MATERIAL SAFETY DATA SHEET

MB 5

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY

Product name: MB5 (Mixture of MIT & BIT)
Composition: 1,2-benzisothiazoline-3-one; Methylisothiazoline
Application Industrial Microbicide
Uses advised against No further relevant information available
Supplier info:
Company name: SINOTRUST CHEMICAL CO. LTD
Add: NO.813 SELF TRADE BUILDING F.T.Z. DALIAN CHINA
TEL: 0086-139 9868 3145 Email: sales@sinotrustchemical.com
Emergencies phone: 0086-139 9868 3145

2. COMPOSITION / INFORMATION ON INGREDIENTS

Chemical characterization: Mixtures
Description: 1,2-Benzisothiazolin-3-one; 2-methylisothiazol-3-one
Component

CAS NO.	Mixtures Component	Weight
2634-33-5	1,2-Benzisothiazolin-3-one	2.0-3.0%
2682-20-4	2-methyl-4-isothiazolin-3-one	2.0-3.0%
7732-18-5	Water	Balance

* All concentrations are percent by weight.

3. HAZARDS IDENTIFICATION

Classification of the substance or mixture
Classification and labelling according Regulation (EC) No 1272/2008 [CLP]
Hazard pictograms

Signal word Danger
Hazard-determining components of labelling 1, 2-Benzisothiazolin-3-one /2-methyl-4-isothiazolin-3-one;
Hazard statements H317：May cause an allergic skin reaction.
H318：Causes serious eye damage

Precautionary statements P280：Wear protective gloves/protective clothing/eye protection/ face protection
P303/P361/P353:If on skin (or hair):Remove/Take off immediately all contaminated clothing. Rinse skin with

water/shower.
P305/P351/P338：If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P332/P313：If eye irritation persists: Get medical advice/ attention.
P333/P313/P362：If skin irritation or rash occurs: Get medical advice/attention.
Take off contaminated clothing and wash before reuse.

Supplemental Hazard Statement None
Classification and labelling according to EU directives 67/548/EEC and 1999/45/EC including amendments.
Label elements
According to European Directive 67/548/EEC as amended.
Hazard symbols

Irritant

Contains 1,2-Benzisothiazolin-3-one; 2-methylisothiazol-3-one
R-phrases R34：Causes burns.
R43：May cause sensitization by skin contact.
S-phrases S26：In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S28：After contact with skin, wash immediately with plenty of water.
S36/S37/S39：Wear suitable protective clothing, gloves and eye/face protection.
S45：In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
Other hazards None.

4. FIRST AID MEASURES

Description of first aid measures

Inhalation Move subject to fresh air.
Eye Contact Immediately flush eyes with a large amount of water for at least 15minutes. Get prompt medical attention.
Skin Contact Wash affected skin areas thoroughly with soap and water immediately after exposure. Remove and wash contaminated clothing thoroughly. Do not take clothing home to be laundered. Discard contaminated shoes, belts and other articles made of leather. Get prompt medical attention.

Ingestion	If swallowed, give 2 glasses of water to drink. Immediately see a physician. Never give anything by mouth to an unconscious person.
Note to Physician	Never give anything by mouth to an unconscious person. Probable mucosal damage may contraindicate the use of gastric lavage.
Emergency Personnel Protection:	First Aid responders should pay attention to self-protection and use the recommended protective clothing (chemical resistant gloves, splash protection) If potential for exposure exists refer to Section 8 for specific personal protective equipment.

5. FIRE FIGHTING MEASURES

Suitable extinguishing agents	Water spray jet, extinguishing powder, CO2, foam.
Fire / Explosion Hazards	During a fire, irritating and highly toxic gases may begenerated by thermal decomposition or combustion.
Special hazards arising from the substance or mixture	Nitrogen oxides (NO_x) ,Sulphur oxides ,Hydrogen chloride
Advice for firefighters	Wear self-contained breathing apparatus and protective suit.
Further information	Cool containers / tanks with water spray. Minimize exposure. Do not breathe fumes.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	Wear respiratory protection. Avoid dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust. 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.
Environmental precautions	Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided
Methods and material for containment and cleaning up	Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

See section 13 for further information.

7. HANDLING AND STORAGE

Precautions for safe handling	Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Provide appropriate exhaust ventilation at places where dust is formed. Normal measures for preventive fire protection.
Conditions for safe storage	The recommended storage temperature for this material is 10-30 ºC /50-80 º F. The minimum recommended storage temperature for this material is 5ºC /40 º F. Store in a well ventilated area. Use polyolefine receptacles.
Including any incompatibilities	Protect from heat and direct sunlight. Protect from frost.
Incompatible Materials for Storage	Reducing agents, oxidizers, amines, mercaptans.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Control parameters	Components with workplace control parameters
Engineering Controls	Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product. 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. Refer to the current edition of Industrial Ventilation: A Manual of Recommended Practice published by the American Conference of Governmental Industrial Hygienists for information on the design, installation, use, and maintenance of exhaust systems.
Personal protective equipment	
Eye/face protection	Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).
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. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands. The gloves listed below provide protection against permeation： Nitrile /Butyl rubber. The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.
Body Protection	Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.
Respiratory protection	Where risk assessment shows air-purifying respirators are

	appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).
Other protective equipment	Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

General Information

a) Appearance：Form：Liquid; Color：Yellow;

b) Odor：Mild，inoffensive odor

c) Odour threshold：No data available

d) pH-value：8.0-9.5

e) Melting point：Not Determined

f) Boiling point/Boiling range：100 °C (212.00 °F) Water

g) Flash point：Not applicable

h) Evaporation rate：<1.0 (n-Butyl acetate=1)

i) Flammability (solid, liquid)：Not applicable

j) Upper/lower flammability or explosive limits：Not applicable

k) Vapor pressure：No data

l) Vapour density：No data

m) Relative density：1.02 -1.04 g/mL

n) Water solubility：soluble

o) Partition coefficient (Kow)：Not Determined

p) Autoignition temperature：Not applicable

q) Decomposition temperature：Not Determined

r) Viscosity：5.1 mPa·s (at 20°C)

s) Explosive properties：No an explosion hazard

· Other information: No further relevant information available.

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

10. STABILITY AND REACTIVITY

Reactivity	No data available
Instability	This material is considered stable under specified conditions of storage, shipment and/or use. See section 7, Handling and storage, for specified conditions.
Possibility of hazardous reactions	No dangerous reactions known.
Thermal decomposition / Conditions to be avoided	No data available
Incompatibility	Avoid contact with the following： oxidizing agents, reducing agents , nucleophils.
Hazardous decomposition products	Thermal decomposition may yield the following： oxides of nitrogen, sulfur dioxides.

11. TOXICOLOGICAL INFORMATION

Product animal toxicity

Acute oral toxicity	Rat, LD50 > 2500 mg/kg
Acute inhalation toxicity	Rat, LC50 / 4 h Aerosol 5.71 mg/L
Acute dermal toxicity	Rat, LD50 > 2000 mg/kg

Skin irritation	slightly irritant
Eye irritation	irritant
Sensitization	Sensitization possible through skin contact. A 0.5% solution of the product did not give any indication of sensitization or ability to cause allergies
Chronic toxicity	May cause sensitisation by skin contact.

12. ECOLOGICAL INFORMATION

Biodegradability: The active substance MIT has been shown to be biodegradable in the simulation test "Aerobic Mineralisation in Surface Water - Simulation Biodegradation Test"
The active substance BIT proved to be biodegradable in the Aerobic Sewage Treatment Simulation Test . Primary degradation is above 90%.

Bioaccumulative: Low , log Kow + 0.70,BIT; log Kow - 0.32,MIT

Acquatic toxicity

Toxicity to fish	LC50 Rainbow trout 96 h 6.4 mg/L
Toxicity to algae	EC50 algae (Scenedesmus subspicatus) 72 h 8.4 mg/L
Toxicity to aquatic invertebrates	EC50 Daphnia 48 h 32 mg/L

Ecotoxical effects

Behavior in sewage	EC50 / 16 h 2.3 mg/l (Pseudomonas putida) ,MIT
processing plants	EC50 / 16 h 0.4 mg/l (Pseudomonas putida) ,BIT
Bacteria toxicity	EC 50 102.5 mg/l, EN ISO 9509, Nitrification

Remark: Depending on concentration, toxic effects on activated sludge organisms are possible.

Additional ecological information

AOX-indication: The product does not contain substances, which can influence the AOX of waste water. According to the formulation contains the following heavy metals and compounds from the EU guideline NO. 2006/11 EC: None

General notes: The product contains materials that are harmful to the environment.
Avoid transfer into the environment.

13. DISPOSAL CONSIDERATIONS

Methods of disposal: Biocide or Pesticide wastes are acutely hazardous. Improper disposal or excess product or rinsate is a violation of Federal law. If these wastes cannot be disposed of by use according to label instructions, contact your State Biocide/Pesticide or Environmental Control Agency, or the Hazardous Waste representative at your nearest EPA Regulation Office for guidance.

Contaminated packaging: In accordance with label and federal and local regulations. This product, when being disposed of in its unused and uncontaminated state should be treated as a hazardous waste according to EC Directive 91/689/EEC. Any disposal practices must be in compliance with all national and provincial
Laws and any municipal or local by-laws governing hazardous

waste. For used, contaminated and residual materials additional evaluations may be required. Do not dump into any sewers, on the ground, or into any body of water.

14. TRANSPORT INFORMATION

DOT

Proper shipping name	Corrosive, liquid, toxic, n.o.s. (2-Methyl-4-isothiazolin-3-one)
UN-Number	UN 2922
Class	8/6.1
Packing group	II

IMO/IMDG

Proper shipping name	Corrosive, liquid, toxic, n.o.s. (2-Methyl-4-isothiazolin-3-one)
UN-Number	UN 2922
Class	8/6.1
Packing group	II

IATA-DGR

Proper shipping name	Corrosive, liquid, toxic, n.o.s. (2-Methyl-4-isothiazolin-3-one)
UN-Number	UN 2922
Class	8/6.1
Packing group	II

Warranty of Test： "Recommendations on the Transport of Dangerous Goods book" ((Revision 18, UN)
"International Maritime Dangerous Goods Code" (2014, IMO)
"List of Hazardous Chemicals" (2015, China)

Transportation classifications may vary by container volume and may be influenced by regional or country variations in regulations.

15. REGULATORY INFORMATION

Classification of the substance or mixture

Classification and labelling according Regulation (EC) No 1272/2008 [CLP]

Hazard pictograms

Signal word	Danger
Hazard-determining components of labelling	1, 2-Benzisothiazolin-3-one /2-methyl-4-isothiazolin-3-one H317：May cause an allergic skin reaction.

Hazard statements

Precautionary statements P280：Wear protective gloves/protective clothing/ eye protection/face protection.
P303/P361/P353：If on skin (or hair): Remove/Take off immediately

all contaminated clothing. Rinse skin with water/shower.
P305/P351/P338：If in eyes: Rinse cautiously with water for several Continue rinsing.
P332/P313：If eye irritation persists: Get medical advice/attention.
P333/P313/P362：If skin irritation or rash occurs: Get medical advice/attention. Take off contaminated clothing and wash before reuse.

Supplemental Hazard Statements None

16. OTHER INFORMATION

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

Abbreviations and acronyms

CAS	Chemical Abstracts Service (Registry Number)
NIOSH	National Institute for Occupational Safety and Health
OSHA	Occupational Safety and Health Administration
IC50	50% concentration of inhibition
LC50	LC stands for lethal concentration. LC50 is the concentration of a material in air which causes the death of 50% (one half) of a group of test animals
LD50	LD stands for Lethal Dose. LD50 is the amount of a material, given all at once, which causes the death of 50% (one half) of a group of test animals

* Data compared to the previous version altered.