

## **Material Safety Data Sheet**

Identity: Tantalum nitride

Formula: TaN

### SECTION I - GENERAL INFORMATION

Manufacturer: [Stanford Advanced Materials](#) (SAM)

The information below is believed to be accurate and represents the best information available to SAM. However, SAM makes no warranty, expressed or implied with respect to such information and assumes no liability resulting from its use.

### SECTION II - HAZARDOUS INGREDIENTS/IDENTITY INFORMATION

Molecular weight: 194.95

CAS #	OSHA PEL	ACGIH TLV	Other	%
12033-62-4	5mg(Ta)/m3	5mg(Ta)/m3	NE	0.0-100%

### SECTION III - PHYSICAL/CHEMICAL CHARACTERISTICS

Physical States: Solid

Boiling Point: NE or NA

Vapor Pressure: NE

Melting Point: 3310.0 °C

Vapor Density: NA

Solubility in water: insoluble

Specific Gravity: (water=1) 16.3 gm/cc

Percent Volatile: NE or NA

*Appearance and odor:* Brown, bronze, or black powder, no odor.

### SECTION IV - FIRE AND EXPLOSION HAZARD DATA:

*Flash Point:* NA Method    *Used:* Non-flammable

*Method Used:*

*Explosive Limits:* LEL: NA    UEL: NA

*Extinguishing Media:*

Use: Not applicable. Use suitable extinguishing media for surrounding materials and type of fire.

*Special Fire Fighting Procedures:* Firefighters must wear full face, self-contained breathing apparatus with full protective clothing to prevent contact with skin and eyes. Fumes from fire are hazardous. Isolate runoff to prevent environmental pollution.

*Unusual Fire and Explosion Hazards:* When heated to decomposition, tantalum nitride may emit toxic fumes of ammonia, which can form explosive mixtures with air.

SECTION V - REACTIVITY DATA

*Stability:* Stable

*Conditions to Avoid (instability):* None

*Incompatibility- Materials to Avoid:* Water, moisture and strong oxidizing agents.

*Hazardous Decomposition or Byproducts:* Ammonia fumes

*Conditions to Avoid - Hazardous Polymerization:* Will not occur.

*Conditions to avoid (hazardous polymerization):*

SECTION VI - HEALTH HAZARD DATA

*Routes of entry:* Inhalation?    Skin?    Yes    Eyes?    Yes    Ingestion?    Yes

*Health Hazards (Acute and Chronic):*

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

Some industrial skin injuries from tantalum have been reported. Systemic industrial poisoning, however, is apparently unknown. Questionable carcinogen with experimental tumorigenic data. The details of the toxicity of nitrides as a group are unknown. Ammonia is a human poison by an unspecified route. Poison by inhalation, ingestion, and possibly other routes. Any eye, mucous membrane and systemic irritation can occur by inhalation. Mutation data reported. (Sax, Dangerous Properties of Industrial Materials, eight editions).

*Inhalation:*

*Acute:* May cause irritation to the respiratory system, nose, throat and lungs, and possible chemical burns to the mucous membranes

*Chronic:* May cause lung edema, laryngeal and bronchial spasms and possibly death.

*Ingestion:*

*Acute:* May cause chemical burns to the mouth, throat, and gastrointestinal tract.

*Chronic:* No chronic health effects recorded.

*Skin:*

*Acute:* May be corrosive and irritant.

*Chronic:* May cause dermatitis.

*Eye:*

*Acute:* May be corrosive and an irritant.

*Chronic:* May cause irreversible damage to tissues, such as the conjunctiva, lens and cornea.

*Target Organ:* May affect the respiratory system, skin, and eyes.

*Carcinogenicity:* NTP? No

IARC Monographs? No

OSHA Regulated? No

LD 50/LC 50: No toxicity data recorded.

Signs and Symptoms of Exposure:

*Inhalation:* Remove victim to fresh air; keep warm and quiet; give oxygen if breathing is difficult and seek medical attention if symptoms persist.

*Ingestion:* May cause nausea, burning sensation, and vomiting.

*Skin:* May cause redness, itching, swelling, burning sensation and blistering.

*Eye:* May cause redness, itching, watering, and burning sensation.

Medical Conditions Generally Aggravated By Exposure:

Pre-existing respiratory and skin disorders.

Emergency and First Aid Procedures:

*Inhalation:* Remove victim to fresh air, keep warm and quiet, and give oxygen if breathing is difficult; seek medical attention

*Ingestion:* Do not induce vomiting, seek medical attention immediately.

*Skin:* Remove contaminated clothing, brush material off skin, wash affected area with mild soap and water, and seek medical attention immediately.

*Eye:* Flush eyes with lukewarm water, lifting upper and lower eyelids for at least 15 minutes and seek medical attention immediately.

SECTION VII - PRECAUTIONS FOR SAFE HANDLING AND USE
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*Steps to be taken in case material is released or spilled:*

Wear appropriate respiratory and protective equipment specified in section VIII-Control Measures. Isolate spill area, provide ventilation. Vacuum up spill using a high efficiency particulate absolute (HEPA) air filter and place in a closed container for proper disposal. Take care not to raise dust.

*Waste disposal method:*

Dispose of in accordance with state, local, and federal regulations.

*Hazard Label Information:*

Store in cool, dry area and in tightly sealed container. Wash thoroughly after handling.

*Precautions to Be Taken In Handling and Storing:* None.

*Other Precautions:*

Tantalum nitride may react in moist air. Handle and store in a controlled and inert gas such as argon.

SECTION VIII - CONTROL MEASURES

Protective Equipment Summary (Hazard Label Information):

NIOSH approved respirator, impervious gloves, safety glasses, clothes to prevent contact.

Ventilation:

Local Exhaust: Local exhaust ventilation may be necessary to control any air contaminants to within their PEL or TLVs during the use of this product.

Mechanical (General): Good general ventilation is recommended.

Other Protective Clothing or Equipment: Protective gear suitable to prevent contamination.

Work/Hygienic/Maintenance Practices:

Implement engineering and work practice controls to reduce and maintain concentration of exposure at low levels. Use good housekeeping and sanitation practices. Do not use tobacco or food in work area. Wash thoroughly before eating or smoking. Do not blow dust off clothing or skin with compressed air.

Please be advised that N/A can either mean Not Applicable or No Data Has Been Established