

MATERIAL SAFETY DATA SHEET

PRODUCT NAME : INDIUM METAL SEALS

1. Product and Company Identification

Product name: Indium metal seals
Synonyms: None
Item Numbers: D154-25-011, D154-25-012, D154-25-013, D154-25-014, C055-01-001.

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2. Hazards Identification

EMERGENCY OVERVIEW

These products when properly handled according to good working and hygienic practices are not dangerous to human health and the environment.

Harmful by inhalation, skin contact and ingestion.

For short and long term exposure effects see Section 11 Toxicological data.

Eye Effects: May cause eye irritation and redness.
Skin Effects: May cause mild irritation at the site of contact.
Ingestion/Oral Effects: May cause soreness and redness of the mouth and throat.
Inhalation Effects: None anticipated for intact seals. Inhalation of indium dust may cause soreness and redness of the mouth and throat.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: None known for intact seals. Dusts/fumes may aggravate pre-existing respiratory conditions.

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| NFPA Hazard codes | | HMIS Hazard codes | | Rating System |
|-------------------|---|-------------------|---|---------------------|
| Health | 0 | Health | 0 | 0 = No Hazard |
| Flammability | 0 | Flammability | 0 | 1 = Slight Hazard |
| Instability | 0 | Reactivity | 0 | 2 = Moderate Hazard |
| | | | | 3 = Serious Hazard |
| | | | | 4 = Severe Hazard |

3. Composition/Information on Ingredients

| Ingredient | % Weight | CAS No | Hazard class* | Risk phrase* |
|------------|----------|-----------|----------------|--------------|
| Indium | 100 | 7440-74-6 | Not applicable | R20/21/22 |

*Hazard class & Risk phrase. These columns are only completed for ingredients which are classified as hazardous under EU Directive No 1272/2008 (as amended) and are present in sufficient concentration to make the overall substance hazardous. In all other situations, the column will be completed as "Not applicable".

4. First Aid Measures

| | |
|--------------------|---|
| Eyes: | Bathe the eye with running water for at least 15 minutes. If irritation persists, seek medical attention. |
| Skin: | Wash the exposed area with plenty of soap and water. If irritation persists, seek medical attention. |
| Ingestion/Oral: | Wash out mouth with water. Seek medical attention. |
| Inhalation: | Remove the affected person to fresh air (whilst ensuring your own safety). If breathing problems occur, a qualified individual should administer oxygen or artificial respiration as indicated. Seek medical attention. |
| Other Information: | None. |

5. Fire Fighting Measures

| | |
|---|--|
| Extinguishing Media: | Use suitable extinguishing media for the surrounding fire. |
| Fire and Explosion Hazard: | Emits toxic fumes on combustion. |
| Special Protective Equipment for Fire Fighters: | Fire fighters should wear a self-contained breathing apparatus (SCBA) which meets appropriate standards operated in positive pressure mode, and protective clothing to prevent contact with skin and eyes. |

For Flammability Properties - see Section 9.

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6. Accidental Release Measures

Wear suitable protective clothing (see Section 8). Collect the spilled items and place in a closable, labelled container. Reuse or dispose of the items as in Section 13.

Do not discharge into drains or rivers.

7. Handling and Storage

Handling: Avoid the formation or spread of dust in the surrounding air. Avoid direct contact with the items.

Storage: Store in tightly closed containers. Store in a cool, well-ventilated area.

8. Exposure Controls/Personal Protection

Exposure Limits:

| Ingredient | ACGIH - TLV - | OSHA - PEL | Occupational Exposure Limits EH40 (UK) |
|------------|---------------------------------|------------------|--|
| Indium | 0.1 mg/m ³ - 8 H TWA | None Established | 0.1 mg/m ³ -8 hr TWA 0.3 mg/m ³ - 15 min STEL |

Personal Protection:

Engineering Measures: Provide local ventilation where there is the possibility of dust/fume generation. Provide eye-bath/eye-wash stations.

Respiratory Protection: None required under normal conditions of use. When dust/fumes are present, wear suitable respiratory protection with a particle filter.

Hand/Skin Protection: Wear suitable protective gloves and protective clothing to prevent skin contact.

Eye/Face Protection: Wear safety glasses.

Hygiene Measures: Wash hands before breaks and immediately after handling the products.

Other/General Protection: Keep the items away from food, drink and tobacco products. Clean clothing which has been contaminated with dust before reuse.

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9. Physical and Chemical Properties

| | | | | |
|----------------------------|-----------------------------------|------------------------|-------------------|-------|
| Appearance and Odour | Silver coloured solid, odourless. | Boiling point | 2080 /3776 | °C/°F |
| pH (as supplied) | Not applicable | Melting point | 157 / 314 | °C/°F |
| Solubility in Water | Insoluble | Auto Ignition | Not applicable | °C/°F |
| Volatile Content by Volume | No data available | Flash Point | Not applicable | °C/°F |
| Specific Gravity | 7.3 | | | |
| Vapour Pressure (mbar) | No data available | Vapour Pressure (Torr) | No data available | |

10. Stability and Reactivity

| | |
|-------------------------------|---|
| Stability: | Stable under normal conditions. |
| Material/Conditions to Avoid: | Strong oxidising agents, strong acids, high temperatures. |
| Hazardous Decomposition: | Emits toxic fumes on combustion. |
| Hazardous Polymerisation: | Will not occur. |

11. Toxicological Information

For a comprehensive description for the various toxicological (health) effects which may arise if the user comes into contact with the substance or preparation refer to Section 2 Hazards Identification.

Animal data:

| | |
|-------------|--------------------------------|
| LD50 value: | 10 mg/kg (Subcutaneous mouse). |
| LC50 value: | No data available. |

Chronic toxicity:

There is a danger of cumulative effects through inhalation.

Carcinogenicity:

No data available.

12. Ecological Information

No information is available. Toxicity is expected to be low based on the product's insolubility in water.

13. Disposal Considerations

The metal should be recovered if possible. If material cannot be returned to process dispose of in accordance with local regulations. Waste disposal key number according to the European waste catalogue, 12 01 03, 12 01 04.

Dispose of packaging as normal industrial waste.

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14. Transport Information

This product is not regulated as dangerous under transport regulations.

| PARAMETER | EUROPEAN | CANADIAN TDG | UNITED STATES DOT |
|-----------------------|----------------|----------------|-------------------|
| Proper Shipping Name | Not applicable | Not applicable | Not applicable |
| Hazard Class | Not applicable | Not applicable | Not applicable |
| Identification Number | Not applicable | Not applicable | Not applicable |
| Shipping Label | Not applicable | Not applicable | Not applicable |

15. Regulatory Information

European Regulatory Information

This product has been classified in accordance with EU Regulation No 1272/2008 (as amended) on the Classification, Labelling and Packaging of Substances and Mixtures.

Classified as dangerous to supply : No.

Risk Phrases : R20/21/22: Harmful by inhalation, in contact with skin and if swallowed.

Safety Phrases : S22: Do not breathe dust.

Symbols : Xn (harmful).

United States Regulatory Information

Product is a manufactured article not subject to TSCA listing.

SARA TITLE III - SECTION 313 SUPPLIER NOTIFICATION:

This product constitutes an "article" and, as such is exempt from SARA 313 reporting requirements (40 CFR Part 372.38, Paragraph B).

California Proposition 65: This product does not contain chemicals known to the State of California to cause cancer or reproductive toxicity.

Canadian Regulatory Information

WHMIS Classification: Product is a manufactured article not subject to WHMIS regulations.

Product is a manufactured item not subject to DSL listing.

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16. Other Information

This MSDS is compiled in accordance with ANSI Z400.1 and Regulation (EC) No 1907/2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH).

Sources of information for this data sheet:

- Mining & Chemical Products Limited "INDIUM" Safety Data Sheet, Issued: 04/07/2007, Revision No: 1.

Glossary:

ACGIH - American Conference of Governmental Industrial Hygienists; **Canadian TDG** - Canadian Transportation of Dangerous Goods; **CAS** - Chemical Abstracts Service; **Chemtrec** - Chemical Transportation Emergency Center (US); **DSL** - Domestic Substances List; **EH40 (UK)** - HSE Guidance Note EH40 Occupational exposure limits; **EINECS** - European Inventory of Existing Chemical Substances; **HMIS** - Hazardous Material Information Service; **LC** - Lethal Concentration; **LD** - Lethal Dose; **MUS** - Mouse; **NFPA** - National Fire Protection Association; **OSHA** - Occupational Safety and Health Administration, US department of Labour; **PEL** - Permissible exposure limit; **SARA (Title III)** - Superfund Amendments and Reauthorization Act; **SARA 313** - Superfund Amendments and Reauthorization Act, Section 313; **SCBA** - Self-Contained Breathing Apparatus; **SCU** - Subcutaneous; **STEL** - Short Term Exposure Limit; **TLV** - Threshold Limit Value; **TWA** - Time Weighted Average; **US DOT** - US Department of Transportation; **WHMIS** - Workplace Hazardous Materials Information System.

Revisions:

Aug 2010 - Data Sheet updated to reflect the latest regulatory and supplier safety information.

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