Safety Data Sheet

1. IDENTIFICATION

Product Name: BI-METAL BAND SAW BLADE
Serial No: SDS BL001
Corporate Name: AMADA CO., LTD.
Address: 56 Hata-machi, Ono-shi, Hyogo, Japan
Department: Technical Administration DEPT. Quality Control Gr.
Person in charge: Katsumasa Yoshida
Phone No.: +81 794—62—5931
FAX No.: +81 794—62—4351

2. HAZARDOUS INGREDIENTS

Bi-metal band saw blade is physically and chemically steady in the solid condition. Bi-metal band saw blade has neither physical and chemical hazards nor environmental hazards.
Each alloy elements are related to hazardous to human health and hazardous to the aquatic environmental.
If dust stored in a dry condition or stored with oil, those would be ignitable.
However, subsequent operations such as grinding, welding and melting, cause a release of dust or fumes which may cause some of the ingredients it change to a form which could affect workers.

**[GHS CLASSIFICATION]**

**PHYSICAL**

Explosives: Not applicable

**HAZARDS**

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

**HEALTH**

Acute toxicity (oral): Not classified
Acute toxicity (skin): Not classified
Acute toxicity (inhalation): Not classified
Skin corrosion/irritation: Category 3

Serious eye damages/eye irritation: Category 2B
Respiratory sensitization: Category 1
Skin sensitization: Category 1
Germ cell mutagenicity: Category 2
Carcinogenicity: Category 2
Reproductive toxicity: Category 1B
Specific target organ toxicity (single exposure): Category 1 [respiratory organs · kidney]
Specific target organ toxicity (repeated exposure): Category 1 [respiratory organs · nervous system]
Aspiration hazard: Not classified
Bi-metal band saw blade

**ENVIRONMENTAL**
Aquatic toxicity (acute) : Not classified

**HAZARDS**
Aquatic toxicity (chronic) : Category 4
(Symbol: none, Signal word: none)

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**GHS LABEL ELEMENTS, INCLUDING PRECAUTIONARY STATEMENTS**

**SYMBOL**

<table>
<thead>
<tr>
<th>SIGNAL WORD</th>
<th>Danger</th>
</tr>
</thead>
</table>

**HAZARD STATEMENT**

- Causes skin irritation
- Causes serious eye irritation
- May cause allergy or asthma symptoms or breathing difficulties if inhaled
- May cause allergy skin reaction
- May cause a hereditary disease
- May cause cancer
- May have harmful effects on reproductive competence and fetus
- Disorder of the respiratory system and damage to the kidney
- May be associated systemic toxicity
- Fear of stimulation to airway
- Disorder of the respiratory system and nerve damage
- Fear of harmful for aquatic organism by long term effect

**PRECAUTIONARY STATEMENT:**

**[SAFETY MEASURE]**

**Protector**

Employees should wear the mask approved respiration and full protective clothing for protection against heavy concentration of dust or fumes.

And also employees should wear gloves, hard hat, protective shoes and leg protector.

Approved safety glasses with side shields, or goggles, should be worn.

Approved protective filters for the mask.

Employees do not eat and drink while operating.

Remove extraneous matter from working clothes and wash hands after operation.

**[EMERGENCY FIRST AID]**

- **Inhalation**: Remove to fresh air, if condition continues consult
- **Eye Contact**: Flush well with running water, get medical attention.
- **Ingestion**: Seek medical help

**[STORAGE]**

Keep it indoor. If you keep it outdoor, avoid a thing and a dewfall wet by rain, the snow, and the fog.

Keep it in the place where child’s hand doesn’t reach.

**[DISPOSAL]**

Follow federal, state and local regulations regarding disposal.

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**3. ALLOYING ELEMENTS, BASE METAL ALLOYING ELEMENTS**

<table>
<thead>
<tr>
<th>Coated substance</th>
<th>TiN</th>
<th>TiAlN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Classification of Substance and Mixture</td>
<td>Mixture</td>
<td></td>
</tr>
<tr>
<td>Chemical or generic name</td>
<td>Alloy</td>
<td></td>
</tr>
<tr>
<td>Element and content</td>
<td>Table-1・2</td>
<td>Table-1・2</td>
</tr>
<tr>
<td>CAS No.</td>
<td>Table-1・2</td>
<td>Table-1・2</td>
</tr>
<tr>
<td>PRTR No.</td>
<td>Table-1・2</td>
<td>Table-1・2</td>
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<tr>
<td>Industrial Safety and Health Act No.</td>
<td>Table-1・2</td>
<td>Table-1・2</td>
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Table - 1

<table>
<thead>
<tr>
<th>Elements</th>
<th>Symbol</th>
<th>CAS No.</th>
<th>Cabinet order No</th>
<th>Content (mass%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silicon</td>
<td>Si</td>
<td>7740-21-3</td>
<td>-</td>
<td>0.1~0.5</td>
</tr>
<tr>
<td>Manganese</td>
<td>Mn</td>
<td>7439-96-5</td>
<td>1-412</td>
<td>0.1~0.5</td>
</tr>
<tr>
<td>Chromium</td>
<td>Cr</td>
<td>7440-47-3</td>
<td>1-87</td>
<td>3~5</td>
</tr>
<tr>
<td>Tungsten</td>
<td>W</td>
<td>7440-33-7</td>
<td>-</td>
<td>1~8</td>
</tr>
<tr>
<td>Molybdenum</td>
<td>Mo</td>
<td>7439-98-7</td>
<td>1-453</td>
<td>4~10</td>
</tr>
<tr>
<td>Vanadium</td>
<td>V</td>
<td>7440-62-2</td>
<td>-</td>
<td>0.5~2.0</td>
</tr>
<tr>
<td>Cobalt</td>
<td>Co</td>
<td>7440-48-4</td>
<td>1-132</td>
<td>7~9</td>
</tr>
<tr>
<td>Iron</td>
<td>Fe</td>
<td>7439-89-6</td>
<td>-</td>
<td>residual quantity</td>
</tr>
</tbody>
</table>

※The above-mentioned material doesn’t correspond to a poison, a deleterious substance, and a specific deleterious substance in Deleterious Substance Control Law.

Table - 2

<table>
<thead>
<tr>
<th>Elements</th>
<th>Symbol</th>
<th>CAS No.</th>
<th>Cabinet order No</th>
<th>Content (mass%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silicon</td>
<td>Si</td>
<td>7740-21-3</td>
<td>-</td>
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</tr>
<tr>
<td>Manganese</td>
<td>Mn</td>
<td>7439-96-5</td>
<td>1-412</td>
<td>0.1~0.7</td>
</tr>
<tr>
<td>Nickel</td>
<td>Ni</td>
<td>7440-02-0</td>
<td>1-308</td>
<td>0.1~0.8</td>
</tr>
<tr>
<td>Chromium</td>
<td>Cr</td>
<td>7440-47-3</td>
<td>1-87</td>
<td>1~5</td>
</tr>
<tr>
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<td>Mo</td>
<td>7439-98-7</td>
<td>1-453</td>
<td>1~3</td>
</tr>
<tr>
<td>Vanadium</td>
<td>V</td>
<td>7440-62-2</td>
<td>-</td>
<td>0.1~0.4</td>
</tr>
<tr>
<td>Cobalt</td>
<td>Co</td>
<td>7440-48-4</td>
<td>1-132</td>
<td>none</td>
</tr>
<tr>
<td>Iron</td>
<td>Fe</td>
<td>7439-89-6</td>
<td>-</td>
<td>residual quantity</td>
</tr>
</tbody>
</table>

※The above-mentioned material doesn’t correspond to a poison, a deleterious substance, and a specific deleterious substance in Deleterious Substance Control Law.

4. EMERGENCY FIRST AID

Subsequent operations such as grinding and welding cause a release of dust or fumes which may cause some of the ingredients it change to a form which could affect workers.

- **Inhalation**: Remove to fresh air, if condition continues consult
- **Eye Contact**: Flush well with running water more than 15 minutes, get medical attention.
- **Ingestion**: Seek medical help

- **Acute symptom**: There is a possibility of angry when catching one’s eye.
- **Symptom**: There is a possibility of becoming unpleasant when sucking.
- **Symptom**: There is a possibility of vomiting when swallowing.

5. FIRE FIGHTING MEASURES

- **Extinguishing media**: Unrestricted
- **Fire**:
  - If dust stored in a dry condition or stored with oil, those would be ignitable.
  - Wear full body protective clothing with breathing apparatus and safety shoes.
- **Extinguishing media**: Powder for metal or dry sand.
  - Do not pour water, heating may cause hydrovolcanic explosion.
  - It is acceptable to pour water to be lower temperature in unburned area.

6. SPILLS AND LEAKS

- **Stems to take in case of release or spill**: none
- **Notes of human body**: Employees should wear approved protector for preventing of inhalation and entering the eyes of dust.
- **Notes of environment**: Collect dust as much as possible.
Disposal method: It is the most preferable to clean up the dust by cleaner. Dust is wiped off with the wet mop.

7. CAUTION FOR STORAGE AND HANDLING

Handling: Employees should wear approved respirators and full protective clothing and mask for protection against heavy concentration of dust and fumes. Employees should wear protective glasses. Employees should wear gloves when handling.

Operating suggestions: Do not throw a product. Do not handling it leads to electric shock.

Storage

Technological countermeasure: Keep it in case until just before operation for prevention rust of product. Do not put product on wet floor while in use.

Storage condition:
- The transformation of the product is avoided.
- The tier of the product is avoided.
- The place of the high temperature and humidity is avoided.

8. SPECIAL PROTECTION INFORMATION

Facilities: Set up the local exhaust ventilation. The dust mask is worn if necessary when there is a possibility to exceed the density of the allowance. Washing place for eyes is set up near handling place.

Working environment permissible exposure limit

<table>
<thead>
<tr>
<th>Alloying Elements</th>
<th>Symbol</th>
<th>*OSHA PEL mg/m³</th>
<th>**ACGIH TLV mg/m³</th>
<th>Japan Association of Industrial Health permissible concentration mg/m³</th>
</tr>
</thead>
<tbody>
<tr>
<td>Iron</td>
<td>Fe</td>
<td>* * N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Silicon</td>
<td>Si</td>
<td>15</td>
<td>10</td>
<td>N/A</td>
</tr>
<tr>
<td>Manganese</td>
<td>Mn</td>
<td>5</td>
<td>0.2</td>
<td>0.3</td>
</tr>
<tr>
<td>Nickel</td>
<td>Ni</td>
<td>1</td>
<td>1.5</td>
<td>1</td>
</tr>
<tr>
<td>Chromium</td>
<td>Cr</td>
<td>0.5</td>
<td>0.5</td>
<td>0.5</td>
</tr>
<tr>
<td>Molybdenum</td>
<td>Mo</td>
<td>15</td>
<td>10</td>
<td>N/A</td>
</tr>
<tr>
<td>Tungsten</td>
<td>W</td>
<td>N/A</td>
<td>5</td>
<td>N/A</td>
</tr>
<tr>
<td>Vanadium</td>
<td>V</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Cobalt</td>
<td>Co</td>
<td>0.1</td>
<td>0.02</td>
<td>0.02</td>
</tr>
</tbody>
</table>

*OSHA: Occupational Safety and Health Administration
PEL: Permissible exposure limit
**ACGIH: American Conference of Governmental Industrial Hygienists
TLV: Allowable limit
***N/A: Not Applicable

Protection

Respiratory protection: Wear applicable dust mask or protector of respiration.

Hands protection: Suitability and durability of glove type is dependent on usage.

Eyes protection: Safety glasses

Sanitary requirement: Recommend the local exhaust ventilation. Wash hands before smoking and after operation.

9. PHYSICAL DATA

<table>
<thead>
<tr>
<th>Physical condition</th>
<th>Table—3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Color</td>
<td>Metallic color</td>
</tr>
<tr>
<td>Odor</td>
<td>Table—3</td>
</tr>
<tr>
<td>PH</td>
<td></td>
</tr>
</tbody>
</table>

4/6
10. REACTIVITY DATA

Stability: Chemically stable.
Incompatibility: Reacts with strong acid to generate hydrogen gas.

11. HEALTH HAZARD STATEMENT

Steel products in the from shipped do not present a health hazard. However, subsequent operations such as grinding, welding and melting, cause a release of dust or fumes which may cause some of the ingredients it change to a form which could affect workers.

No evaluation data and hazardous information for skin corrosion, irritating nature, skin sensitizer, eye irritancy, germ cell mutagenicity, reproductive toxicity, carcinogenicity.

No hazardous information for specific target organ toxicity.

No information for special target organ toxicity, aspiration hazard and harmful effect.

12. ENVIRONMENTAL IMPACT

No information for environmental effect.

13. DISPOSAL METHOD

Follow federal, state and local regulations regarding disposal. Use as recycled material as possible.

14. TRANSPORTATION

International regulation
- Sea restriction: Nonhazardous material (except Metallic powder)
- Marine Pollutant: Not applicable
- Airlines restriction: Nonhazardous material (except Metallic powder)

Domestic regulation
- Land restriction: Not applicable (except Metallic powder)
- Sea restriction: Nonhazardous material (except Metallic powder)
- Marine Pollutant: Not applicable
- Airlines restriction: Nonhazardous material (except Metallic powder)

Security precaution
- It is necessary to note it for handling because the tip of the blade and the getting injury are received.
- Prevent collapse of cargo at the time of transportation.

15. REGULATORY INFORMATION

- Pollutant Release and Transfer Register (PRTR)
- Industrial Safety and Health Act
16. SPECIAL PRECAUTION

All information, recommendations and suggestions contained herein are based upon data believed to be correct. However, no guarantee or warranty of any kind, expressed or implied, is made by AMADA CO., Ltd. with respect to the information provided. Employers should use this information only as a supplement to other available data.

<reference>
- METI web site: http://www.meti.go.jp/
- MOE web site: http://www.env.go.jp/
- MHLW web site: http://www.mhlw.go.jp/
- ICSC card: http://www.nihs.go.jp/ICSC/
- NITE web site: http://www.nite.go.jp/
- JISHA web site: http://www.jaish.gr.jp/

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