



SAFETY DATA SHEET

1. PRODUCT AND COMPANY IDENTIFICATION

Product Identifier: METAL MIX CONTAINING ALUMINUM

SDS Number: SDS-IN 618

Revised Date: 13 AUGUST 2018

Product Use: INDUSTRIAL USE - METAL CONSISTING OF ALUMINUM MIXED WITH OTHER ALLOYS-SOLID METAL

MANUFACTURER:

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2. HAZARDS IDENTIFICATION**PRIMARY ROUTES OF ENTRY:**

XEye XInhalation XSkin XIngestion

CARCINOGEN LISTED IN:

NTP IARC OSHA XNot Listed

GHS

Signal Word: Warning

Hazard statement(s)

H335 May cause respiratory irritation

Precautionary statement(s)

P233 Keep container tightly closed

P261 Avoid breathing dust/fume/gas/mist/vapors/spray

P270 Do not eat, drink or smoke when using this product

P273 Avoid release to environment

P280 Wear protective gloves/protective clothing/eye protection/face protection

P362 +P364 Take off contaminated clothing and wash before reuse

P301 +P314 IF SWALLOWED: Get Medical advice/attention if you feel unwell

P302+ P352 IF ON SKIN: Wash with plenty of soap and water

P304 + 341 IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing

P305 + 351 IF IN EYES: Rinse continuously with water for several minutes (15 mins)

P501 Dispose of content/containers in accordance with applicable regulations. Do not re-use containers for food stuff.

Classification:

Specific target organ toxicity- single exposure (Category 3)

POTENTIAL HEALTH EFFECTS:

Eye Contact: Contact with metal alloy fume from molten metal may cause irritation. Severe eye damage may result from hot molten metal being splashed into the eyes. Wear safety glasses and face shield when working with molten metal.

Ingestion: May cause irritation.

Inhalation: Inhalation of fume may cause local irritation to the respiratory system.

Skin Contact: Normal handling should not cause any adverse health effects. May cause skin irritation. Hot molten metal may cause burns to the skin. Wear protective equipment when handling molten metal.

Chronic: INDIUM: May cause damage to respiratory system. Avoid inhalation.

SILICON: Inflammation of the eyes may occur with long-term exposure.

COPPER: Overexposure to fumes may cause metal fume fever (chills, muscle aches, nausea, fever;

dry throat, cough, weakness, lassitude); metallic or sweet taste; discoloration of skin and hair.



WARNING: This product can expose you to chemicals including [trace amounts of lead] which is known to the State of California to cause cancer, and can cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov

NOTE: The Indium Corporation does not recommend, manufacturer, market or endorse any of its products for human consumption.

3. COMPOSITION / INFORMATION ON INGREDIENTS

| Components | % wt | CAS Registry # | PEL mg/m ³ | TLV-TWA mg/m ³ | TLV-STEL mg/m ³ |
|------------------|-------|----------------|--------------------------|------------------------------|-------------------------------|
| ALUMINUM | 1-100 | 7429-90-5 | 15 | 10 | - |
| | | (EU) | - | 10* | - |
| | | (Canada) | - | 10 | 20 |
| | | (Mexico) | - | 5 | - |
| INDIUM | 1-97 | 7440-74-6 (US) | 0.1 | 0.1 | - |
| | | (EU) | - | 0.1 | 0.3 |
| | | (Canada) | - | 0.1 | 0.3 |
| | | (Mexico) | - | 0.1 | 0.3 |
| COPPER | 0-10 | 7440-50-8 | 0.1 | 0.2 | - |
| | | (EU) | - | 0.2 | 2 |
| | | (Canada) | - | 0.2 | 0.6 |
| | | (Mexico) | - | 0.2 | 2 |
| SILICON | 0-25 | 7440-21-3 | 15 | 10 | - |
| | | (EU) | - | 10* | - |
| | | (Canada) | - | 10 | - |
| GERMANIUM | 0-75 | 7440-56-4 | N.E. | N.E. | N.E. |

N.E. = Not established

EU = European Union Occupational Exposure Limits

| INDALLOY (metal mixture) | %ALUMINUM | %SILICON | %COPPER | %INDIUM | %GERMANIUM | LIQUIDUS °C/°F | DENSITY (gm/cm ³) |
|-----------------------------|-----------|----------|---------|---------|------------|-------------------|----------------------------------|
| 186 | 45 | - | - | - | 55 | 424/795 | 3.71 |
| 188 | 88.3 | 11.7 | - | - | | 577/1071 | 2.66 |
| 189 | 86 | 10 | 4 | - | | 585/1085 | 2.75 |
| 190 | 92.5 | 7.5 | - | - | | 610/1130 | 2.68 |
| 191 | 95 | 5 | - | - | | 630/1166 | 2.69 |
| 192 | 100 | - | - | - | | 660/1220 | 2.70 |
| NS | 1 | - | - | 99 | | Not available | 7.18 |

4. FIRST AID MEASURES

- Eye Contact:** Hold eyelids apart and flush eyes with plenty of tepid water for at least 15 minutes. Seek medical attention if irritation persists.
- Ingestion:** If patient is conscious, ONLY induce vomiting as directed by trained personnel. NEVER give anything by mouth to an unconscious person. Seek medical attention immediately.
- Inhalation:** Remove to fresh air. If not breathing, give artificial respiration or oxygen by trained personnel. Seek immediate medical attention.
- Skin Contact:** Remove contaminated clothing. Wash affected area with soap and water. Wash clothing before reuse. If irritation persists, obtain medical attention.

5. FIRE FIGHTING MEASURES

- Flash Point:** Not established. **Method:** Not established.
- Auto-ignition Temperature:** Not established.
- Flammable Limits:** Limits not established. Massive metal is not flammable; however dust or powder may be flammable.
- Extinguishing Media:** Use extinguishers appropriate for the surrounding fire conditions. Silicon powders are flammable. Use carbon dioxide or dry powder. Use of water may generate hydrogen.
- Special Fire Fighting Procedures:** Firefighters must wear NIOSH approved self-contained breathing apparatus and full protective clothing.

6. ACCIDENTAL RELEASE MEASURES

- Spill or Leak Procedures:** Contain spill. If molten, cool to allow metal to solidify. If a solid metal, wear gloves, pick up and return to process. If dust, wear recommended personal protective equipment. DO NOT SWEEP. Use a vacuum, place in barrels and return to process if applicable. Otherwise, dispose of following all Federal, State and Local regulations. In the EU refer to the Special Waste Regulations. Metal may have reclaim value.

7. HANDLING AND STORAGE

- Handling** Only dry metals should be added to molten bath. If working with molten metals, or exposed to fume or dust, use appropriate personal protective equipment.
- Precautions:**
- Storage Precautions:** Store product in a cool, dry area away from incompatible materials.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

- Engineering Controls:** Local exhaust ventilation is recommended to control any air contaminants. Control concentration of all components so that the exposure levels are not exceeded.
- Personal protection:**
- Eyes:** Chemical safety glasses/goggles and face shield with molten metal.
- Respirator:** A NIOSH approved or EU compliant CE marked air-purifying respirator with a fume/dust chemical cartridge is recommended under certain circumstances where airborne concentrations are expected to be elevated.
- Skin:** Gloves-leather or impervious (vinyl) type. Heat resistant gloves if handling hot metal. Safety type boots. Personal protective equipment is recommended when working with molten metal to avoid burns.
- Other:** Lab coat, safety shower and eye-wash fountain in work area. Avoid the use of contact lenses in high fume/dusty areas.
- Work/Hygienic Practices:** Maintain good housekeeping. Clean up spills immediately. Good personal hygiene is essential. Avoid eating, smoking or drinking in the work area. Wash hands thoroughly with soap and water immediately upon leaving the work area.

9. PHYSICAL AND CHEMICAL PROPERTIES

- | | | | |
|--------------------------|-------------------------|-----------------------------|-----------------|
| Appearance: | Silver gray solid metal | Boiling Point: | Not applicable. |
| Odor: | Odorless | Melting Point: | See Table |
| Specific Gravity: | See Table | pH: | Not applicable |
| Vapor Pressure: | Not applicable. | Solubility in Water: | Insoluble |
| Vapor Density: | (air=1) Not applicable. | | |

10. STABILITY AND REACTIVITY

- General:** Stable.
- Conditions to Avoid:** Not established.
- Incompatible Materials:** Avoid contact with mineral acids.
- Hazardous Decomposition / Combustion:** Harmful organic fumes and toxic oxide fumes may form at elevated temperatures.
- Hazardous Polymerization:** Will not occur.

11. TOXICOLOGICAL INFORMATION

Carcinogenicity: National Toxicity Program (NTP): No
Occupational Safety & Health Administration (OSHA): No
U.N. International Agency for Research on Cancer (IARC): No

LD50: Not established **LC50:** Not established
Other: None

12. ECOLOGICAL INFORMATION

Products not tested.

13. DISPOSAL CONSIDERATION

Waste Disposal Method: Scrap metal alloy usually has value. Contact a commercial reclaimer for recycling. Otherwise, dispose of in accordance with all Federal, State and Local environmental regulations. In Europe follow the Special Waste Regulations.

14. TRANSPORT INFORMATION

Transport in accordance with applicable international regulations and requirements. Not regulated under US DOT (United States Department of Transportation).

North American Emergency Guide Book – Not classified

Solid metal not hazardous under ground/IATA/IMDG.

15. REGULATORY INFORMATION

The information in this Safety Data Sheet meets the requirements of the United States Occupational Safety and Health Act and regulations promulgated hereunder (29 CFR 1910.1200 ET. SEQ.).

This product has been classified in accordance with Mexican regulations: NOM-018-STPS-2015 and NOM-010-STPS-2014.

This product has been classified in accordance with the hazard criteria of the Canadian Controlled Products Regulation (CPR).

WHMIS: not classified.

This product has been classified in accordance with the guidelines set by the Dept of Industrial Health of the Republic of Singapore.



WARNING: This product can expose you to chemicals including [trace amounts of lead] which is known to the State of California to cause cancer, and can cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov

SARA 313 Listing - 40 CFR 372.65: Copper CAS# 7440-50-8

All ingredients are listed on the EPA TSCA Inventory.

All ingredients are listed on the Canadian Domestic Substance List.

Malaysia:

This product has been classified in accordance with: Malaysian – OCCUPATIONAL SAFETY AND HEALTH (CLASSIFICATION, LABELING AND SAFETY DATA SHEET OF HAZARDOUS CHEMICALS) REGULATION OCTOBER 2013 – (CLASS). (GHS)

In China:

Decree No. 591: Regulations on the Control over Safety of Hazardous Chemicals

GB 30000.2-29-2013, Rules for classification and labeling of chemicals. (GHS)

GB/T 16483-2008, GB/T 17517-2013

This product has been classified using the Chinese Occupational Limit for Hazardous Agents in the Workplace, GBZ2-2007.

All ingredients are listed on the China Chemical Inventory.

16. OTHER INFORMATION

| | | |
|----------------------------|--------------------|---|
| HMIS Hazard Rating: | Health: | 1 |
| | Fire: | 1 |
| | Reactivity: | 0 |

Revised Date: 13 AUGUST 2018

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