

SAFETY DATA SHEET

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SECTION 1. IDENTIFICATION

Product Name: Indium Nanoparticle Dispersion

Product Number: All applicable American Elements product codes, e.g. IN-M-02-NPD , IN-M-03-NPD , IN-M-04-NPD , IN-M-05-NPD

CAS #: 7440-74-6

Relevant identified uses of the substance: Scientific research and development

Supplier details:

American Elements
10884 Weyburn Ave.
Los Angeles, CA 90024
Tel: +1 310-208-0551
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Emergency telephone number:

+1 800-424-9300

SECTION 2. HAZARDS IDENTIFICATION

Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008

GHS02 Flame

Flam. Sol. 2 H228 Flammable solid.

Classification according to Directive 67/548/EEC or Directive 1999/45/EC

F; Highly flammable

R11: Highly flammable.

Information concerning particular hazards for human and environment:

N/A

Hazards not otherwise classified

No data available.

Label elements

Labelling according to Regulation (EC) No 1272/2008

The substance is classified and labeled according to the CLP regulation.

Hazard pictograms



GHS02

Signal word: Warning

Hazard statements

H228 Flammable solid.

Precautionary statements

P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.

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

P240 Ground/bond container and receiving equipment.

P241 Use explosion-proof electrical/ventilating/lighting/equipment.

P370+P378 In case of fire: Use for extinction: CO2, powder or water spray.

WHMIS classification

B4 - Flammable solid

Classification system

HMIS ratings (scale 0-4)

(Hazardous Materials Identification System)

HEALTH

FIRE

REACTIVITY

1

2

1

Health (acute effects) = 1

Flammability = 2

Physical Hazard = 1

Other hazards

Results of PBT and vPvB assessment:

PBT: N/A.

vPvB: N/A.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substances

CAS No. / Substance Name:

7440-74-6 Indium

Identification number(s):

EC number: 231-180-0

SECTION 4. FIRST AID MEASURES

Description of first aid measures

If inhaled:

Supply fresh air. If not breathing, provide artificial respiration. Keep patient warm.

Seek immediate medical advice.

In case of skin contact:

Immediately wash with soap and water; rinse thoroughly.

Seek immediate medical advice.

In case of eye contact:

Rinse opened eye for several minutes under running water. Consult a physician.

If swallowed:

Seek medical treatment.

Information for doctor

Most important symptoms and effects, both acute and delayed

No information available.

Indication of any immediate medical attention and special treatment needed

No information available.

SECTION 5. FIREFIGHTING MEASURES

Extinguishing media

Suitable extinguishing media

Special powder for metal fires. Do not use water.

For safety reasons unsuitable extinguishing media

Water

Special hazards arising from the substance or mixture

If this product is involved in a fire, the following can be released:

Indium oxide

Advice for firefighters

Protective equipment:

Wear self-contained respirator.

Wear fully protective impervious suit.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Wear protective equipment. Keep unprotected persons away.

Ensure adequate ventilation

Keep away from ignition sources

Environmental precautions:

Do not allow material to be released to the environment without official permits.

Do not allow product to reach sewage system or any water course.

Do not allow to penetrate the ground/soil.

Methods and material for containment and cleanup:

Keep away from ignition sources.

Ensure adequate ventilation.

Prevention of secondary hazards:

Keep away from ignition sources.

Reference to other sections

See Section 7 for information on safe handling

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

SECTION 7. HANDLING AND STORAGE

Handling

Precautions for safe handling

Keep container tightly sealed.

Store in cool, dry place in tightly closed containers.

Ensure adequate ventilation.

Information about protection against explosions and fires:

Protect against electrostatic charges.

Conditions for safe storage, including any incompatibilities

Storage

Requirements to be met by storerooms and receptacles:
Store in a cool location.
Information about storage in one common storage facility:
Store away from oxidizing agents.
Further information about storage conditions:
Keep container tightly sealed.
Store in cool, dry conditions in well-sealed containers.
Specific end use(s)
No information available.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Additional information about design of technical systems:
Properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute.
Control parameters
Components with limit values that require monitoring at the workplace:
7440-74-6 Indium (100.0%)
REL (USA) Long-term value: 0.1 mg/m³ as In
TLV (USA) Long-term value: 0.1 mg/m³ as In
EL (Canada) Long-term value: 0.1 mg/m³
EV (Canada) Long-term value: 0.1 mg/m³ as indium
Additional information: No data
Exposure controls
Personal protective equipment
Follow typical general protective and industrial hygiene measures for handling chemicals.
Keep away from foodstuffs, beverages and feed.
Remove all soiled and contaminated clothing immediately.
Wash hands before breaks and at the end of work.
Breathing equipment:
Use suitable respirator when high concentrations are present.
Recommended filter device for short term use:
Use a respirator with type P100 (USA) or P3 (EN 143) cartridges as a backup to engineering controls.
Risk assessment should be performed to determine if air-purifying respirators are appropriate. Only use equipment tested and approved under appropriate government standards.
Protection of hands: Impervious gloves
Inspect gloves prior to use.
Suitability of gloves should be determined both by material and quality, the latter of which may vary by manufacturer.
Material of gloves
Nitrile rubber, NBR
Penetration time of glove material (in minutes)
480
Glove thickness
0.11 mm
Eye protection: Safety glasses
Body protection: Protective work clothing.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Appearance:
Form: Powder
Color: Silvery-white
Odor: Odorless
Odor threshold: No data available.
pH: N/A.
Melting point/range: 156.6 °C (314 °F)
Boiling point/range: 2072 °C (3762 °F)
Sublimation temperature / start: No data available.
Flammability (solid, gas): Highly flammable.
Ignition temperature: No data available.
Decomposition temperature: No data available.
Auto igniting: No data available.
Danger of explosion: No data available.
Explosion limits:
Lower: No data available.
Upper: No data available.
Vapor pressure at 20 °C (68 °F): 0 hPa
Density at 20 °C (68 °F): 7.31 g/cm³ (61.002 lbs/gal)
Relative density: No data available.
Vapor density: N/A.
Evaporation rate: N/A.
Solubility in Water (H₂O): No data available.
Partition coefficient (n-octanol/water): No data available.
Viscosity:
Dynamic: N/A.
Kinematic: N/A.
Other information
No further relevant information available

SECTION 10. STABILITY AND REACTIVITY

Reactivity
No data available.
Chemical stability
Stable under recommended storage conditions.
Thermal decomposition / conditions to be avoided:
Decomposition will not occur if used and stored according to specifications.
Possibility of hazardous reactions
No dangerous reactions known
Conditions to avoid
No information available.
Incompatible materials:
Oxidizing agents
Hazardous decomposition products:
Indium oxide

SECTION 11. TOXICOLOGICAL INFORMATION

Information on toxicological effects
Acute toxicity:

The Registry of Toxic Effects of Chemical Substances (RTECS) contains acute toxicity data for this substance.

LD/LC50 values that are relevant for classification: No data

Skin irritation or corrosion: May cause irritation

Eye irritation or corrosion: May cause irritation

Sensitization: No sensitizing effects known.

Germ cell mutagenicity: N/A

Carcinogenicity:

No classification data on carcinogenic properties of this material is available from the EPA, IARC, NTP, OSHA or ACGIH.

Reproductive toxicity: N/A

Specific target organ system toxicity - repeated exposure: N/A

Specific target organ system toxicity - single exposure: N/A

Aspiration hazard: N/A

Subacute to chronic toxicity: N/A

Additional toxicological information:

To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.

SECTION 12. ECOLOGICAL INFORMATION

Toxicity

Aquatic toxicity:

No information available.

Persistence and degradability:

No information available.

Bioaccumulative potential:

No information available.

Mobility in soil:

No information available.

Additional ecological information:

General notes:

Do not allow material to be released to the environment without official permits.

Do not allow undiluted product or large quantities to reach ground water, water course or sewage system.

Avoid transfer into the environment.

Results of PBT and vPvB assessment:

PBT: N/A.

vPvB: N/A.

Other adverse effects

No information available.

SECTION 13. DISPOSAL CONSIDERATIONS

Waste treatment methods

Recommendation:

Consult state, local or national regulations to ensure proper disposal.

Uncleaned packagings:

Recommendation:

Disposal must be made according to official regulations.

SECTION 14. TRANSPORT INFORMATION

UN-Number

DOT, IMDG, IATA

UN3089

UN proper shipping name

DOT

Metal powders, flammable, n.o.s. (Indium powder)

IMDG, IATA

METAL POWDER, FLAMMABLE, N.O.S. (Indium powder)

Transport hazard class(es)

DOT

Class

4.1 Flammable solids, self-reactive substances and solid desensitised explosives.

Label

4.1

Class

4.1 (F3) Flammable solids, self-reactive substances and solid desensitised explosives

Label

4.1

IMDG, IATA

Class

4.1 Flammable solids, self-reactive substances and solid desensitised explosives.

Label

4.1

Packing group

DOT, IMDG, IATA

III

Environmental hazards: N/A.

Special precautions for user

Warning: Flammable solids, self-reactive substances and solid desensitised explosives

EMS Number:

F-G,S-G

Segregation groups

Heavy metals and their salts (including their organometallic compounds), powdered metals

Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code

N/A.

Transport/Additional information:

DOT

Marine Pollutant (DOT):

No

UN "Model Regulation":

UN3089, Metal powders, flammable, n.o.s. (Indium powder), 4.1, III

SECTION 15. REGULATORY INFORMATION

Safety, health and environmental regulations/legislation specific for the substance or mixture

National regulations

All components of this product are listed in the U.S. Environmental Protection Agency Toxic Substances Control Act Chemical substance Inventory.

All components of this product are listed on the Canadian Domestic Substances List (DSL).

SARA Section 313 (specific toxic chemical listings)
Substance is not listed.
California Proposition 65
Prop 65 - Chemicals known to cause cancer
Substance is not listed.
Prop 65 - Developmental toxicity
Substance is not listed.
Prop 65 - Developmental toxicity, female
Substance is not listed.
Prop 65 - Developmental toxicity, male
Substance is not listed.
Information about limitation of use:
For use only by technically qualified individuals.
Other regulations, limitations and prohibitive regulations
Substance of Very High Concern (SVHC) according to the REACH Regulations (EC) No. 1907/2006.
Substance is not listed.
The conditions of restrictions according to Article 67 and Annex XVII of the Regulation (EC) No 1907/2006 (REACH) for the manufacturing, placing on the market and use must be observed.
Substance is not listed.
Annex XIV of the REACH Regulations (requiring Authorisation for use)
Substance is not listed.
REACH - Pre-registered substances
Substance is listed.
Chemical safety assessment:
A Chemical Safety Assessment has not been carried out.

SECTION 2. HAZARDS IDENTIFICATION

Classification of the substance or mixture:
GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Eye irritation (Category 2A), H319
Respiratory system, H335
Signal word: Danger



Hazard statement(s):
H225: Highly flammable liquid and vapor.
H319 Causes serious eye irritation.
H335 May cause respiratory irritation;
Precautionary statement(s):
P261 Avoid breathing dust/ fume/ gas/ mist/ vapors/ spray.
P264 Wash skin thoroughly after handling.
P271 Use only outdoors or in a well-ventilated area.
P280 Wear protective gloves/ eye protection/ face protection.
P304 + P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P312 Call a POISON CENTER or doctor/ physician if you feel unwell.
P337 + P313 If eye irritation persists: Get medical advice/ attention.
P403 + P233 Store in a well-ventilated place. Keep container tightly closed.

P405 Store locked up.
P501 Dispose of contents/ container to an approved waste disposal plant
Hazards not otherwise classified (HNOC) or not covered by GHS:
None

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substances:
Indium CAS#: 7440-74-6
5wt% dispersed in Mineral Oil

SECTION 4. FIRST AID MEASURES

General advice:
Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.
If inhaled:
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.
In case of skin contact:
Wash off with soap and plenty of water. Consult a physician.
In case of eye contact:
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.
If swallowed:
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.
Most important symptoms and effects, both acute and delayed:
The most important known symptoms and effects are described in the labeling (see section 2.2) and/or in section 11.

SECTION 5. FIREFIGHTING MEASURES

Extinguishing media
Suitable extinguishing media:
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.
Special hazards arising from the substance or mixture:
The product is flammable
Advice for firefighters:
Wear self contained breathing apparatus for firefighting if necessary.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures:
Use personal protective equipment. Avoid dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.
Environmental precautions:
Do not let product enter drains.
Methods and materials for containment and cleaning up:
Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed

containers for disposal.

SECTION 7. HANDLING AND STORAGE

Precautions for safe handling:

Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Provide appropriate exhaust ventilation at places where dust is formed.

Conditions for safe storage, including any incompatibilities:

Keep container tightly closed in a dry and well-ventilated place.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Components with workplace control parameters:

No data

Exposure controls

Appropriate engineering controls:

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Eye/face protection:

Safety glasses with side-shields conforming to EN166 Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection:

For any handling steps where the substance is in particulate form or in a suspension with pure water where the substance is not solubilized, the gloves must be comprised of material that successfully passes ASTM F-1671. For any handling steps where the substance is part of a carrier liquid, other than the aqueous suspension noted in the previous paragraph, gloves must be comprised of material that successfully passes ASTM F-739 (continuous liquid contact method). Gloves must be changed before they show degradation and before the designated breakthrough time for the carrier liquid (as determined by the ASTM F-739 testing or by the manufacturer). Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Body Protection:

Impervious clothing, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection:

The EPA mandates the use of full face respirators with minimum N100 grade cartridges if there is any risk of exposure to the dust. For nuisance exposures use type P95 (US) or type P1 (EU EN 143) particle respirator. For higher level protection use type OV/AG/P99 (US) or type ABEK-P2 (EU EN 143) respirator cartridges. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure:

Do not let product enter drains.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: liquid

Odor: odorless

Odor Threshold: no data available

pH: no data available
Melting point/freezing point: no data available
Initial boiling point and boiling range: no data available
Flash point: no data available
Evaporation rate: no data available
Flammability (solid, gas): no data available
Upper/lower flammability or explosive limits: no data available
Vapor pressure: no data available
Vapor density: no data available
Relative density: no data available
Water solubility: insoluble
Partition coefficient - octanol/water: no data available
Auto-ignition temperature: no data available
Decomposition temperature: no data available
Viscosity: no data available
Explosive properties: no data available
Oxidizing properties: no data available

SECTION 10. STABILITY AND REACTIVITY

Reactivity:
no data available
Chemical stability:
Stable under recommended storage conditions.
Possibility of hazardous reactions:
no data available
Conditions to avoid:
no data available
Incompatible materials:
Strong oxidizing agents
Hazardous decomposition products:
Other decomposition products - no data available

SECTION 11. TOXICOLOGICAL INFORMATION

Acute toxicity
no data available
Inhalation: no data available
Dermal: no data available
Skin corrosion/irritation:
no data available
Serious eye damage/eye irritation:
no data available
Respiratory or skin sensitization:
no data available
Germ cell mutagenicity:
no data available
Carcinogenicity:
no data available
Reproductive toxicity:
no data available

Specific target organ toxicity - single exposure:

Inhalation - May cause respiratory irritation.

Specific target organ toxicity - repeated exposure:

no data available

Aspiration hazard:

no data available

Additional Information:

RTECS: Not available

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated

SECTION 12. ECOLOGICAL INFORMATION

Toxicity:

no data available

Persistence and degradability:

no data available

Bioaccumulative potential:

no data available

Mobility in soil:

no data available

Results of PBT and vPvB assessment:

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

SECTION 13. DISPOSAL CONSIDERATIONS

Waste treatment methods

Product:

Consult state, local or national regulations to ensure proper disposal.

Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging:

Dispose of as unused product.

SECTION 14. TRANSPORT INFORMATION

DOT (US)

Shipping Name: Ethanol Dispersion

Hazard Class: 3

UN/NA #: UN1170

Packing Group: II

IMDG

Shipping Name: Ethanol Dispersion

Hazard Class: 3

UN/NA #: UN1170

Packing Group: II

IATA

Shipping Name: Ethanol Dispersion

Hazard Class: 3

UN/NA #: UN1170

SECTION 15. REGULATORY INFORMATION

SARA 302 Components:

SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components:

SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards

SECTION 16. OTHER INFORMATION

Safety Data Sheet according to Regulation (EC) No. 1907/2006 (REACH). The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. American Elements shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale. COPYRIGHT 1997-2022 AMERICAN ELEMENTS. LICENSED GRANTED TO MAKE UNLIMITED PAPER COPIES FOR INTERNAL USE ONLY.