

MATERIAL SAFETY DATA SHEET (MSDS)

Product Name: Single-walled Carbon Nanotubes

Product Series: TI-SWCNT

1. Chemical Product And Company Identification

1.1. Product Name: Pure Single-walled Carbon Nanotubes (SWCNT)

Product Code: SWCNT

MSDS Issued Date – 1st April 2023

1.2. Details of the supplier

Company: M/s. Techinstro
Plot No. - 463, Yadav Nagar
Nagpur, Maharashtra, India
Pin Code- 440026
Emergency Contact: +91(0) 8007799090
Emergency Contact Email: info@techinstro.com

2. Composition/Information On Ingredients

Ingredient Name: Single-walled Carbon Nanotubes

3. Hazards Identification

Potential Health Effects

The product is in odorless black fibrous powder and is not expected to cause environmental hazards under an excellent industrial hygiene plan. When exposed, dust from handling or processing may cause eye, skin, and respiratory tract irritation. The product contains a small amount of metal oxides and may produce an allergic reaction. Wear appropriate personal protective equipment. Keeps the product handling in a confined space. A proper air ventilation system is advised in handling the product.

Eye

Contact with the eyes may irritate due to the abrasive action of the dust. Not expected to cause prolonged or significant eye irritation.

Skin

There is no known hazard, but it may be mildly irritating to the skin. It is not expected to cause prolonged or significant irritation, even at high concentrations. It is not likely to be absorbed through the intact skin. We've found that when touched with bare hands, the nanotubes tend to stick to the skin, and they can be washed off easily using soap and water.

Inhalation

The SWCNT tends to agglomerate into large bundles; the dust cannot enter your lungs through nostrils, but if they enter the lungs through other means, it may cause respiratory irritation.

Ingestion

No known hazards. The Nanotubes are not expected to be harmful if swallowed, but the catalyst particles could be reactive. Hence, it is advisable to use anti-vomit in case of ingestion.

Acute and Chronic Health Effects

High concentrations of dust may be irritating to the eyes, skin, mucus membranes, and respiratory there is no applicable chronic information at this moment, but none of the components is known to be a carcinogen or a suspected Page carcinogen.

Target Organ Effects

No data

Developmental Information

There are no data available for assessing risk to the fetus from maternal exposure to this material

4.First Aid Measures

General

Remove all contaminated clothing immediately.

Eyes

Hold the eyes open and rinse with water for a sufficiently long period (at least 10 minutes). Obtain medical attention if pain, blinking, or redness persists.

Skin

Rinse with soap and plenty of water in case of skin contact. Obtain medical attention if irritation persists.

Inhalation

If dust is inhaled, move the person into the air, keep warm, and allow to rest. If breathing is difficult, oxygen may be administered, and medical attention should be obtained.

Ingestion

Rinse mouth with water and obtain medical attention.

5. Firefighting Measures

Flash Point

Not applicable

Explosive Limit

No data

Autoignition Temperature

No data

Hazardous Products of Combustion

Carbon oxide, a small quantity of metal oxides,

Fire and Explosion Hazards

No special fire hazards are known to be associated with this product

Extinguishing Media

Water, Carbon Dioxide, Dry Chemical, or Foam

Fire Fighting Instructions

Wear a self-contained breathing apparatus for firefighting

6. Accidental Release Measures

Personal precautions

Equip the cleanup crew with proper protection. Ensure adequate ventilation.

Environmental precautions

Prevent entry to sewers and public waters

Spill Procedures

Sweep or vacuum according to everyday housekeeping practices

7. Handling And Storage

General

Keep it in a closed container. Additional sealing may prevent accidental dust release.

Precautions in handling and storage

Good ventilation in the workplace is required. Contact with the skin and the eyes, as well as inhalation of dust, must be avoided.

Storage

Keep only in the original container in a dedicated place

Handling

Handle by good industrial hygiene and safety procedures

8.Exposure Controls/Personal protection

Eye Protection

Chemical goggles, safety glasses, or full-faced shields

Skin Protection

Suits, gloves, and other items of protective clothing. Protecting gloves including, for example: Nitrile, latex, and rubber

Respiratory Protections

When directly exposed to or handling the powder, wear suitable respiratory equipment with a High-Efficiency Particulate Air Filter (HEPA), such as a NIOSH P100 filter or air-supplied respirators.

Engineering Controls

Provide sufficient mechanical (general and/or local exhaust) ventilation for dust.

Exposure Guidelines

In contact, ensure prompt removal from eyes, skin, and clothing. Wash hands and other exposed areas

9.Physical And Chemical Properties

Appearance: Black Fibrous Powder

Physical State: Solid

Odor: None

Specific Gravity (Water = 1.0): Not Determined

Solubility in Water (Weight %): Insoluble

Ph: 4-10

Boiling Point: Not Determined

Melting Point: Not Applicable

Vapor Pressure: Not Applicable

Vapor Density (Air = 1.0): Not Determined

Evaporation Rate: Not Determined

Compared To: Not Applicable

% Volatiles: Not Determined

Flash Point: Not determined

10. Stability And Reactivity

Stability

Thermal decomposition or combustion in the presence of air/Oxygen may produce carbon oxide and metal oxide smoke. It can withstand ~3000K in an inert atmosphere.

Incompatibility

Avoid contacting very strong oxidizing and reducing agents. No hazardous reaction when used as directed.

Conditions to avoid

Avoid excessive heating (above 400 C) in an atmosphere

11. Toxicological Information

Rat oral LD50 [mg/kg]

No conclusive data

Rabbit dermal LD50 [mg/kg]

No conclusive data

Rat inhalation LC50 [mg/l/4h]

No conclusive data

Health Hazard Data

Experimentations performed on reconstituted human epidermis have shown no toxicity of even massive doses (full skin coverage for 24 hours) of carbon nanotubes (results to be published). However, preliminary reports based on pre-studies on rats instilled with severe, high-level carbon nanotube material indicate that carbon nanotubes are potentially toxic for humans if inhaled in large quantities. Such an exposure scenario is, however, unrealistic. Nevertheless, it is recommended that respiratory protection should be used to prevent inhalation exposure to carbon nanotubes.

12. Ecological Information

The product is not expected to present environmental hazards.

13. Disposal Considerations

Disposal

As prepared, the product is considered as non-hazardous. It can then be disposed of in an approved landfill or destroyed by incineration. Volatile dust must be collected during incineration.

Liquids containing significant carbon nanotubes must be filtered before being released into the sewer.

14. Transport Information

They are not regulated. Use precautions during transport to prevent accidental spills. Not dangerous cargo. Keep separated from foodstuffs.

15. Regulatory Information

Symbol(s): None

R Phrase(s): None

S Phrase(s): S22 Do not inhale dust particles
S29 Do not throw into drains S36/37/39
Wear suitable clothing, gloves, eye/face protection

Regulations

This product is listed in the TSCA (US Toxic Substances Control Act), Canadian Domestic Substances List (DSL), European Inventory of Existing Commercial Chemical Substances (EINECS), Korean Existing Chemicals List (ECL), Australian Inventory of Chemical Substances (AICS) Philippines Inventory of Chemicals and Chemical Substances (PICCS) Swiss Giftliste 1 Inventory of Notified New Substances This product is not regulated in Japan and excluded from the Japanese Chemical Substances Control Law according to the Japanese Trade and Industry, Ministry of Economy, formerly the Ministry of International Trade and Industry (MITI).

16. Other Information

Disclaimer: Techinstro believes that the information in this Material Safety Data Sheet is accurate and represents the best information. Techinstro makes no representations or warranties regarding the suitability of the material for the accuracy of the information contained in this document.