



SAFETY DATA SHEET

MK250602EN 1 /4

Issued Date : June 1, 2025

1. CHEMICAL PRODUCT & COMPANY IDENTIFICATION

Product name : Inorganic antimicrobial agent (MK-12)

Company identification

Company name : AMTEC Co., Ltd.

Address : 1-8-7, Hirano-cho, Chuo-ku, Osaka City, Osaka, 541-0046 Japan

Department : Management Group

Telephone : +81-6-6866-8508 Fax : +81-6-6864-1446

2. SUMMARY OF DANGEROUSNESS OR HARMFUL PROPERTY

GHS classification

Physical and Chemical Hazards

- Explosives : Not applicable
- Flammable gases : Not applicable
- Flammable aerosols : Not applicable
- Oxidizing gases : Not applicable
- Gases under pressure : Not applicable
- Flammable liquids : Not classified
- Flammable solids : Not applicable
- Self-reactive substances and mixtures : Not applicable
- Pyrophoric liquids : Not classified
- Pyrophoric solids : Not applicable
- Self-heating substances and mixtures : Not applicable
- Substances and mixture which, in contact with water, emit flammable gasses : Not classified
- Oxidizing liquids : Not classified
- Oxidizing solids : Not applicable
- Organic peroxides : Not applicable
- Corrosive to metals : Not classified

Health Hazards

- Acute toxicity (oral) : Not classified
- Acute toxicity (skin) : Not classified
- Acute toxicity (inhalation: gas) : Not applicable
- Acute toxicity (inhalation: vapour) : Not applicable
- Acute toxicity (inhalation: dust) : Category 5
- Acute toxicity (inhalation: mist) : Not applicable
- Skin corrosion / irritation : Not classified
- Respiratory sensitization : Not applicable
- Skin sensitization : Not classified
- Germ cell mutagenicity : Not applicable
- Carcinogenicity : Not classified
- Specific target organ toxicity : Category 1 (inhalation: whole body)
- Specific target organ toxicity : Category 1 (Inhalation: lung)
- Aspiration hazard : Not applicable

Environmental Hazards

- Aquatic toxicity(acute) : Category 1
- Aquatic toxicity(chronic) : Category 1

Label elements

Pictogram



Signal word : Danger



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Precautionary statements

[Prevention]

- Do not breathe dust and fume.
- Wash hands thoroughly after handling.
- Do not eat, drink or smoke when using this product.
- Avoid release to the environment.
- Use the personal protection tool if necessary.

[Response]

- Get medical advice/attention if exposed or concerned.
- Collect the spilled substance.

[Storage]

- Keep in the locked place.

[Disposal]

- Dispose of according to the local ordinance.

3. CONPOSITION AND INGREDIENT INFORMATION

Substance / Mixture : substance

Chemical name	Chemical formula	CAS No.	Concentration
Borosilicate glass	$\text{SiO}_2/\text{B}_2\text{O}_3/\text{Na}_2\text{O}$	65997-17-3	39.6%
Zinc Oxide	ZnO	1314-13-2	60%
Silver Oxide	Ag_2O	20667-12-3	0.4%

4. FIRST AID MEASURES

- Eye contact : Flush with plenty of water immediately. In case of continuous pain, tears in excess, or continuous congestion etc, consult physician for medical attention.
- Skin contact : Wash off in flowing water or soapsuds. In case of pain, or in inflammation etc, consult physician for medical attention.
- Inhalation : In case of coughing, losing breath, or feeling stimulation in the throat and the respiratory organ etc, move to the fresh air at once. If symptom doesn't settle, consult physician for medical attention.

5. FIRE FIGHTING MEASURES

Fire-extinguishing method

Extinguish fire by the method suitable for the surroundings. (This material itself is nonflammable.)

Unsuitable extinguishing agent : Water jet.

Protection for fire-extinguishing people: During a fire, wear self-contained breathing apparatus and other protective equipments.

6. MEASURES FOR SPILL

- Precautions for human body: Wearing a suitable protective equipment, do not contact eyes/skin and do not inhale the gas. Remove by vacuum cleaner etc, avoiding powder to be airborne.
- Environmental precautions : Do not let the substance enter the environment. Collect the dust after it is dampened by water if necessary.
- Enclosure and Depuration/Equipment : Stop leakage if it is not dangerous.
- Prevention of Secondary disaster: Avoid inflow to the drain, subway or the close place.



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7. PRECAUTIONS FOR HANDLING AND STORAGE

Handling

Technical measure : Take measures of as described in chapter "8. EXPOSURE CONTROLS/ PERSONAL PROTECTION" and wear an appropriate protective equipment.

Local-ventilation/ Whole-ventilation : Set local exhaust or general ventilation of as described in chapter "8. EXPOSURE CONTROLS/ PERSONAL PROTECTION".

Precautions for safety handling : •Do not eat, drink, or smoke when using this product.

•Use only outdoors or in well ventilated areas.

•Do not contact, inhale and ingest.

Contact evasion: Refer to 10. STABILITY AND REACTIVITY.

Storage

Technical measure : Technical measure is not specially needed.

Storage condition : Keep containers tightly closed and storage in well ventilated areas.
The storehouse should be locked.

Packing materials : There is no regulation for packaging or container. However, storage in the container which is tightly closed and cannot be damaged.

8. EXPOSURE PREVENTION AND PROTECTION MEASURES

Control concentration : Not specified.

Permissible concentration :

Japan Association of Industrial Health(2005)

Level 2 Respirable dust 1mg/m³

Total dust 4mg/ m³

ACGIH(2005) TLV-TWA 2mg/ m³

TLV-STEL 10mg/ m³ (dust)

Facility and equipment measures: Equip the partial exhauster in the work area where dust maygenerate.

Protective device : Wear dust mask, eye shield, protective gloves if necessary.

Hygiene measures : Do not eat, drink or smoke when using this product. Wash hands thoroughly after handling.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state, form, color : White powder

Odour : No odour

Melting point :600°C

Solubility : About 3% in water

10. STABILITY AND REACTIVITY

Stability : Stable for normal storage and handling.

Possibility of hazardous reactions : Reacts with aluminum, magnesium powder, and chlorinated rubber if heated.

Conditions to be avoided : Contacts incompatible materials.

11. HAZARDOUS PROPERTY INFORMATION

Acute toxicity(Oral) : Not classified due to "rat LD50>5000mg/kg(EU-PAR 43(2004))"

Acute toxicity(skin) : Not applicable due to "no data".

Acute toxicity(inhalation : dust): Category 5 due to "rat LC50>5.7mg/L(EU-PAR43(2004))".

Skin corrosion/ irritation : Not classified

Serious eye damage/ eye irritation : No classified

12. ENVIRONMENTAL INFLUENCE INFORMATION

Aquatic acute toxicity : Category 1

Aquatic chronic toxicity : Category 1



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13. PRECAUTIONS FOR DISPOSAL

Residual waste:

- Disposal should obey the relevant law and the official regulation.
- Consign to the waste treatment company having the official approval of regulation or to the local government, if they treat the waste.
- Notify the dangerous and hazardous information thoroughly to waste treatment company, when the processing of waste is consigned.

Pollution container and packing:

Used containers could be recycled by cleaning or should be disposed in accordance with the official treatment. In case of disposal, remove all contents.

14. PRECAUTIONS FOR TRANSPORTATION

U.N.classification :Class 9 (environmental hazards)

U.N.number :UN3077

Container class :III

Marine pollution substance :Applicable

Special cautions:

Confirm that there are no damage, no corrosion, or no leakage etc of the container before the transportation. Load without fall or damage, and deal with prevention of the cargo collapse.

15. APPLICABLE LAWS AND REGULATIONS

Industrial Safety and Health Act

Notifiable substances

(Article 57-2 of Act, appended table 9 of article 18-2 of Order)

(The 188th of government ordinance numbers)

(PRTR Law) : Not applicable

16. OTHER INFORMATION

Handling of written contents :

The contents of descriptions above are based on documents, information, and data currently available.

We, however, do not give any guarantee about physical-chemical property, hazard, and toxicity. Precautions are intended for normal handling.

Take necessary safety measures matched to purpose and usage in the case of special handling.