin-3-one****Specific Target Organ Systemic Toxicity (Single Exposure)**

Evaluation of available data suggests that this material is not an STOT-SE toxicant.

Specific Target Organ Systemic Toxicity (Repeated Exposure)

Based on available data, repeated exposures are not anticipated to cause significant adverse effects.

Aspiration Hazard

Aspiration into the lungs may occur during ingestion or vomiting, causing tissue damage or lung injury.

2-Methyl-4-isothiazolin-3-one**Specific Target Organ Systemic Toxicity (Single Exposure)**

May cause respiratory irritation.

Route of Exposure: Inhalation

Target Organs: Respiratory Tract

Specific Target Organ Systemic Toxicity (Repeated Exposure)

Based on available data, repeated exposures are not anticipated to cause additional significant adverse effects.

Aspiration Hazard

Aspiration into the lungs may occur during ingestion or vomiting, causing tissue damage or lung injury.

Magnesium Chloride**Specific Target Organ Systemic Toxicity (Single Exposure)**

Evaluation of available data suggests that this material is not an STOT-SE toxicant.

Specific Target Organ Systemic Toxicity (Repeated Exposure)

Based on available data, repeated exposures are not anticipated to cause additional significant adverse effects.

Aspiration Hazard

Based on physical properties, not likely to be an aspiration hazard.

Magnesium nitrate**Specific Target Organ Systemic Toxicity (Single Exposure)**

Evaluation of available data suggests that this material is not an STOT-SE toxicant.

Specific Target Organ Systemic Toxicity (Repeated Exposure)

For similar material(s):Based on available data, repeated exposures are not anticipated to cause significant adverse effects.

Aspiration Hazard

Based on available information, aspiration hazard could not be determined.

Carcinogenicity		
Component	List	Classification
Magnesium nitrate	IARC	Group 2A: Probably carcinogenic to humans

12. ECOLOGICAL INFORMATION

Ecotoxicological information on this product or its components appear in this section when such data is available.

General Information

Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Toxicity

5-Chloro-2-methyl-4-isothiazolin-3-one

Acute toxicity to fish

Material is highly toxic to aquatic organisms on an acute basis (LC50/EC50 between 0.01 and 0.1mg/L in the most sensitive species tested).

LC50, Rainbow trout (*Oncorhynchus mykiss*), 96 Hour, 0.020 mg/l, OECD Test Guideline 203 or Equivalent LC50, Bluegill sunfish (*Lepomis macrochirus*), 96 Hour, 0.030 mg/l

Acute toxicity to aquatic invertebrates

EC50, *Daphnia magna*, 48 Hour, 0.17 mg/l

Acute toxicity to algae/aquatic plants

NOEC, *Selenastrum capricornutum* (green algae), Growth rate, 0.0099mg/l

EC50, Algae (*Selenastrum capricornutum*), 72 Hour, Growth rate, 0.019 mg/l

Toxicity to bacteria

EC50, Bacteria, 16 Hour, 6.1mg/l

Chronic toxicity to aquatic invertebrates

NOEC, *Daphnia magna* (Water flea), 21 d, number of offspring, 0.18428mg/l

LOEC, *Daphnia magna* (Water flea), 21 d, number of offspring, 0.613mg/l

2-Methyl-4-isothiazolin-3-one

Acute toxicity to fish

Material is highly toxic to aquatic organisms on an acute basis (LC50/EC50 between 0.01 and 0.1mg/L in the most sensitive species tested).

LC50, *Oncorhynchus mykiss* (rainbow trout), 96 Hour, 5.11 mg/l, OECD Test Guideline 196 or Equivalent

Acute toxicity to aquatic invertebrates

LC50, *Daphnia magna* (Water flea), 48 Hour, 0.10– 0.20 mg/l

Acute toxicity to algae/aquatic plants

EC50, Algae (*Selenastrum capricornutum*), 72 Hour, Growth rate, 0.169mg/l, OECD Test Guideline 201

Chronic toxicity to aquatic invertebrates

NOEC, *Daphnia magna*, 21 d, 0.043 mg/l

Magnesium Chloride

Acute toxicity to fish

Material is practically non-toxic to aquatic organisms on an acute basis (LC50/EC50/EL50/LL50 >910.7mg/L in the most sensitive species tested).

LC50, *Gambusia affinis* (Mosquito fish), static test, 96 Hour, 17678.6 mg/l, Method Not Specified.

Acute toxicity to aquatic invertebrates

EC50, Daphnia magna (Water flea), 24 Hour, 3418 mg/l, Directive 84/449/EEC, C.2

Acute toxicity to algae/aquatic plants

EC50, alga Scenedesmus sp., 72 Hour, Biomass, 2357 mg/l, OECD Test Guideline 201 or Equivalent

Magnesium nitrate

acute toxicity to fish

Not expected to be acutely toxic to aquatic organisms.

For similar material(s):

LC50, Poecilia reticulata (guppy), 96 Hour, > 107 mg/l

Acute toxicity to aquatic invertebrates

For similar material(s):

EC50, Daphnia magna, 48 Hour, > 107 mg/l

Acute toxicity to algae/aquatic plants

For similar material(s):

ErC50, Algae, 72 Hour, Growth rate, > 107 mg/l

Persistence and degradability

5-Chloro-2-methyl-4-isothiazolin-3-one

Biodegradability: Material is readily biodegradable. Passes OECD test(s) for ready biodegradability.

10-day Window: Not applicable

Biodegradation: 98 %

Exposure time: 2 d

Method: OECD Test Guideline 302B or Equivalent

2-Methyl-4-isothiazolin-3-one

Biodegradability: Material is expected to be readily biodegradable.

Biodegradation: 98 %

Exposure time: 48 d

Method: Simulation study

Magnesium Chloride

Biodegradability: Biodegradation is not applicable.

Magnesium nitrate

Biodegradability: No relevant data found.

Bioaccumulative potential

Partition coefficient: n-octanol/water(log Pow): 0.401 Method Not Specified.

Mobility in soil

5-Chloro-2-methyl-4-isothiazolin-3-one

No relevant data found.

2-Methyl-4-isothiazolin-3-one

No relevant data found.

Magnesium Chloride

Potential for mobility in soil is very high (Koc between 0 and 50).

Partition coefficient(Koc): 23.7

Magnesium nitrate

Potential for mobility in soil is very high (Koc between 0 and 50).

Given its very low Henry's constant, volatilization from natural bodies of water or moist soil is not expected to be an important fate process.

Partition coefficient(Koc): 24

13. DISPOSAL CONSIDERATIONS

Disposal methods: Incinerate liquid and contaminated solids in accordance with local, state, and federal regulations.

14. TRANSPORT INFORMATION

DOT

Proper shipping name ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID

N.O.S.(5-Chloro-2-methyl-4-isothiazolin-3-one)

UN number UN 3265

Class 8

Packing group II

Classification for SEA transport (IMO-IMDG):

Proper shipping name ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID

N.O.S.(5-Chloro-2-methyl-4-isothiazolin-3-one)

UN number UN 3265

Class 8

Packing group II

Marine pollutant 5-Chloro-2-methyl-4-isothiazolin-3-one

Transport in bulk

Consult IMO regulations before transporting ocean bulk

Classification for AIR transport (IATA/ICAO):

Proper shipping name ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID

N.O.S.(5-Chloro-2-methyl-4-isothiazolin-3-one)

UN number UN 3265

Class 8

Packing group II

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. Transportation classifications may vary by container volume and may be influenced by regional or country variations in regulations. Additional transportation system information can be obtained through an authorized sales or customer service representative. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.

15. REGULATORY INFORMATION

OSHA Hazard Communication Standard

This product is considered hazardous under the OSHA Hazard Communication Standard (29 CFR1910.1200).

Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Sections 311 and 312

Acute Health Hazard

Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and

Community Right-to-Know Act of 1986) Section 313

This product contains a chemical which is listed in Section 313 at or above de minimis concentrations. The following listed chemicals are present: (Quantity present is found elsewhere on this MSDS.)

Components	CASRN
Magnesium nitrate (10377-60-3) as nitrate compound	10377-60-3

Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) Section 103

This material is regulated under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) and the Superfund Amendments and Reauthorization Act (SARA) Title III Section 304. This material is or contains chemical(s) listed in 40 CFR Table 302.4 or nondesignated RCRA ICR substance(s). (Nondesignated ICR substances apply to materials that will not be reused.) The Reportable Quantity(s) (RQ) are listed below. Releases in excess of its reportable quantity must be reported to the National Response Center (1-800-424-8802) and to the appropriate state and local emergency response organizations.

D002, 100lbs.

Not to be sold or handed over to persons under 18 years of age.

United States TSCA Inventory (TSCA)

This product contains chemical substance(s) exempt from U.S. EPA TSCA Inventory requirements. It is regulated as a pesticide subject to Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) requirements.

Federal Insecticide, Fungicide and Rodenticide Act

This chemical is a pesticide product registered by the Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets, and for workplace labels of non-pesticide chemicals. Following is the hazard information as required on the pesticide label:

Danger for the environment

Corrosive

Causes irreversible eye damage and skin burns

May cause allergic skin reaction

Harmful if inhaled

Harmful if swallowed or absorbed through the skin this chemical is toxic to aquatic plants, fish and aquatic invertebrates.

16. OTHER INFORMATION**Information Source and References**

This SDS is prepared by Product Regulatory Services Groups from information supplied by internal references within our company.

The information herein is provided in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given. Regulatory requirements are subject to change and may differ between various locations. It is the buyer's/user's responsibility to ensure that his activities comply with all federal, state, provincial or local laws. The information presented here pertains only to the product as shipped.