

MATERIAL SAFETY DATA SHEET

[1. Chemical Material and Company Information]

Name of chemical material:

Metal guard medical agent

Company: Yamato Protec Corporation

Address: Shirokanedai 5-17-2, Minato-ku, Tokyo, Japan

Phone number: 0570-080100 (Navi Dial)

Serial number: MSDS No.038, Rev.2 Date revised: July 9, 2013

[2. Composition, Information on Ingredients]

Single chemical material or mixture: Mixture

Chemical name or non-proprietary name	Concentration or its range (weight %)	Serial No. of notice through Official gazette	CAS No.	Chemical property (structural formula)
		Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc.		
Boron oxide	90% or more	1-71	1303-86-2	B ₂ O ₅
Boric acid	5%	1-63	10043-35-3	H ₃ BO ₃
Silica dioxide	Corporate secret	1-548	112945-52-5	SiO ₂

[3. Hazard Identification]

Critical hazardous properties and effects:

Hazardous property: Oral or skin infection has a low probability of acute intoxication. Inhalation of dust with a concentration of 10mg/m³ or more may cause slight inflammation on the nose or throat.

Environmental effect: No measurement data available

Physical & chemical risk: Low risk of fire in normal handling

Name of classification: Not applicable to classification standard

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[4. First Aid Measures]

- In case of inhalation: Immediately remove the patient to a fresh air atmosphere, and keep him/her quite in bed. Also obtain medical assistance, if necessary.
- In case of skin contact: Immediately shower the patient with a large amount of water. Also seek medical assistance, if he/she has pains.
- In case of eye contact: Immediately open the eye lids of the patient and flush eyes with clean running water for at least 15 minutes. Also seek medical assistance, if necessary.
- In case of ingestion: Rinse the mouth of the patient with water and give him/her a large quantity of water orally, and also obtain medical assistance. But if he/she is unconscious, do not give him/her anything orally.

[5. Fire Fighting Measures]

- Fire extinguishing agent: Not applicable as this material is non-inflammable (this product is a fire extinguishing agent)

[6. Measures in case of Leakage]

- Points to be noted for human body: Evacuate people who are under the wind. Before being involved in work, be sure to wear protective gears and do not work under the wind. Also ensure adequate ventilation when working indoor.
- Points to be noted for environment: Pay adequate attention so that the environment may not be adversely affected due to release of products leaked into rivers and the like. Also take care so that contaminated waste water will not be released into the environment without proper treatment.
- Removal method (collection & disposal): Collect as much as possible the product while minimizing the generation of powder dust and then dispose of it according to **[13. Points to be Noted in Disposal]**. Thereafter, wash away with a large amount of soda ash solution, followed by washing with a large quantity of water, while taking care not to discharge concentrated waste liquid into rivers and the like.

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[7. Points to be Noted in Handling and Storage]
Handling

Protection of handling personnel against exposure: Wear a dust-proof mask, protective glasses and gloves as appropriate.

Technical countermeasures: Nothing in particular.

Points to be noted: Nothing in particular.

Points to be noted in safe handling: It is recommended to install local ventilation equipment or suitable overall ventilation equipment.

Storage

Technical countermeasures: Nothing in particular.

Contact-inhibited material: Not applicable.

Storage condition: Location with high temperature & humidity shall be avoided.

Safe container packaging material:

Recommended: Sealed container, fire fighting equipment

Inappropriate: Unsealed container

[8. Exposure Prevention Measures]

Respiratory organ protective gear: Wear a dust-proof mask as appropriate.

Hand protective gear: Wear protective gloves as appropriate.

Eye protective gear: Wear protective glasses as appropriate.

[9. Physical/Chemical Properties]

Physical status: Solid (fine particles) Color: White

Smell: None Solubility: Water soluble

[10. Stability and Reactivity]

Stability: Stable. Gradually reacts with water to generate boric acid.

Dangerous reaction: Nothing in particular.

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[11. Hazard Information]

Acute toxicity: in the rat (oral) LD 50: 3,163mg/kg, in the rat (intraperitoneal) LD 50:
1,868mg/kg (boron oxide)

Local effect: Skin irritation - in the rabbit 1g, eye irritation - in the rabbit 50mg (boron oxide)

[12. Information on Environmental Effect]

Toxicity to fish: no measurement data available

[13. Points to be Noted in Disposal]

Remaining waste shall be treated using appropriate protective gears and according to the relative ordinances including local regulations such as the "Wastes Disposal and Public Cleansing Act," or shall be disposed of by an authorized waste disposal firm on consignment. Disposal of contaminated containers and packages shall be done after completely removing the contents.

[14. Points to be Noted in Transportation]

Not applicable to hazardous materials specified in the "Fire Service Act" or poisonous substances defined by the "Poisonous and Deleterious Substances Control Act."

[15. Applicable Ordinances]

Fire Service Act:

Not applicable.

Industrial Safety and Health Act:

Hazardous material No.196 (boron oxide) to be notified as per Article 57-2 of the Act (2 of Article 18 of Order)

Poisonous and Deleterious Substances Control Act:

Not applicable.

PRTR Law:

No.1-405 of Class 1 Designated Chemical Substances: (boron oxide, boric acid)

Others:

- Article 2 (hazardous material) of Water Quality Pollution Control Act: (boron oxide, boric acid)
- Article 2(specified hazardous material) of Soil Contamination Countermeasures Act: (boron oxide, boric acid)

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[16. Other Information]

This MSDS is prepared on the basis of the latest information so far available to us as of the date hereof. However, Yamato Protec Corporation makes no warranty of any kind with respect to the information and data contained herein concerning the risk or hazardous nature. Thus, prior to the use of this product, you are requested to investigate the latest rules, ordinances and regulations of the country, region and related authorities, with the top priority given on them.

You should become aware that all chemical substances may have potential unknown risk or hazardous property, which differs depending on the service environment as well as the condition and period of storage. It is thus recommended to handle the product under the supervision of a person having expertise or experience, at any time of usage as well as during storage and disposal.

Since the information on the points to be noted provided herein relates only to normal use, in case of handling it under any special condition, you are requested to use it on your own responsibility after taking appropriate measures suitable to your service condition.