

**MATERION****1. Chemical and company identification**

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|---------------------------------|---|
| Name of chemical (Product name) | Indium Metal |
| Company name | Materion Advanced Materials Germany GmbH |
| Address | Borsigstrasse 10 Alzenau 63755 Germany |
| Contact person | Hermann Schmiig |
| Telephone | 49.60.23.91.82.0 |
| e-mail address | Materion.Germany@materion.com |
| Emergency telephone number | 49.60.23.91.82.0 |
| Reference number | G03 |

2. Hazards identification

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|-----------------------|---|
| GHS classification | |
| Physical hazards | The product is not classified according to GHS. |
| Health hazards | Specific target organ toxicity, single exposure Category 3 respiratory tract irritation |
| Environmental hazards | The product is not classified according to GHS. |

GHS label elements**Symbols****Signal words**

Warning

Hazard statement

May cause respiratory irritation.

Precautionary statement**Prevention**

Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not breathe dust/fume/gas/mist/vapors/spray. Avoid breathing dust. Wash thoroughly after handling. Contaminated work clothing should not be allowed out of the workplace. Wear protective gloves/protective clothing/eye protection/face protection. In case of inadequate ventilation wear respiratory protection.

Response

If experiencing respiratory symptoms: Call a poison center/doctor.

Storage

Store locked up.

Disposal

Dispose of contents/container (in accordance with related regulations).

Other hazards which do not result in classification

None known.

Supplemental information

For further information, please contact the Product Stewardship Department at +1.216.383.4019.

Main symptoms and emergency overview**Main symptoms**

Prolonged exposure may cause chronic effects.

Emergency overview

May cause respiratory irritation.

3. Composition/information on ingredients

Substance or mixture Substance

| Components | CAS Number | Gazette notification | | Concentration (%) |
|------------|------------|----------------------|----------|-------------------|
| | | ENCS no. | ISHL no. | |
| Indium | 7440-74-6 | | | 99.9 - 100 |

Chemical formula

In (7440-74-6)

4. First aid measures**If inhaled**

Move to fresh air. Call a physician if symptoms develop or persist.

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| If on skin | Wash off with soap and water. Get medical attention if irritation develops and persists. |
| If in eyes | Rinse with water. Get medical attention if irritation develops and persists. |
| If swallowed | Rinse mouth. Get medical attention if symptoms occur. |
| Most important symptoms/effects, acute and delayed | Irritation of eyes. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. |
| Protection of first-aid responders | If you feel unwell, seek medical advice (show the label where possible). Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. |
| Notes to physician | Provide general supportive measures and treat symptomatically. |

5. Fire-fighting measures

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| Extinguishing media | Dry chemicals, sand, dolomite etc. Carbon dioxide (CO2). |
| Extinguishing media to avoid | Water. |
| Specific hazards | No unusual fire or explosion hazards noted. |
| Special fire fighting procedures | Move containers from fire area if you can do so without risk. |
| Protection of fire-fighters | Wear suitable protective equipment. |
| General fire hazards | No unusual fire or explosion hazards noted. |
| Specific methods | Use standard firefighting procedures and consider the hazards of other involved materials. |

6. Accidental release measures

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| Personal precautions, protective equipment and emergency measures | Keep unnecessary personnel away. Wear appropriate protective equipment and clothing during clean-up. Avoid generation and spreading of dust. Avoid inhalation of dust. Avoid breathing mist or vapor. Ensure adequate ventilation. For personal protection, see section 8 of the SDS. |
| Environmental precautions | Avoid discharge into drains, water courses or onto the ground. |
| Methods or materials for containment and cleaning up | Pick up and arrange disposal without creating dust. Shovel up and place in a container for salvage or disposal. Sweep up or gather material and place in appropriate container for disposal. |

7. Handling and storage

Handling

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| Technical measures (e.g. Local and general ventilation) | Provide adequate ventilation. |
| Safe handling advice | When using, do not eat, drink or smoke. Wash hands thoroughly after handling. Observe good industrial hygiene practices. Use personal protection recommended in Section 8 of the SDS. |
| Contact avoidance measures | For further information, please refer to section 10 of the SDS. |
| Hygiene measures | Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. |

Storage

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|---------------------------------|---|
| Safe storage conditions | Store away from incompatible materials (see Section 10 of the SDS). |
| Safe packaging materials | Keep locked up. |

8. Exposure controls/personal protection

Occupational exposure limits

US. ACGIH Threshold Limit Values

| Material | Type | Value |
|------------------------|-------------|--------------|
| Indium Metal | TWA | 0.1 mg/m3 |
| Components | Type | Value |
| Indium (CAS 7440-74-6) | TWA | 0.1 mg/m3 |

Biological limit values

Japan. BELs - JSOH (Japan Society of Occupational Health: Recommendation of Occupational Exposure Limits Based on Biological Monitoring)

| Material | Value | Determinant | Specimen | Sampling Time |
|--------------|--------|-------------|----------|---------------|
| Indium Metal | 3 µg/l | Indium | Serum | * |

Japan. BELs - JSOH (Japan Society of Occupational Health: Recommendation of Occupational Exposure Limits Based on Biological Monitoring)

| Components | Value | Determinant | Specimen | Sampling Time |
|------------------------|--------|-------------|----------|---------------|
| Indium (CAS 7440-74-6) | 3 µg/l | Indium | Serum | * |

* - For sampling details, please see the source document.

Engineering measures Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.

Personal protective equipment

Respiratory protection In case of inadequate ventilation, use respiratory protection.
Hand protection Wear protective gloves.
Eye protection If contact is likely, safety glasses with side shields are recommended.
Skin and body protection Wear suitable protective equipment.

9. Physical and chemical properties

Appearance

Physical state Solid.
Form Solid.
Color Silver-white.

Odor None.

Odor threshold Not applicable.

pH Not applicable.

Melting point/Freezing point 313.88 °F (156.6 °C)

Boiling point, initial boiling point, and boiling range 3761.6 °F (2072 °C)

Flash point Not applicable.

Combustion characteristics (solid, gas) Not applicable.

Upper/lower flammability or explosive limits

Explosive limit - lower (%) Not applicable.

Explosive limit - lower (%) temperature Not applicable.

Explosive limit - upper (%) Not applicable.

Explosive limit - upper (%) temperature Not applicable.

Vapor pressure < 0.0000001 kPa at 25 °C

Vapor density Not applicable.

Evaporation rate Not applicable.

Specific gravity 7.31

Solubility(ies)

Solubility (water) Insoluble

Partition coefficient (n-octanol/water) Not applicable.

Auto-ignition temperature Not applicable.

Decomposition temperature Not applicable.

Viscosity (Coefficient of viscosity) Not applicable.

Other information

Density 7.31 g/cm³ at 20 °C

Explosive limit Not applicable.

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|-----------------------------|-----------------|
| Explosive properties | Not explosive. |
| Molecular formula | In |
| Molecular weight | 114.82 g/mol |
| Oxidizing properties | Not oxidizing. |
| Relative density | Not applicable. |

10. Stability and reactivity

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| Reactivity | The product is stable and non-reactive under normal conditions of use, storage and transport. |
| Chemical stability | Material is stable under normal conditions. |
| Possibility of hazardous reactions | No dangerous reaction known under conditions of normal use. |
| Conditions to avoid | Contact with incompatible materials. |
| Incompatible materials | Strong oxidizing agents. Acids. Sulfur. Halogens. |
| Hazardous decomposition products | No hazardous decomposition products are known. |

11. Toxicological information

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| Acute toxicity | None known. |
| Skin corrosion/irritation | Not relevant, due to the form of the product. |
| Serious eye damage/eye irritation | May cause eye irritation. |
| Respiratory or skin sensitization | |
| Respiratory sensitization | Not a respiratory sensitizer. |
| Skin sensitization | This product is not expected to cause skin sensitization. |
| Germ cell mutagenicity | Not classified. |
| Carcinogenicity | Not classifiable as to carcinogenicity to humans. |
| Japan Society for Occupational Health: Carcinogen | |
| Indium (CAS 7440-74-6) | 2A Probably carcinogenic to humans. |
| Reproductive toxicity | This product is not expected to cause reproductive or developmental effects. |
| Specific target organ toxicity - single exposure | May cause respiratory irritation. |
| Specific target organ toxicity - repeated exposure | Not classified. |
| Aspiration hazard | Not an aspiration hazard. |
| Other information | None known. |

12. Ecological information

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| Ecotoxicity | The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment. |
| Persistence and degradability | |
| Bioaccumulation | No data available. |
| Mobility in soil | No data available. |
| Hazardous to the ozone layer | No data available. |
| Other hazardous effects | No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component. |

13. Disposal considerations

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| Dispose in accordance with all applicable regulations. | |
| Residual waste | Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions). |
| Contaminated packaging | Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal. |

Local disposal regulations Contract with a disposal operator licensed by the Law on Disposal and Cleaning. Dispose of contents/container in accordance with local/regional/national/international regulations. When your own wastewater treatment plant is not available, collect entire waste and then charge to a licensed industrial waste management professional with manifests for industrial waste.

14. Transport information

IATA

Not regulated as dangerous goods.

IMDG

Not regulated as dangerous goods.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Not applicable.

National regulations Follow regulation in section 15 for domestic transportation.

15. Regulatory information

Industrial Safety and Health Act

Specified substances regulation

Class 2 designated chemical substances

Indium

Notifiable substances

Indium

Table 9 Ordinance No. 58

Labeling substances

INDIUM (POWDER)

Poisonous and Deleterious Substances Control Act

Specified poisonous substances

Not regulated.

Poisonous substances

Not regulated.

Deleterious substances

Not regulated.

Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc.

Class I specified chemical substances

Not regulated.

Class II specified chemical substances

Not regulated.

Monitoring chemical substances

Not regulated.

Priority Assessment Chemical Substances (PACs)

Not regulated.

Reporting Exempted Substances

Not regulated.

Law concerning Pollutant Release and Transfer Register

Specified class 1 substances (substance name, ordinance number and content)

Not regulated.

Class 1 substances (substance name, ordinance number and content)

INDIUM AND ITS COMPOUNDS Ordinance No. 44

Class 2 substances (substance name, ordinance number and content)

Not regulated.

Ship Safety Law, Dangerous Goods Marine Transport and Storage Rule Not regulated.

Air Law, Enforcement Rule Not regulated.

Explosives Control Act

Not regulated.

16. Other information

Bibliography

HSDB® - Hazardous Substances Data Bank
IARC Monographs. Overall Evaluation of Carcinogenicity
National Toxicology Program (NTP) Report on Carcinogens
Japan Society for Occupational Health, Recommendation of Occupational Exposure Limits
Japan Chemical Industry Association (JCIA) GHS Guideline, June 2012
JIS Z 7252:2014 Classification of chemicals based on "Globally Harmonized System of Classification and Labelling of Chemicals (GHS)"
JIS Z 7253:2012 Hazard communication of chemicals based on GHS - Labelling and Safety Data Sheet (SDS)

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