

MATERIAL SAFETY DATA SHEET

SECTION 1 – PRODUCT IDENTIFICATION

Product Name: **Titanium Oxide Powder**
 Product Item: 420001
 Product Code: HA 4001

 Supplier: **HAI Advanced Material Specialists, Inc.**
1688 Sierra Madre Circle
Placentia, CA 92870
(714)-414-0575

 Emergency Contact: 888-255-3924
 Chemical Family: Metal Oxide
 Formula: TiO₂
 Molecular Weight: 70.89

SECTION 2 – HAZARDOUS INGREDIENTS

IMPORTANT! This section covers the material from which these products are manufactured. Dust and gases produced when spraying with normal use of these products are covered in Section 5.

Material or Component	CAS #	Concentration	OSHA PEL	ACGIH TLV	Other Limits
Titanium dioxide	13463-67-7	0.0 -100.0 %	15 mg/m ³ tot. dust	10 mg/m ³	No data
Material or Component	RTECS #	OSHA STEL	OSHA CEIL	ACGIH STEL	ACGIH CEIL
Titanium dioxide	XR2275000	No data	No data	No data	No data

US EPA SARA TITLE III

Material or Component	CAS Number	Sec. 302 (EHS)	Sec. 304 RQ	Sec. 313 (TRI)
Titanium dioxide	13463-67-7	No	No	No

SECTION 3 – PHYSICAL/CHEMICAL CHARACTERISTICS

Physical States: [] Gas [] Liquid [X] Solid
Melting Point: 1830 - 1860°C
Boiling Point: 2500 - 3000°C
Specific gravity (water=1): 4.62 g/cm³
Vapor pressure (mmHg): No data
Vapor Density (Air=1): No data
Evaporation rate (Butylacetate=1): No data
Solubility in water: Insoluble
Percent volatile (vol.): No data
Corrosion Rate: No data
Appearance and odor: White powder, no odor
Other: None

SECTION 4 – FIRE AND EXPLOSION HAZARD DATA

Flash point: N/A Method Used: Unknown
Auto ignition temp.: N/A
Flammable limits: N/A
Explosive Limits: LEL: N/A UEL: N/A
Extinguishing Media: Not applicable. Use suitable extinguishing medias for surrounding materials and type of fire.
Special fire fighting procedures: Firefighters should 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: May have a violent or incandescent reaction with metals at high temperatures.

SECTION 5 – REACTIVITY DATA

Stability: Unstable [] Stable [X]
Conditions to avoid - Instability: None
Incompatibility – Materials to avoid: Strong acids, aluminum, calcium, magnesium, potassium, sodium, zinc
Hazardous decomposition products: None recorded
Hazardous polymerization: Will occur [] Will not occur [X]
Conditions to avoid – Hazardous polymerization: None
Product corrosive: Yes [] No [X]

SECTION 6 – HEALTH HAZARD DATA

Health Hazards (Acute and Chronic)

TITANIUM COMPOUNDS: There are no reported cases in the literature where titanium as such has caused human intoxication. The dusts of titanium or most titanium compounds may be placed in the nuisance category. (Sax, Dangerous Properties of Industrial Materials, eighth edition)

Inhalation: Acute: Dust may cause irritation to the upper respiratory tract and mucous membranes.
Chronic: May cause slight lesions in the lungs, lung fibrosis, bronchitis and emphysema.

Ingestion: Acute: No acute health effects recorded.
Chronic: No chronic health effects recorded.

Skin: Acute: May cause skin irritation.
Chronic: .No chronic health effects recorded.

Eye: Acute: Prolonged or repeated contact may cause irritation.
Chronic: No chronic health effects recorded.

Target Organs: No target organ effects recorded.

Carcinogenicity: NTP? [No] ARC Monographs? [No] OSHA Regulated? [No]

Carcinogenicity/other Information:

Questionable carcinogen with experimental carcinogenic, neoplastigenic, and tumorigenic data.

orl-rat LD50: >7,500 mg/kg

Human Standard Draize Test Dose: 300 ug/3D-I; Reaction: mild

Mutagenic: Mouse Micronucleus Test; route: Intraperitoneal; Dose: 3gm/kg3D-C. Hamster DNA Inhibition; Cell Type: lung; Dose: 500 mg/L

Tumorigenic: Tat Route: Inhalation; Dose: 250 mg/m3/6H/2Y-I; Toxic Effects: Tumorigenic - Carcinogenic by RTECs Criteria; Lungs, Thorax, or Respiration - Tumors Rat Route: Inhalation; Dose: 10 mg/m3/18H/2Y-I; toxic Effects: Tumorigenic - Carcinogenic by RTECs criteria; Lungs Thorax, or Respiration - Tumors.

Recommended Exposure Limits

See "Section II"

LD 50 / LC 50

See "Carcinogenicity/Other Information"

Boron Metal other Toxicity Data

orl-mus LD50: 2000 mg/kg orl-mam LD50: 300 mg/kg

Signs and Symptoms of Exposure

- Inhalation: May cause a red, dry throat and coughing.
- Ingestion: No acute or chronic health effects recorded.
- Skin: May cause redness, itching and burning sensation.
- Eye: May cause redness, itching, burning sensation and watering.

Medical Conditions Generally Aggravated by Exposure

Pre-existing respiratory disorders.

Emergency and First Aid Procedures

- Inhalation: Remove victim to fresh air; keep warm and quiet; give oxygen if breathing is difficult and seek medical attention if symptoms persist.
- Ingestion: If conscious, give 1-2 glasses of milk or water and induce vomiting; seek medical attention. Never give anything by mouth or induce vomiting to an unconscious person.
- Skin: Remove contaminated clothing from affected area; brush material off skin; wash affected area with mild soap and water; seek medical attention if symptoms persist.
- Eye: Flush eyes with lukewarm water, lifting upper and lower eyelids, for at least 15 minutes. Seek medical attention if irritation persists.

SECTION 7 - PRECAUTIONS FOR SAFE HANDLING AND USE/DISPOSAL

Steps to be Taken in Case Material is Released or Spilled

Wear appropriate respiratory and protective equipment specified in section 8-control measures. Isolate spill area, provide ventilation and extinguish sources of ignition. 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 local, state and federal regulations.

Hazard Label Information

- Store in cool, dry place.
- Store in tightly sealed container.
- Wash thoroughly after handling.

Precautions to be Taken in Handling

None

Precautions to be Taken in Storing

None

Other Precautions

None

SECTION 8 - CONTROL MEASURES

Protective Equipment Summary - Hazard Label Information:

NIOSH approved respirator
Impervious gloves
Safety glasses
Protective clothing to prevent contact with skin

Respiratory Equipment (Specify Type)

NIOSH - approved respirator

Eye Protection

Safety glasses

Protective Gloves

Rubber gloves

Other Protective Clothing

Protective gear suitable to prevent contamination

Ventilation

Local exhaust, minimum face velocity of 60 f.p.m, to maintain concentration at or below PEL, TLV. Good general ventilation is recommended.

Other: None

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 and smoking.
Do not blow dust off clothing or skin with compressed air.

SECTION 9 – OTHER

Control of Substances Hazardous to Health Regulations
EH40 Occupational Exposure Limits

Maximum Exposure Limit: NE
Occupational Exposure Standard: 10 mg/m³ Total Inhalable Dust; 5 mg/m³ Respirable Dust

LAND TRANSPORT (US DOT):

DOT PROPER SHIPPING NAME Not Hazardous

HAI Advanced Material Specialists, Inc. requests the users of this product to study this Material Safety Data Sheet (MSDS) and become aware of product hazards and safety information. To promote safe use of this product, a user should (1) notify its employees, agents, and contractors of the information on this MSDS and any product hazard and safety information, (2) furnish this same information to each of its customers for the product, and (3) request such customers to notify their employees and customers for the product of the product hazards and safety information.

Company Policy or Disclaimer

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Abbreviations used: N/A=Not Applicable NE: Not Established