



MATERIAL SAFETY DATA SHEET
WAH CHANG
PO BOX 460 - ALBANY, OREGON - 97321

SECTION 1.	Revised: 2/17/2011	Product Number: 803
PRODUCT: TITANIUM POWDER, FINES & DUST	24 HOUR EMERGENCY ASSISTANCE WAH CHANG An Allegheny Technologies Company 541-926-4211 CHEMTREC 800-424-9300	
SYNONYMS: Ti Powder		
CHEMICAL FAMILY: Group 4 Metal Powder		
HMIS HAZARD RATING: HEALTH = 1 FIRE = 3 REACTIVITY = 0		
HMIS RATING: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe * = Chronic		

SECTION 2. HAZARDS IDENTIFICATION

ROUTES OF ENTRY

INHALATION: Yes (dust)
 INGESTION: No
 SKIN ABSORPTION: No
 SKIN/EYE CONTACT: Yes (dust)

SECTION 3. COMPOSITION, INGREDIENTS INFORMATION

CHEMICAL COMPONENTS	%	C.A.S. NO.	OSHA/ACGIH EXPOSURE LIMITS	
			mg/m ³ or ppm	
			PEL	TLV
Titanium, Ti	>99	7440-32-6	10 (PNOR)	10 (PNOS)

PNOR = Particles Not Otherwise Regulated, PNOS = Particles Not Otherwise Specified

N.Ap. = Not Applicable

N.Av. = Not Available

SECTION 4. FIRST AID MEASURES

INHALATION: Remove to fresh air.
 EYE CONTACT: Follow the normal procedures for removal of a foreign object.
 SKIN CONTACT: N.Ap.
 INGESTION: N.Ap.

SECTION 5. FIRE FIGHTING MEASURES

IGNITION POINT: Varies from 200°C to above 500°C depending on particle size.
 FLAMMABLE LIMITS: N.Av.
 EXTINGUISHING MEDIA: Dry sand, salt, or Type D fire extinguisher.

FIRE FIGHTING PROCEDURES: If metal fines ignite, allow the material to burn out. Control small fires by smothering with dry sand, table salt, or using Type D fire extinguishing material.

UNUSUAL FIRE AND EXPLOSION HAZARDS: Do not spray water on burning sponge, a violent explosion may occur. This explosive characteristic is caused by the hydrogen and steam generated by the reaction of water with the burning material. Carbon dioxide is not effective in extinguishing burning titanium.

SECTION 6. ACCIDENTAL RELEASE MEASURES

SPILL OR LEAK PROCEDURES: Sweep up and recycle spilled solids. Keep finely divided material away from any source of ignition and cleaned up immediately. Follow Guide No. 135 for fines spill response.

SECTION 7. HANDLING AND STORAGE

PRECAUTIONS TO TAKE DURING HANDLING AND STORAGE: Maintain good housekeeping.

Warning: May Form Combustible (Explosive) Dust - Air Mixtures. Keep away from all ignition sources including heat, sparks, and flame. Keep container closed and grounded. Prevent dust accumulations to minimize explosion hazard.

SECTION 8. EXPOSURE CONTROL, PERSONAL PROTECTION

RESPIRATORY PROTECTION: Wear the appropriate NIOSH approved respirator for dust or fume if the exposure is greater than 1/2 the Permissible Exposure Limit.

PROTECTIVE CLOTHING: Wear gloves and FR rated clothing consistent with a PPE Assessment of the task involving the material.

EYE PROTECTION: Wear safety glasses with side shields during mechanical operations such as crushing, blending or compacting consistent with a PPE Assessment of the task involving this material.

ADDITIONAL PROTECTIVE MEASURES: None

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

BOILING POINT @ 760 mm Hg: 3287°C

VAPOR DENSITY (AIR = 1): N.Ap.

SPECIFIC GRAVITY (H₂O = 1): 4.50

Ph OF SOLUTIONS: N.Ap.

FREEZING/MELTING POINT: 1660°C

SOLUBILITY (WEIGHT % IN WATER): Insoluble

BULK DENSITY: Approx. 140 lb/ft³

% VOLATILE BY VOLUME: None

VAPOR PRESSURE: Nonvolatile

EVAPORATION RATE: None

HEAT OF SOLUTION: N.Ap.

APPEARANCE AND ODOR: Grey metallic, odorless

SECTION 10. STABILITY AND REACTIVITY

STABILITY: Stable

HAZARDOUS POLYMERIZATION: Will not occur

CONDITIONS TO AVOID: Avoid sources of ignition such as flames, sparks, heat, and static electricity.

INCOMPATIBILITY (Materials to Avoid): Dissolves in hydrofluoric acid. Burns in chlorine gas above 200°C.

HAZARDOUS DECOMPOSITION PRODUCTS: N.Ap.

SECTION 11. TOXICOLOGICAL INFORMATION

TARGET ORGANS: None

TOXICITY DATA: Titanium metal is nontoxic, but long-term exposure to dust may result in fibrotic lung changes.

CORROSIVE: No

CARCINOGEN: No

SENSITIZER: No

COMMENTS: Titanium metal cases are used for cardiac pacemakers because the metal is light weight, ductile, non-reactive in body fluids, and completely non-toxic.

ACUTE EFFECTS FROM EXPOSURE: Irritation from dust

CHRONIC EFFECTS FROM EXPOSURE: The ACGIH classification of titanium dioxide is A4 not a "Human Carcinogen."

REFERENCES: OSHA- 29CFR 1910, Table Z-1-A, January 1989.
ACGIH- Documentation of the Threshold Limit Values.
NIOSH/OSHA- Occupational Health Guidelines for Chemical Hazards.
ILO- Encyclopedia of Occupational Health and Safety, 3rd Ed.
Patty's Industrial Hygiene and Toxicology, 3rd Ed., Vol. 2A.

SECTION 12. ECOLOGICAL PROTECTION

ENVIRONMENTAL HAZARDS: None. Titanium powder is considered non-toxic.

SECTION 13. DISPOSAL CONSIDERATIONS

WASTE DISPOSAL: Comply with Federal, State and Local requirements for waste disposal of any loose powder or dust. Titanium powder could be considered a flammable hazardous waste. Site specific waste determination is necessary prior to offsite disposal.

SECTION 14. TRANSPORTATION REQUIREMENTS

DEPARTMENT OF TRANSPORTATION CLASSIFICATION:

Labeling for powder lots containing material which is finer than -80 mesh:

D.O.T. PROPER SHIPPING NAME

Metal Powder, Flammable, N.O.S.

PACKING GROUP

II

LABELS REQUIRED

Flammable Solid

D.O.T. I.D. NUMBER

UN 3089

HAZARD CLASS

4.2

NORTH AMERICAN EMERGENCY RESPONSE GUIDENUMBER

135

SECTION 15. REGULATORY INFORMATION

Section 313 Supplier Notification: This product contains the following chemicals subject to the reporting requirements of Section 313 of the Emergency Planning and Community Right-To-Know Act of 1986 (40 CFR 372): None

In addition to the ingredients listed in Section 2, this product contains the following chemicals considered by the State of California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65) as causing cancer or reproductive toxicity and for which warnings are now required: None

The Comprehensive Environmental Response, Compensation, and Liability Act of 1990, Sec102 (40 CFR 302) requires that any "release" into the "environment" of these hazardous substances contained in a product in excess of the "reportable quantity" in any 24-hour period must be immediately reported to the National Response Center (800-424-8802). Reporting is not required under certain circumstances such as a federally permitted release or the release of certain metal solid particles with a diameter larger than 100 micrometers: None

The Superfund Amendments and Reauthorization Act of 1986 (40 CFR 355) specifies certain emergency planning and notification requirements if these extremely hazardous substances are present in concentrations of greater than 1% at a facility in amounts greater than the threshold planning quantity: None

If this product is discarded as a waste, it would be identified with the following hazardous waste classification under the Resource Conservation and Recovery Act (40 CFR 261). The act specifies requirements for the management and disposal of hazardous wastes: If discarded this material could exhibit the characteristics of D001 Flammable solid. Site specific testing is required.

Components on Canadian "ingredient Disclosure List": All components listed on the Ingredient Disclosure List

TSCA (Toxic Substances Control Act): Components of this product listed on the TSCA Inventory are: All listed on TSCA Inventory

SECTION 16. OTHER INFORMATION

None

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