

MATERIAL SAFETY DATA SHEET

This Material Safety Data Sheet complies with the U.S. OSHA Hazard Communication Standard 29CFR 1910.1200



SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

Product Name: Titanium and Titanium Base Alloys **Description:** Solid metallic product, various forms and uses.
Company: Perryman Company **Info Phone:** (M-F 8:00am-5:00 pm EST) 724-746-9390
213 Vandale Drive **Emergency Phone:** Chemtrec (24 hrs) 1-800-424-9300
Houston PA. 15342. USA

SECTION 2 COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Components	C.A.S. Number	%	Occupational Exposure Limits (mg/m ³)	
			OSHA PEL	ACGIH / TLV
Aluminum, Al	7429-90-5	0-8	15mg/m ³ , metal, total dust 5mg/m ³ , respirable fraction	10mg/m ³ , metal dust 5mg/m ³ , welding fumes
Chromium, Cr	7440-47-3	0-18	1mg/m ³ , metal	0.5mg/m ³ , metal
Molybdenum, Mo	7439-98-7	0-37	5mg/m ³ , soluble	15mg/m ³ , insoluble
Niobium, Nb	7440-03-1	0-15	None	None
Silicon, Si	7440-21-3	0-3	15mg/m ³ , total dust 5mg/m ³ , respirable fraction	10mg/m ³ inhaled dust
Tin, Sn	7440-31-5	0-8	2mg/m ³ , metal	2mg/m ³ , metal
Titanium, Ti	7440-32-6	50-99	15mg/m ³ , Titanium Dioxide form, total dust 0.5mg/m ³ , oxide dust 0.1mg/m ³ , oxide fume	10mg/m ³ , Titanium Dioxide form, total dust 0.5mg/m ³ , respirable dust or fume
Zirconium, Zr	7440-67-7	0-15	5mg/m ³ , metal	5mg/m ³ , metal

SECTION 3 HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW: Titanium alloys in their solid state present no inhalation, ingestion or contact health hazard. However, inhaling welding fumes, dust or mists which may be generated during certain manufacturing procedures (burning, melting, welding, sawing, brazing, grinding and machining) may be hazardous to your health. Dusts may also be irritating to the unprotected skin or eyes.

ACUTE EFFECTS: Excessive exposure to welding fumes, gases or dust may cause irritation of eyes, nose or throat. Inhalation of dusts / fumes may result in metal fume fever (metallic taste in mouth, dryness and irritation of throat, chills and fever).

CHRONIC EFFECTS: Prolonged inhalation of welding fumes, gases or dusts may cause a variety of adverse health effects. These effects may include skin sensitization, neurological damage and respiratory disease such as bronchial asthma, lung fibrosis or pneumoconiosis.

POTENTIAL HEALTH EFFECTS/MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: Any pre-existing chronic respiratory condition (asthma, chronic bronchitis, emphysema) may be aggravated in some workers.

ROUTES OF ENTRY: Inhalation (dusts / fumes / mists), Contact with Skin and Eyes (dusts / mists), Ingestion (dusts).

SECTION 4 FIRST AID MEASURES

INHALATION: Immediately remove victim to fresh air. If condition persists, consult physician.

EYE CONTACT: Immediately flush with running water to remove particulates, consult physician.

SKIN CONTACT: If irritation develops, remove clothing and wash with soap and water. If condition persists, consult a physician.

INGESTION: Consult physician.

NOTE TO PHYSICIAN: None.

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SECTION 5 FIRE FIGHTING MEASURES

FLASH POINT: NA

AUTOIGNITION TEMPERATURE: NA

FLAMMABILITY CLASSIFICATION: NA

FLAMMABLE LIMITS: Nonflammable

GENERAL FIRE HAZARD: None for solid formed product

EXTINGUISHING METHOD: Use a Class "D" fire extinguisher, dry sand, dry graphite, or inert gas to smother the fire.

FIRE FIGHTING EQUIPMENT: For solid formed product, as appropriate for surrounding fire. Positive pressure SCBA and structural firefighter's protective clothing should be used at a minimum for surrounding fire.

UNUSUAL FIRE AND EXPLOSION HAZARDS: This solid formed product does not constitute a fire or explosion hazard. Finely divided chips may present a fire and explosion hazard in the presence of an ignition source.

WARNING - DO NOT USE WATER or CO₂ EXTINGUISHERS! These extinguishing agents may cause an explosion.

SECTION 6 ACCIDENTAL RELEASE MEASURES

CLEAN UP PROCEDURES: No special procedures needed.

SPECIALIZED EQUIPMENT: None.

SECTION 7 HANDLING AND STORAGE

HANDLING: Avoid breathing of and contact with fumes and dust during processing. No specific requirements formed product.

STORAGE: Keep away from incompatible materials (see section 10). No other specific storage requirements for solid form product.

SECTION 8 EXPOSURE CONTROLS, PERSONAL PROTECTION

RESPIRATORY PROTECTION: Wear NIOSH approved dust / mist / fume respirator when welding or burning this metal.

EYE/FACE PROTECTION: Face shields (welding or burning), Safety glasses (cutting or grinding).

OTHER PROTECTIVE EQUIPMENT: Use appropriate protective clothing such as welding aprons and gloves when welding or burning.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE: Silver-gray metal

ODOR: Odorless

PHYSICAL STATE: Solid

VAPOR PRESSURE: NA

VAPOR PRESSURE: NA

BOILING POINT (C): NA

SOLUBILITY IN WATER: Insoluble

SPECIFIC GRAVITY (H₂O=1): 4.46-4.54

SECTION 10 STABILITY AND REACTIVITY

STABILITY: Stable under normal conditions of use, storage and transport for solid product.

CONDITIONS TO AVOID: Contact with incompatible materials. Avoid creating finely divided, concentrated airborne particulates in the presence of ignition sources.

HAZARDOUS DECOMPOSITION PRODUCTS: Extreme heat from fire or processing (e.g. welding, brazing, machining, etc.) may produce toxic or irritating airborne particulate, including metal and metallic oxide fumes. Reaction with water, steam, acids, etc. can evolve hydrogen, which is highly dangerous fire and explosion hazard.

INCOMPATIBLE MATERIALS: Acids, Oxidizing Agents, Halogens. Reacts with strong acids to form explosive hydrogen gas and heat.

HAZARDOUS POLYMERIZATION: Will not occur.

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SECTION 11 TOXICOLOGY INFORMATION

LETHAL CONCENTRATION (LC50): None established.

REPRODUCTIVE EFFECTS: NA

LETHAL DOSE (LD50): NA

MUTAGENICITY: NA

TERATOGENICITY: NA

CARCINOGENIC BY NTP, IARC OR OSHA: No (Note: Fumes / dusts / mists from this material may be carcinogenic if inhaled over long periods of time).

SECTION 12 ECOLOGICAL INFORMATION

No Adverse ecological effects are expected.

SECTION 13 DISPOSAL CONSIDERATIONS

WASTE DISPOSAL METHOD: Recycle scrap materials through scrap dealers and brokers. Dispose of used non-recyclable materials in accordance with local, state and federal regulations.

SECTION 14 TRANSPORT INFORMATION

No special DOT regulations pertaining to this material.

SECTION 15 REGULATORY INFORMATION

SARA: Some components of this product are classified as toxic by the EPA in 40 CFR 372.65 and subject to reporting requirements of SARA Title III Section 313 and 40 CFR 372.45

SECTION 16 OTHER INFORMATION

OTHER PRECAUTIONS: Take appropriate precautions when moving or shipping this material to prevent injury to personnel handling it.

DISCLAIMER:

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