This safety data sheet represents a family grouping of all metal mixes that are blended with gold. A table is provided that lists all metal groupings.

SAFETY DATA SHEET

1. PRODUCT AND COMPANY IDENTIFICATION

Product Identifier: GOLD CONTAINING ALLOYS
SDS Number: SDS-971
Product Use: Industrial Use - Alloy Metal Mixture. See alloy table for list of mixtures.

MANUFACTURER:

In America:
The Indium Corporation of America®
34 Robinson Road, Clinton NY 13323
Information: (315) 853-4900
nswarts@indium.com

In Europe:
Indium Corporation of America (European Operations)
7 Newmarket Ct.
Kingston, Milton Keynes, UK, MK 10 OAG
Information: +44 (0) 1908 580400

In Asia:
The Indium Corporation of America
Asia-Pacific Operations-Singapore
29 Kian Teck Avenue
Singapore 628908
Information: +65 6268-8678

EMERGENCY PHONE:
CHEMTREC 24 hrs.
USA: 1 (800) 424-9300
Outside USA: +1 (703) 527-3887

In China:
Indium Corporation (Suzhou), Co., Ltd.
No. 428 Xinglong Street
Suzhou Industrial Park
Suchun Industrial Square
Unit No. 14-C
Jiangsu Province, China 215126
Information: (86) 512-6283-4900
2. HAZARDS IDENTIFICATION

**PRIMARY ROUTES OF ENTRY:**
- Eye
- Inhalation
- Skin
- Ingestion
- NTP

<table>
<thead>
<tr>
<th>Carcinogen listed in</th>
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</tr>
<tr>
<td>OSHA</td>
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</table>

*See Section 11*

**GHS:**

Precautionary statement(s)
- P261  Avoid breathing dust/fume/gas/mist/vapors/spray
- P270  Do not eat, drink or smoke when using this product
- P273  Avoid release to the environment
- P280  Wear protective gloves/protective clothing/eye protection/face protection
- P362 +P364  Take off contaminated clothing and wash before reuse
- P301 + 314  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)

**POTENTIAL HEALTH EFFECTS:**

**Eye Contact:**  May cause irritation. Contact with powered metal alloy or fume from molten metal may cause irritation. Severe eye damage may result from hot molten metal being splashed into the eyes.

**Ingestion:**  Ingestion may cause irritation or may be harm if swallowed.

**Inhalation:**  Dust may cause irritation to the respiratory tract. May be harmful if inhaled. May cause irritation.

**Skin Contact:**  May cause irritation upon contact. May be harmful if absorbed through skin. Hot molten metal may cause burns to the skin. **Antimony and Nickel** – have been known to cause dermatitis. Nickel is a skin sensitizer.

**Chronic:**  Review alloy listing for percentage of metal contained.

**Silver** – chronic skin contact or ingestion of silver dusts, salts or fume can result in a condition known as Argyria, a condition with bluish pigmentation of the skin and eyes.

**Indium** – may cause damage to respiratory system if inhaled over long periods of exposure.

**Copper** – over exposure to fumes may cause metal fume fever (chills, muscle aches, fever, dry throat, cough, weakness, lassitude), metallic or sweet taste, discoloration of skin and hair.

**Nickel** – toxic by ingestion. Can cause pulmonary asthma, and hypersensitivity. Suspected carcinogen. May be toxic to kidneys, lungs, liver, upper respiratory system.

**Cadmium** – toxic by inhalation. Cadmium is irritating to the respiratory tract. Cadmium is listed as a carcinogen.

**Tin** – Has been shown to increase incidence of sarcoma in animal tests.

**Note:**  The Indium Corporation does not recommend, manufacture, market or endorse any of its products for human consumption.
California Prop 65 Note: Review alloy table to determine which product was purchased. This warning is not applicable to all products.

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

### 3. COMPOSITION / INFORMATION ON INGREDIENTS

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</table>
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:** Fine dusts and powders could be a potential explosion hazard. Avoid generation.

**Flammable Limits:** Use extinguishers appropriate for the surrounding fire conditions. Use dry sand, sodium chloride, or dolomite. Water, A/B/C extinguishers and halogenated agents are not recommended.

**Extinguishing Media:** Firefighters wear an approved self-contained breathing apparatus and full protective clothing.

6. ACCIDENTAL RELEASE MEASURES

**Spill or Leak Procedures:** Wear respirator and other personal protective clothing. (See Exposure Controls/Personal Protection Section). Extinguish or remove all sources of ignition. Ventilate area. Clean up spill without generating or dispersing dust into the air. Vacuum solids instead of sweeping using a grounded unit. Reduce airborne dust and prevent scattering by moistening with water. Place spilt material in a container and dispose of in accordance with applicable regulations. Recycle where possible. Do not allow to enter the environment. May contain metals that could be harmful to the aquatic environment.

7. HANDLING AND STORAGE

**Handling:** Avoid breathing vapors from heated material and dusts from cutting or grinding. Avoid contact...
**Precautions:** with eyes, skin and clothing. Follow routine safe handling procedures. Use with adequate ventilation. Avoid dust generation. Wear PPE.

**Storage Precautions:** Keep away from heat and flame. Store in suitable, tightly capped, and labeled containers in cool dry, well-ventilated area. Empty containers may be hazardous as they contain product residue.

### 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

**Engineering Controls:** Local exhaust ventilation is required to control any air contaminants when melting, cutting burning or performing other activities where there is a potential for airborne contamination and exposure. Avoid potential breathing of fume and dust. Ensure controls are used.

**Personal protection:**

**Eyes:** Chemical safety glasses/goggles. Face shield recommended when handling molten metal and when grinding or cutting.

**Respirator:** An authority approved or compliant marked air-purifying respirator with a fume/dust chemical cartridge is recommended under certain circumstances where airborne concentrations are expected to be elevated. Warning: Air purifying respirators do not protect the worker in oxygen-deficient atmospheres. Avoid breathing dusts and fumes.

**Skin:** Wear protective gloves. Hot gloves for handling molten metal.

**Other:** Eye-wash fountain/shower in work area. Avoid the use of contact lenses in high fume and dust areas.

**Work/Hygienic** 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. Follow established governmental guidelines when handling certain metals such as cadmium.

### 9. PHYSICAL AND CHEMICAL PROPERTIES

**Appearance:** Solid metal  
**Boiling Point:** Not available  
**Odor:** Odorless  
**Melting Point:** See Table  
**Specific Gravity:** See Table  
**pH:** Not applicable  
**Vapor Pressure:** Not available  
**Solubility in Water:** Insoluble  
**Vapor Density:** (air=1) Not applicable.

### 10. STABILITY AND REACTIVITY

**General:** Stable.  
**Conditions to Avoid:** Heat, flame, ignition sources. Avoid dust generation.  
**Incompatible Materials:** Halogens, sulfur and some acids  
**Hazardous Decomposition / Combustion:** None  
**Hazardous Polymerization:** Will not occur.

### 11. TOXICOLOGICAL INFORMATION

**Carcinogenicity:** NTP (National Toxicity Program): Yes – Nickel
OSHA (Occupational Safety & Health Administration): Yes - Cadmium
IARC (International Agency for Research on Cancer): Yes – Nickel and Cadmium

LD50: Not established. LC50: Not established.

Other:
Nickel RTECS# QR5950000 Cadmium RTECS# EU9800000
Indium RTECS#NL1050000, Silver RTECS#VW3500000, Copper RTECS#GL5325000, Antimony RTECS# CC4025000

Cadmium: Product contains <1% cadmium mixture.
Inhalation, human, 39 mg/m3, LCLO
Oral, rat, 2330 mg/kg, LD50
Women, inhalation, dose: 129 ug/m3, 20 years
Chronic Exposure: Teratogen/Mutagen/Reproductive Hazard

12. ECOLOGICAL INFORMATION
Product mixture not tested. Known testing data and other information available on each metal found in chemical journals and other publications.

Product mixture could contain cadmium in <1 % of the mixture ingredients of unknown hazards to the aquatic environment.

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.

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

Solid Metal mixture:
Non hazardous under shipping.
UN- none
North American Emergency Guide Book – Not applicable

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 the Mexican guidelines, NOM-018-STPS-2015 and NOM-010-STPS-2014.

Regulatory Information China:
GB/T 16483-2008, GB/T 17519-2013, Safety Data Sheets for Chemical Products
GB 30000.2-29-2013, Rules for classification and labeling of chemicals (GHS)
Decree No. 591: Regulations on the Control Over Safety of Hazardous Chemicals.
This product has been classified using the Chinese Occupational Limit for Hazardous Agents in the Workplace, GBZ2-2007.

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).

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

Canadian WHMIS: D -2AMaterials Causing Other Toxic Effects - Very Toxic Material (Chronic) (cadmium/nickel) (Toxic) D1A – Materials causing immediate and serious toxic effects – Very Toxic Material (cadmium)

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

SARA 313 Listing - 40 CFR 372.65 – Silver, Antimony, Nickel, Copper, Cadmium

All ingredients are listed on the EPA TSCA Inventory.
All ingredients are listed under the following country chemicals lists:
Canadian – DSL
Korean Inventory of Existing Chemicals
Philippine Inventory of Chemicals and Chemical Substances
New Zealand Inventory of Chemicals
Australian Inventory of Chemical Substances
European Inventory of Existing Commercial Chemical Substances
Chinese Chemical Inventory
EPA Genetic Toxicology Program - Cadmium CAS# 7440-43-9

California Prop 65 Note: Review alloy table to determine which product was purchased. This warning is not applicable to all products

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

<table>
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<th>HMIS Hazard Rating:</th>
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Revised Date: 30 JULY 2018
Prepared by: Nancy Swarts, Indium Corporation of America
Approved by: Nancy Swarts, Indium Corporation of America

The information and recommendations contained herein are, to the best of The Indium Corporation of America's knowledge and belief, accurate and reliable as of the date issued. The Indium Corporation of America does not warrant or guarantee their accuracy or reliability, and The Indium Corporation of America shall not be liable for any loss or damage arising out of the user thereof. The information and recommendations are offered for the user's consideration and examination, and it is the user's responsibility to satisfy itself that they are suitable and complete for its particular use. If buyer repackages this product, legal counsel should be consulted to insure proper health, safety and other necessary information is included on the container.
## Alloy Table

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<th>%Tin Sn</th>
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<th>%Germanium Ge</th>
<th>%Indium In</th>
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<th>%Nickel Ni</th>
<th>%Copper Cu</th>
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### Indalloy metal mixture

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<th>%Gold Au</th>
<th>%Tin Sn</th>
<th>%Silicon Si</th>
<th>%Germanium Ge</th>
<th>%Indium In</th>
<th>%Silver Ag</th>
<th>%Antimony Sb</th>
<th>%Nickel Ni</th>
<th>%Copper Cu</th>
<th>%Zinc Zn</th>
<th>%Cadmium Cd</th>
<th>RoHS 2/3 Compliance (2011/65/EU)</th>
<th>Mass Density</th>
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**NS = NON STANDARD ALLOY MIX**  RoHS 2/3 – 2011/65/EU

[http://www.indium.com](http://www.indium.com)