

Material Safety Data Sheet

acc. to OSHA and ANSI

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1 Identification of substance:

- **Product details:**
- **Trade name:** Indium (III) hydroxide
- **Stock number:** 2810TN
- **Manufacturer/Supplier:**
Nanostructured & Amorphous Materials, Inc.
16840 Clay Road, Suite #113
Houston, TX 77084, USA

2 Composition/Data on components:

- **Chemical characterization:**
Description: (CAS#)
Indium (III) hydroxide (CAS# 20661-21-6), 99.99%
- **Identification number(s):**
- **EINECS Number:** 243-947-7

3 Hazards identification

- **Hazard description:** Xi Irritant
- **Information pertaining to particular dangers for man and environment**
R 36/38 Irritating to eyes and skin.

4 First aid measures

- **After inhalation**
Supply fresh air. If required, provide artificial respiration. Keep patient warm.
Seek immediate medical advice.
- **After skin contact**
Immediately wash with water and soap and rinse thoroughly.

Seek immediate medical advice.

- **After eye contact**

Rinse opened eye for several minutes under running water.
Then consult a doctor.

- **After swallowing** Seek immediate medical advice.

5 Fire fighting measures

- **Suitable extinguishing agents**

Carbon dioxide, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.

- **Protective equipment:**

Wear self-contained respirator.
Wear fully protective impervious suit.

6 Accidental release measures

- **Person-related safety precautions:**

Wear protective equipment. Keep unprotected persons away.
Ensure adequate ventilation

- **Measures for environmental protection:**

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

- **Measures for cleaning/collecting:** Pick up mechanically.

- **Additional information:**

See Section 7 for information on safe handling
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

7 Handling and storage

- **Handling**

- **Information for safe handling:**

Keep container tightly sealed.
Store in cool, dry place in tightly closed containers.
Ensure good ventilation at the workplace.

- **Information about protection against explosions and fires:**

No special measures required.

- **Storage**
- **Requirements to be met by storerooms and receptacles:**
No special requirements.
- **Information about storage in one common storage facility:**
Do not store together with acids.
- **Further information about storage conditions:**
This product is hygroscopic.
Protect from carbon dioxide.
Keep container tightly sealed.
Store in cool, dry conditions in well sealed containers.

8 Exposure controls and 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.

Components with limit values that require monitoring at the workplace:

Indium and compounds	mg/m ³
ACGIH TLV	0.1 as In
Belgium TWA	0.1
Switzerland TWA	0.1
United Kingdom TWA	0.1 as In, 0.3 as In-STEL
Netherlands TWA	0.1
Denmark TWA	0.1
Finland TWA	0.1
Ireland TWA	0.1, 0.3 STEL

- **Additional information:** No data
- **Personal protective equipment**
- **General protective and hygienic measures**
The usual precautionary measures for handling chemicals should be followed.
Keep away from foodstuffs, beverages and feed.
Remove all soiled and contaminated clothing immediately.
Wash hands before breaks and at the end of work.
Avoid contact with the eyes and skin.
- **Breathing equipment:**

Use suitable respirator when high concentrations are present.

- **Protection of hands:** Impervious gloves
- **Eye protection:**
Safety glasses
Tightly sealed goggles
Full face protection
- **Body protection:** Protective work clothing.

9 Physical and chemical properties:

- **Form:** Powder
- **Color:** white
- **Odor:** Not determined

	<u>Value/Range</u>	<u>Unit</u>	<u>Method</u>
• Change in condition			
• Melting point/Melting range:	150	°C	(-H ₂ O)
• Boiling point/Boiling range:	Not determined		
• Sublimation temperature / start:	Not determined		
• Flash point:	Not applicable		
• Ignition temperature:	Not determined		
• Decomposition temperature:	Not determined		
• Danger of explosion: Product does not present an explosion hazard.			
• Explosion limits:			
• Lower:	Not determined		

- **Upper:** Not determined
- **Vapor pressure:** Not determined
- **Density:** at 20 °C ~ 4.45 g/cm³
- **Solubility in / Miscibility with**
- **Water:** Insoluble

10 Stability and reactivity

- **Thermal decomposition / conditions to be avoided:**
Decomposition will not occur if used and stored according to specifications.
- **Materials to be avoided:** Acids
- **Dangerous reactions** No dangerous reactions known
- **Dangerous products of decomposition:** Metal oxide fume

11 Toxicological information

- **Acute toxicity:**
- **Primary irritant effect:**
- **on the skin:** Irritant to skin and mucous membranes.
- **on the eye:** Irritating effect.
- **Sensitization:** No sensitizing effects known.
- **Subacute to chronic toxicity:**
Exposure to indium compounds may cause pain in the joints and bones, tooth decay, nervous and gastrointestinal disorders, heart pain and general debility. Experiments with animals also indicate that indium may cause reduced food and water consumption with weight loss, pulmonary edema, pneumonia, blood, liver and kidney damage, leg paralysis and damage to the brain, heart, adrenals and spleen.
- **Additional toxicological information:**
To the best of our knowledge the acute and chronic toxicity

of this substance is not fully known.
No classification data on carcinogenic properties of this material is available from the EPA, IARC, NTP, OSHA or ACGIH.

12 Ecological information:

- **General notes:**
Do not allow material to be released to the environment without proper governmental permits.

13 Disposal considerations

- **Product:**
- **Recommendation**
Consult state, local or national regulations for proper disposal.
- **Uncleaned packagings:**
- **Recommendation:**
Disposal must be made according to official regulations.

14 Transport information

Not a hazardous material for transportation.

- **DOT regulations:**
- **Hazard class:** None
- **Land transport ADR/RID (cross-border)**
- **ADR/RID class:** None
- **Maritime transport IMDG:**
- **IMDG Class:** None
- **Air transport ICAO-TI and IATA-DGR:**
- **ICAO/IATA Class:** None

- **Transport/Additional information:**
Not dangerous according to the above specifications.

15 Regulations

- **Product related hazard informations:**
- **Hazard symbols:** Xi Irritant
- **Risk phrases:** 36/38 Irritating to eyes and skin.
- **Safety phrases:**
26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
- **National regulations**
All components of this product are listed in the U.S. Environmental Protection Agency Toxic Substances Control Act Chemical Substance Inventory.
- **Information about limitation of use:**
For use only by technically qualified individuals.

16 Other information:

Employers should use this information only as a supplement to other information gathered by them, and should make independent judgement of suitability of this information to ensure proper use and protect the health and safety of employees. This information is furnished without warranty, and any use of the product not in conformance with this Material Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.