1 Identification of substance

Product details

**Trade name:** INDIUM THERMAL INTERFACE PREFORM

Application of the substance / the preparation: Solder

**Manufacturer/Supplier:**
Northrop Grumman Kester  
515 E. Touhy Ave.  
Des Plaines, IL 60018  
Tel.(847) 297-1600  
Fax.(847) 390-9380

**Information department:**
MSDS Coordinator  
Tel. (847) 699-5755

**Emergency information:**
CHEMTREC 24-Hour Emergency Telephone Number: (800)424-9300  
CHEMTREC 24-Hour Emergency Telephone Number (Outside of the U.S. and Canada): (703)527-3887

2 Composition/Data on components

**Description:** Mixture of the substances listed below with nonhazardous additions.

**Dangerous components:**

<table>
<thead>
<tr>
<th>Substance</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>7440-74-6</td>
<td>indium</td>
</tr>
<tr>
<td>50-100%</td>
<td></td>
</tr>
</tbody>
</table>

3 Hazards identification

Information pertaining to particular dangers for man and environment:
The product does not have to be labelled due to the calculation procedure of international guidelines.

**Classification system:**

**NFPA ratings (scale 0 - 4):**

Health = 1  
Fire = 0  
Reactivity = 0

**HMIS-ratings (scale 0 - 4):**

<table>
<thead>
<tr>
<th>HEALTH</th>
<th>1</th>
<th>Health = 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>FIRE</td>
<td>0</td>
<td>Fire = 0</td>
</tr>
<tr>
<td>REACTIVITY</td>
<td>0</td>
<td>Reactivity = 0</td>
</tr>
</tbody>
</table>

4 First aid measures

**After inhalation:** Supply fresh air or oxygen; call for doctor.

**After skin contact:** Immediately wash with water and soap and rinse thoroughly.

**After eye contact:** Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
Trade name: INDIUM THERMAL INTERFACE PREFORM

After swallowing: Drink copious amounts of water and provide fresh air. Immediately call a doctor.

5 Fire fighting measures

Suitable extinguishing agents:
Use fire fighting measures that suit the environment.
CO2, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
Protective equipment: Wear self-contained respiratory protective device.

6 Accidental release measures

Person-related safety precautions:
Ensure adequate ventilation
Avoid formation of dust.
Measures for environmental protection: Do not allow to enter sewers/ surface or ground water.
Measures for cleaning/collecting:
Melted solder will solidify on cooling and can be scraped up. Use caution to avoid breathing fumes if a gas torch is used to cut up large pieces.

7 Handling and storage

Handling:
Information for safe handling: Ensure good ventilation/exhaustion at the workplace.
Information about protection against explosions and fires: Keep respiratory protective device available.

Storage:
Requirements to be met by storerooms and receptacles: No special requirements.
Information about storage in one common storage facility: Not required.
Further information about storage conditions:
Store in a cool place.
Store in dry conditions.

8 Exposure controls and personal protection

Additional information about design of technical systems: No further data; see item 7.

Components with limit values that require monitoring at the workplace:

<table>
<thead>
<tr>
<th>7440-74-6 indium</th>
</tr>
</thead>
<tbody>
<tr>
<td>PEL as In 0.1 mg/m³ as In</td>
</tr>
<tr>
<td>REL 0.1 mg/m³ as In</td>
</tr>
</tbody>
</table>

Personal protective equipment:
General protective and hygienic measures:
Keep away from foodstuffs, beverages and feed.
Wash hands before breaks and at the end of work.
9 Physical and chemical properties

General Information

**Form:** Solid
**Color:** Silver grey
**Odor:** Odorless

**Change in condition**
- **Melting point/Melting range:** 157°C (315°F)
- **Boiling point/Boiling range:** 2000°C (3632°F)

**Flash point:** Not applicable.

**Danger of explosion:** Product is not explosive. However, formation of explosive air/vapor mixtures are possible.

**Vapor pressure at 20°C (68°F):** 0 hPa (0 mm Hg)

**Density at 20°C (68°F):** 7.31 g/cm³

**Solubility in / Miscibility with Water:** Insoluble.

10 Stability and reactivity

**Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.

**Materials to be avoided:** Strong acids, strong oxidizers.
Trade name: INDIUM THERMAL INTERFACE PREFORM

Dangerous reactions
No dangerous reactions known.
An explosive reaction may occur on contact with dinitrogen tetraoxide and acetonitrile. Indium reacts vigorously with mercury (II) bromide at high temperatures (350°C).

Dangerous products of decomposition: Toxic metal oxide smoke

11 Toxicological information

Acute toxicity:

LD/LC50 values that are relevant for classification:

<table>
<thead>
<tr>
<th>Substance</th>
<th>LD50</th>
<th>LC50</th>
</tr>
</thead>
<tbody>
<tr>
<td>7440-74-6-indium</td>
<td>Oral</td>
<td>4200 mg/kg (rat)</td>
</tr>
</tbody>
</table>

Primary irritant effect:
on the skin: Irritant to skin and mucous membranes.
on the eye: Smoke during soldering can cause eye irritation.
through inhalation: May cause respiratory irritation.
through ingestion: May be harmful if swallowed.

Sensitization: No sensitizing effects known.

Additional toxicological information: The substance is not subject to classification.

12 Ecological information

General notes: Do not allow product to reach ground water, water course or sewage system.

13 Disposal considerations

Product:
Recommendation:
Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

Uncleaned packagings:
Recommendation: Disposal must be made according to official regulations.

14 Transport information

DOT regulations:
Hazard class: Not regulated.

Land transport ADR/RID (cross-border):
ADR/RID class: Not regulated.

Maritime transport IMDG:
IMDG Class: Not regulated.
Marine pollutant: No

(Contd. on page 5)
Air transport ICAO-TI and IATA-DGR:
ICAO/IATA Class: Not regulated.

15 Regulations

USA The following information relates to product regulation specific to the USA.

SARA (Superfund Amendments and Reauthorization Act)

Section 355 (extremely hazardous substances):
None of the ingredient is listed.

Section 313 (Specific toxic chemical listings):
None of the ingredients is listed.

TSCA (Toxic Substances Control Act):
All ingredients are listed.

California Proposition 65
Chemicals known to cause cancer:
WARNING: This product may contain a chemical in trace amounts known to the State of California to cause cancer.

7440-02-0 nickel
7440-43-9 cadmium
7439-92-1 lead

Chemicals known to cause reproductive toxicity:
WARNING: This product may contain a chemical in trace amounts known to the State of California to cause birth defects or other reproductive harm.

7440-43-9 cadmium
7439-92-1 lead

Carcinogenicity categories

EPA (Environmental Protection Agency)
None of the ingredients is listed.

IARC (International Agency for Research on Cancer)
None of the ingredients is listed.

NTP (National Toxicology Program)
None of the ingredients is listed.

TLV (Threshold Limit Value established by ACGIH)
None of the ingredients is listed.

NIOSH-Ca (National Institute for Occupational Safety and Health)
None of the ingredients is listed.

OSHA-Ca (Occupational Safety & Health Administration)
None of the ingredients is listed.

CANADA: The following information relates to product regulation specific to Canada.
Trade name: INDIUM THERMAL INTERFACE PREFORM

Workplace Hazardous Materials Identification (WHMIS):
This product has been classified in accordance with the hazard criteria of the Canadian Controlled Products Regulation (CPR) and the MSDS contains all of the information required by the CPR.

WHMIS Classification: No substances are considered a Controlled Product under WHMIS.

16 Other information
The information contained herein is based on data considered accurate and is offered solely for information, consideration and investigation. Northrop Grumman Kester extends no warranties, makes no representations and assumes no responsibility as to the accuracy, completeness or suitability of this data for any purchaser’s use. The data on this Material Safety Data Sheet relates only to this product and does not relate to use with any other material or in any process. All chemical products should be used only by, or under the direction of, technically qualified personnel who are aware of the hazards involved and the necessity for reasonable care in handling. Hazard communication regulations require that employees must be trained on how to use a Material Safety Data Sheet as a source for hazard information.

Department issuing MSDS: Product Safety
Contact: Heather Holich, MSDS Coordinator Tel. (847)699-5755