

# Material Safety Data Sheet

acc. to OSHA and ANSI

12/13/2007

## 1 Identification of substance:

- Product details:
- Product name: Tungsten (VI) oxide
- Stock number: 5507YD
- Manufacturer/Supplier:  
Nanostructured & Amorphous Materials, Inc.  
16840 Clay Road, Suite #113  
Houston, TX 77084, USA

## 2 Composition/Data on components:

- Chemical characterization:  
Description: (CAS#)  
Tungsten (VI) oxide (CAS# 1314-35-8), 100%
- Identification number(s):
- EINECS Number: 215-231-4

## 3 Hazards identification

- Hazard description: Xn Harmful
- Information pertaining to particular dangers for man and environment  
R 20/21/22 Harmful by inhalation, in contact with skin and if swallowed.  
R 36/37/38 Irritating to eyes, respiratory system and skin.
- Classification system
- HMIS ratings (scale 0-4)

(Hazardous Materials Identification System)

Health (acute effects) = 1  
Flammability = 0  
Reactivity = 0

#### 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**  
Product is not flammable. Use fire fighting measures that suit the surrounding fire.
- **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:**  
Dispose contaminated material as waste according to item 13.  
Ensure adequate ventilation.
- **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:**  
The product is not flammable  
No special measures required.
- **Storage**
- **Requirements to be met by storerooms and receptacles:**  
No special requirements.
- **Information about storage in one common storage facility:**  
Store away from halogens.
- **Further information about storage conditions:**  
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:**

Tungsten and compounds (as W)	
	mg/m <sup>3</sup>
ACGIH TLV	1; 3-STEL (soluble compounds) 5; 10-STEL (insoluble compounds)
Denmark TWA	5
Netherlands MAC-TGG	5
Norway TWA	5

Poland TWA	5 (fume and dust)
Russia	2-STEL
Sweden NGV	5
United Kingdom TWA	5; 10-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
- **Body protection:** Protective work clothing.

## 9 Physical and chemical properties:

- **General Information**
  - **Form:** Powder
  - **Color:** yellow
  - **Odor:** Odorless
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  - **Change in condition**
  - **Melting point/Melting range:** 1473 ° C
  - **Boiling point/Boiling range:** Not determined
  - **Sublimation temperature / start:** Not determined
  - **Flash point:** Not applicable
- |  | <u>Value/Range</u> | <u>Unit</u> | <u>Method</u> |
|--|--------------------|-------------|---------------|
|  |                    |             |               |



- **on the skin:** Irritant to skin and mucous membranes.
- **on the eye:** Irritating effect.
- **Sensitization:** No sensitizing effects known.
- **Subacute to chronic toxicity:**  
Tungsten compounds may be irritating to the eyes and respiratory tract. Animal studies suggest that soluble tungsten compounds have the potential for causing adverse health effects involving the gastrointestinal tract and central nervous system. These effects have not been observed in humans. Chronic exposure to tungsten compounds may result in permanent lung damage.
- **Additional toxicological information:**  
Danger through skin absorption.  
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 to ensure 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:** Xn Harmful
- **Risk phrases:**  
20/21/22 Harmful by inhalation, in contact with skin and if swallowed.  
36/37/38 Irritating to eyes, respiratory system and skin.
- **Safety phrases:**  
26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.  
36/37 Wear suitable protective clothing and gloves.
- **National regulations**  
All components of this product are listed in the U.S. Environmental 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.