## Section 1. Identification

<table>
<thead>
<tr>
<th>Product name</th>
<th>ALUMINUM WROUGHT METAL, 2XXX SERIES ALLOYS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product code</td>
<td>285</td>
</tr>
<tr>
<td>identification</td>
<td>Massive metal.</td>
</tr>
<tr>
<td>Product type</td>
<td></td>
</tr>
</tbody>
</table>

### Relevant identified uses of the substance or mixture and uses advised against

- **Material uses**: Industrial applications: Primary metal; casting/molten and alloying; processing and manufacturing into articles and semi-fabricated articles, building and construction products, packaging products.

### Supplier's details

- **Rio Tinto Aluminium**
  400-1190 Avenue des Canadiens-de-Montréal
  Montreal, Quebec H3B 0E3
  Canada
  Telephone: +1 514 848 8000

### e-mail address of person responsible for this SDS

- rta.msds@riotinto.com

### Emergency telephone number

- +1 215 207 0061 (Rio Tinto Aluminium)
  For advice on chemical emergencies, spillages, fires or first aid.

## Section 2. Hazards identification

### OSHA/HCS status

- While this material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200), this SDS contains valuable information critical to the safe handling and proper use of the product. This SDS should be retained and available for employees and other users of this product.

### Classification of the substance or mixture

- Not classified.

### GHS label elements

- **Percentage of the mixture consisting of ingredient(s) of unknown toxicity**: 1.6%

### Hazard statements

- **No known significant effects or critical hazards.**

### Precautionary statements

- **Prevention**: Not applicable.
- **Response**: Not applicable.
- **Storage**: Not applicable.
- **Disposal**: Not applicable.
- **Hazards not otherwise classified**: None known.
Section 3. Composition/information on ingredients

<table>
<thead>
<tr>
<th>Ingredient name</th>
<th>%</th>
<th>CAS number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminum</td>
<td>&gt;90</td>
<td>7429-90-5</td>
</tr>
<tr>
<td>Iron</td>
<td>0.1 - 1.1</td>
<td>7439-89-6</td>
</tr>
<tr>
<td>Copper</td>
<td>0 - 3.3</td>
<td>7440-50-8</td>
</tr>
<tr>
<td>Magnesium</td>
<td>0 - 1.5</td>
<td>7439-95-4</td>
</tr>
<tr>
<td>Manganese</td>
<td>0 - 0.9</td>
<td>7439-96-5</td>
</tr>
<tr>
<td>Silicon</td>
<td>0 - 0.8</td>
<td>7440-21-3</td>
</tr>
<tr>
<td>Zinc</td>
<td>0 - 0.25</td>
<td>7440-66-6</td>
</tr>
<tr>
<td>Titanium</td>
<td>0 - 0.2</td>
<td>7440-32-6</td>
</tr>
</tbody>
</table>

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

**Description of necessary first aid measures**

- **Eye contact**: Get medical attention if any damage to the eye is caused by the metal.
- **Inhalation**: Not applicable.
- **Skin contact**: Get medical attention if symptoms occur. Cuts should be treated promptly and covered. Heated material can cause thermal burns. In case of burns, immediately cool affected skin with cold water and continue for as long as possible or apply wet cloths to the area until medical attention can be obtained.
- **Ingestion**: Not applicable.

**Most important symptoms/effects, acute and delayed**

- **Potential acute health effects**
  - **Eye contact**: Not applicable.
  - **Inhalation**: Not applicable.
  - **Skin contact**: No known significant effects or critical hazards.
  - **Ingestion**: Not applicable.

- **Over-exposure signs/symptoms**
  - **Eye contact**: No specific data.
  - **Inhalation**: No specific data.
  - **Skin contact**: No specific data.
  - **Ingestion**: No specific data.

**Indication of immediate medical attention and special treatment needed, if necessary**

- **Notes to physician**: No specific treatment. Treat symptomatically.
- **Specific treatments**: No specific treatment.
- **Protection of first-aiders**: No special protection is required. See Section 8 for information on appropriate personal protective equipment.

See toxicological information (Section 11)
Section 5. Fire-fighting measures

**Extinguishing media**

**Suitable extinguishing media**: Use an extinguishing agent suitable for the surrounding fire. Not a fire hazard unless in a particle form (small chips, fine turnings, dust). Suspensions of aluminum dust in air may pose a severe explosion hazard, especially in a confined atmosphere. Avoid sparks and prevent electrostatic discharges from accumulating. A potential for explosion exists for a mixture of fine coarse particles if at least 15% to 20% of the material is finer than 44 microns (325 mesh). Buffing and polishing generate finer material than grinding, sawing and cutting. In case of aluminum fires, use a class D dry powder extinguisher.

**Unsuitable extinguishing media**: Water, foam, halogenated extinguishing agents.

**Specific hazards arising from the chemical**

No specific fire or explosion hazard.

**Hazardous thermal decomposition products**: None.

**Special protective actions for fire-fighters**: Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Aluminium may lose structural strength when subject to fire and will melt to a hazardous liquid at temperatures in the range of 480 – 660 degrees celsius (dependent on the alloy composition).

**Remark**: Molten aluminium may explode on contact with water or moisture, and may react violently with rust, certain metal oxides and nitrates.

Section 6. Accidental release measures

**Personal precautions, protective equipment and emergency procedures**

**For non-emergency personnel**: No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Put on appropriate personal protective equipment.

**For emergency responders**: If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

**Environmental precautions**: No specific hazard.

**Methods and materials for containment and cleaning up**

**Small spill**: Take care with items that are sharp or heavy. Recycle, if possible.

**Large spill**: Take care with items that are sharp or heavy. Note: see Section 1 for emergency contact information and Section 13 for waste disposal. Recycle, if possible. Do not attempt to arrest the flow of molten aluminium with shovels, hand tools or footwear. Contain spill with dry sand. Let solidify and cool down to ambient air temperature.

Section 7. Handling and storage

**Precautions for safe handling**

**Protective measures**: Put on appropriate personal protective equipment (see Section 8). Take care with items that are sharp or heavy. Because of the risk of explosion, aluminum ingots and metal scrap should be thoroughly dried before remelting. Use standard techniques to check metal temperature before handling. Hot aluminum does not present any warning color change. Exercise great caution, since the metal may be hot. For more information on the handling and storing of aluminum, consult the following documents published by the Aluminum Association, 1525 Wilson Blvd, Suite 600, Arlington, VA 22209 (www.aluminium.org):

- Guidelines for handling molten aluminum.
Section 7. Handling and storage

Advice on general occupational hygiene

Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Conditions for safe storage, including any incompatibilities

Store in accordance with local regulations. Do not cut, transport or even approach any coil giving off a crackling sound or emitting steam vapour. Once a coil of foil has been partially or completely wetted: KEEP THE COIL COOL UNTIL THE INTERIOR IS COMPLETELY DRY. If such cooling is impractical, leave the coil in place and keep people at least 30 meters away from it for at least 72 hours. (See Rio Tinto Alcan publication entitled “Potential Safety Hazards of immersing a coil of Aluminum Foil in water”).

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

<table>
<thead>
<tr>
<th>Ingredient name</th>
<th>Exposure limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminum</td>
<td>OSHA PEL (United States, 11/2006). TWA: 5 mg/m³, (as Al) 8 hours. Form: Respirable fraction ACGIH TLV (United States, 3/2015). TWA: 1 mg/m³ 8 hours. Form: Respirable fraction NIOSH REL (United States, 10/2013). TWA: 5 mg/m³ 10 hours. Form: Respirable fraction TWA: 10 mg/m³ 10 hours. Form: Total</td>
</tr>
<tr>
<td>Zinc</td>
<td>None.</td>
</tr>
<tr>
<td>Silicon</td>
<td>OSHA PEL (United States, 2/2013). TWA: 5 mg/m³ 8 hours. Form: Respirable fraction TWA: 15 mg/m³ 8 hours. Form: Total dust</td>
</tr>
<tr>
<td>Magnesium</td>
<td>None.</td>
</tr>
<tr>
<td>Manganese</td>
<td>OSHA PEL (United States, 2/2013). TWA: 5 mg/m³ 8 hours. Form: Respirable fraction TWA: 15 mg/m³ 8 hours. Form: Total dust</td>
</tr>
<tr>
<td></td>
<td>NIOSH REL (United States, 10/2013). TWA: 5 mg/m³ 10 hours. Form: Respirable fraction TWA: 10 mg/m³ 10 hours. Form: Total</td>
</tr>
<tr>
<td></td>
<td>STEL: 3 mg/m³, (as Mn) 15 minutes. Form: Fume</td>
</tr>
<tr>
<td></td>
<td>ACGIH TLV (United States, 3/2015). TWA: 0.1 mg/m³, (as Mn) 8 hours. Form: Inhalable fraction TWA: 0.02 mg/m³, (as Mn) 8 hours. Form: Respirable fraction</td>
</tr>
</tbody>
</table>
### Section 8. Exposure controls/personal protection

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Copper</td>
<td>TWA: 1 mg/m³, (as Cu) 8 hours. Form: Dust and mist</td>
<td>TWA: 1 mg/m³, (as Cu) 10 hours. Form: Dusts and Mists</td>
<td>TWA: 1 mg/m³ 8 hours. Form: Dusts and Mists</td>
</tr>
<tr>
<td></td>
<td>TWA: 0.2 mg/m³ 8 hours. Form: Fume</td>
<td>TWA: 0.1 mg/m³ 8 hours. Form: Fume</td>
<td></td>
</tr>
<tr>
<td>Iron</td>
<td>ACGIH TLV (United States).</td>
<td>NIOSH REL (United States).</td>
<td>OSHA PEL (United States).</td>
</tr>
<tr>
<td></td>
<td>TWA: 5 mg/m³, (as iron oxide) 8 hours. Form: Dust and fumes</td>
<td>TWA: 5 mg/m³, (as iron oxide) 10 hours. Form: Dust and fumes</td>
<td>TWA: 10 mg/m³, (as iron oxide) 8 hours. Form: Fume</td>
</tr>
<tr>
<td>Titanium</td>
<td>None.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Appropriate engineering controls

- If the product is in its solid form: No special ventilation requirements. Special ventilation should be used to convey finely divided metallic dust generated by grinding, sawing or polishing operations, in order to eliminate explosion hazards. Maintain dust concentration in ventilation ducts below the lower explosive limit of 40 g/m³ (0.04 oz/ft³).

#### Environmental exposure controls

- Not applicable.

#### Individual protection measures

**Hygiene measures**
- Wash thoroughly after handling.

**Eye/face protection**
- Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields. Recommended: face shield

**Skin protection**

**Hand protection**
- Use strong, cut-resistant gloves suitable for handling metals.

**Body protection**
- Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. Recommended: For handling molten metal: Clothing must be resistant to drops of molten metal and radiant heat.

**Other skin protection**
- Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. Recommended: For handling molten metal: Safety boots or shoes with spats.

**Respiratory protection**
- Not applicable. Recommended: If workers are exposed to concentrations above the exposure limit, they must use appropriate, certified respirators.

**Personal protective equipment (Pictograms)**

![Pictograms]

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**Version**: 1
Section 9. Physical and chemical properties

**Appearance**
- **Physical state**: Solid. [Metal.]
- **Color**: Silvery grey
- **Odor**: Odorless.
- **Odor threshold**: Not applicable.
- **pH**: Not applicable.
- **Melting point**: 482 to 660°C (899.6 to 1220°F)
- **Boiling point**: Not applicable.
- **Flash point**: Not applicable.
- **Evaporation rate**: Not applicable.
- **Flammability (solid, gas)**: Not applicable.
- **Lower and upper explosive (flammable) limits**: Not applicable.
- **Vapor pressure**: Not applicable.
- **Vapor density**: Not applicable.
- **Bulk density**: Not applicable.
- **Granulometry**: Not applicable.
- **Relative density**: 2.5 to 2.9
- **Solubility**: Insoluble in the following materials: cold water, hot water, methanol, diethyl ether, n-octanol and acetone.
- **Partition coefficient: n-octanol/water**: Not applicable.
- **Auto-ignition temperature**: Not applicable.
- **Decomposition temperature**: Not applicable.
- **Viscosity**: Not applicable.

**Section 10. Stability and reactivity**

**Reactivity**: No specific test data related to reactivity available for this product or its ingredients.

**Chemical stability**: The product is stable.

**Possibility of hazardous reactions**: Under normal conditions of storage and use, hazardous reactions will not occur. Fine dust presents an explosion hazard if dispersed in air at high concentrations.

**Conditions to avoid**: In the form of particles, may explode when mixed with halogenated acids, halogenated solvents, bromates, iodates or ammonium nitrate. Aluminum particles on contact with copper, lead, or iron oxides can react vigorously with release of heat if there is a source of ignition or intense heat. Molten aluminium may react violently if it comes into contact with water.

**Incompatible materials**: In the form of particles, may explode when mixed with halogenated acids, halogenated solvents, bromates, iodates or ammonium nitrate. Aluminum particles on contact with copper, lead, or iron oxides can react vigorously with release of heat if there is a source of ignition or intense heat. Molten aluminium may react violently if it comes into contact with water.

**Hazardous decomposition products**: Under normal conditions of storage and use, hazardous decomposition products should not be produced.
Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Result</th>
<th>Species</th>
<th>Dose</th>
<th>Exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminum.</td>
<td>LC50 Inhalation Dusts and mists</td>
<td>Rat</td>
<td>&gt;2350 mg/l</td>
<td>4 hours</td>
</tr>
<tr>
<td></td>
<td>LD50 Oral</td>
<td>Rat</td>
<td>&gt;5000 mg/kg</td>
<td>-</td>
</tr>
<tr>
<td>Silicon</td>
<td>LD50 Oral</td>
<td>Rat</td>
<td>3160 mg/kg</td>
<td>-</td>
</tr>
<tr>
<td>Manganese</td>
<td>LD50 Oral</td>
<td>Rat</td>
<td>9 g/kg</td>
<td>-</td>
</tr>
<tr>
<td>Iron</td>
<td>LCLo Inhalation Dusts and mists</td>
<td>Rat</td>
<td>250 mg/m³</td>
<td>6 hours</td>
</tr>
<tr>
<td></td>
<td>LD50 Oral</td>
<td>Rat</td>
<td>7500 mg/kg</td>
<td>-</td>
</tr>
</tbody>
</table>

Conclusion/Summary: No known significant effects or critical hazards.

Irritation/Corrosion

Conclusion/Summary

Eyes: Not applicable for solid metal form. Aluminum dust may cause eye discomfort and irritation.

Sensitization

Conclusion/Summary

Skin: Non-sensitizer.
Respiratory: Non-sensitizer.

Mutagenicity

Conclusion/Summary: No mutagenic effect.

Carcinogenicity

Conclusion/Summary: No carcinogenic effect.

Reproductive toxicity

Conclusion/Summary: Not considered to be toxic to the reproductive system.

Teratogenicity

Conclusion/Summary: No teratogenic effect.

Specific target organ toxicity (single exposure)

Not available.

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Information on the likely routes of exposure

Routes of entry anticipated: Inhalation.

Potential acute health effects

Eye contact: Not applicable.
Inhalation: Not applicable.
Skin contact: No known significant effects or critical hazards.
Ingestion: Not applicable.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact: No specific data.
Inhalation: No specific data.
Skin contact: No specific data.
Ingestion: No specific data.

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

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Section 11. Toxicological information

Potential immediate effects: No specific data.
Potential delayed effects: No specific data.

Long term exposure

Potential immediate effects: No specific data.
Potential delayed effects: No specific data.

Potential chronic health effects

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Result</th>
<th>Species</th>
<th>Dose</th>
<th>Exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Iron</td>
<td>Sub-chronic LOAEL Oral</td>
<td>Rat</td>
<td>26 mg/kg</td>
<td>12 weeks</td>
</tr>
<tr>
<td></td>
<td>Sub-chronic NOAEL Inhalation Dusts and mists</td>
<td>Rat</td>
<td>5 mg/m³</td>
<td>4 weeks</td>
</tr>
</tbody>
</table>

Conclusion/Summary: No known significant effects or critical hazards.

General: No known significant effects or critical hazards.
Carcinogenicity: No known significant effects or critical hazards.
Mutagenicity: No known significant effects or critical hazards.
Teratogenicity: No known significant effects or critical hazards.
Developmental effects: No known significant effects or critical hazards.
Fertility effects: No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates
Not available.

Section 12. Ecological information

Toxicity

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Result</th>
<th>Species</th>
<th>Exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminum.</td>
<td>EC50 &gt;100 mg/l</td>
<td>Algae - Selenastrum capricomutum</td>
<td>72 hours</td>
</tr>
<tr>
<td></td>
<td>EC50 &gt;100 mg/l</td>
<td>Daphnia - Daphnia magna</td>
<td>48 hours</td>
</tr>
<tr>
<td></td>
<td>EC50 &gt;100 mg/l</td>
<td>Fish - Salmo trutta</td>
<td>96 hours</td>
</tr>
</tbody>
</table>

Conclusion/Summary: No acute or chronic classification is appropriate for Al metal massive based on non toxic results below the Ecotoxicity Reference Value (ERV) of tests with aluminium metal, oxide and hydroxide at loadings of 100 mg/L at pH 8-8.5 (maximum solubility of Al expected).
All aluminium in soil or the aquatic environment comes from natural sources. Local sources has an insignificant contribution and impact on environment.

Persistence and degradability

Conclusion/Summary: Not applicable

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Aquatic half-life</th>
<th>Photolysis</th>
<th>Biodegradability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminum.</td>
<td>-</td>
<td>-</td>
<td>Not readily</td>
</tr>
</tbody>
</table>

Bioaccumulative potential

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>LogPow</th>
<th>BCF</th>
<th>Potential</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminum.</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

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Section 12. Ecological information

**Mobility in soil**
- Soil/water partition coefficient ($K_{oc}$): Not available.
- Mobility: Not mobile under normal environmental conditions. May be leached from the ground at low pH (<5.5) or high pH (>8.5)

**Other adverse effects**
- No known significant effects or critical hazards.

Section 13. Disposal considerations

**Disposal methods**
- The generation of waste should be avoided or minimized wherever possible. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Recycle, if possible.

Section 14. Transport information

<table>
<thead>
<tr>
<th>UN number</th>
<th>DOT Classification</th>
<th>TDG Classification</th>
<th>Mexico Classification</th>
<th>ADR/RID</th>
<th>IMDG</th>
<th>IATA</th>
</tr>
</thead>
<tbody>
<tr>
<td>UN proper shipping name</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Transport hazard class(es)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Packing group</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Additional information</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
</tbody>
</table>

**Special precautions for user**
- Not applicable.

**Transport in bulk according to Annex II of MARPOL and the IBC Code**
- Not applicable.

Section 15. Regulatory information

**U.S. Federal regulations**
- TSCA 8(a) CDR Exempt/Partial exemption: Not determined
- United States inventory (TSCA 8b): All components are listed or exempted.
- Clean Water Act (CWA) 307: Copper.; Zinc
- Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs): Listed
- Clean Air Act Section 602 Class I Substances: Not listed
- Clean Air Act Section 602 Class II Substances: Not listed

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Section 15. Regulatory information

DEA List I Chemicals (Precursor Chemicals)  : Not listed
DEA List II Chemicals (Essential Chemicals) : Not listed

SARA 302/304

Composition/information on ingredients
No products were found.

SARA 304 RQ  : Not applicable.

SARA 311/312

Classification  : Not applicable.

Composition/information on ingredients
No products were found.

SARA 313

<table>
<thead>
<tr>
<th>Product name</th>
<th>CAS number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Form R - Reporting requirements</td>
<td>Aluminum. Copper.</td>
<td>7429-90-5 7440-50-8</td>
</tr>
<tr>
<td>Supplier notification</td>
<td>Aluminum. Copper.</td>
<td>7429-90-5 7440-50-8</td>
</tr>
</tbody>
</table>

SARA 313 notifications must not be detached from the SDS and any copying and redistribution of the SDS shall include copying and redistribution of the notice attached to copies of the SDS subsequently redistributed.

State regulations

Massachusetts  : The following components are listed: ALUMINUM; COPPER
New York  : The following components are listed: Copper
New Jersey  : The following components are listed: ALUMINUM; COPPER
Pennsylvania : The following components are listed: ALUMINUM; COPPER FUME

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals
Not listed.

Montreal Protocol (Annexes A, B, C, E)
Not listed.

Stockholm Convention on Persistent Organic Pollutants
Not listed.

Rotterdam Convention on Prior Inform Consent (PIC)
Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals
Not listed.

International lists

National inventory

Australia inventory (AICS)  : All components are listed or exempted.
Canada inventory  : All components are listed or exempted.
China inventory (IECSC) : All components are listed or exempted.
Europe inventory  : All components are listed or exempted.
Korea inventory  : All components are listed or exempted.
New Zealand Inventory of Chemicals (NZIoC) : All components are listed or exempted.
Philippines inventory (PICCS)  : All components are listed or exempted.

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Taiwan Chemical Substances Inventory (TCSI)
All components are listed or exempted.

Canada
WHMIS (Canada)
Not classified.

Canadian NPRI
The following components are listed: Aluminum (fume or dust only); Copper (and its compounds)

Section 16. Other information

Hazardous Material Information System (U.S.A.)

<table>
<thead>
<tr>
<th>Health</th>
<th>Flammability</th>
<th>Physical hazards</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although HMIS® ratings are not required on SDSs under 29 CFR 1910. 1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint & Coatings Association (NPCA). HMIS® materials may be purchased exclusively from J. J. Keller (800) 327-6868.

The customer is responsible for determining the PPE code for this material.

National Fire Protection Association (U.S.A.)

<table>
<thead>
<tr>
<th>Health</th>
<th>Flammability</th>
<th>Instability/Reactivity</th>
<th>Special</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

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Copyright ©2001, National Fire Protection Association, Quincy, MA 02269. This warning system is intended to be interpreted and applied only by properly trained individuals to identify fire, health and reactivity hazards of chemicals. The user is referred to certain limited number of chemicals with recommended classifications in NFPA 49 and NFPA 325, which would be used as a guideline only. Whether the chemicals are classified by NFPA or not, anyone using the 704 systems to classify chemicals does so at their own risk.

Procedure used to derive the classification

<table>
<thead>
<tr>
<th>Classification</th>
<th>Justification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not classified</td>
<td></td>
</tr>
</tbody>
</table>

History

Date of issue/Date of revision : 05/08/2016
Date of previous issue : No previous validation
Version : 1

Key to abbreviations : ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
IATA = International Air Transport Association
IBC = Intermediate Bulk Container
IMDG = International Maritime Dangerous Goods
IMSCBC = International Maritime Solid Bulk Cargoes Code
LogPow = logarithm of the octanol/water partition coefficient

Date of issue/Date of revision : 08/05/2016 Version : 1
Section 16. Other information

UN = United Nations

References : Not available.

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.