

SAFETY DATA SHEET

SECTION 1. IDENTIFICATION



Great Lakes Orthodontics
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CHEMTREC: 800-424-9300

Product Name: Titanium Moly Wire
Product Number: 265-100, 265-101, 265-102

Effective Date: 12/27/17

SECTION 2. HAZARDOUS IDENTIFICATION

- Solid metallic products are generally classified as “articles” and do not constitute a hazardous material in their solid form. During processing, dusts and fumes generated have the following hazards:

Classification

Physical	Health
Combustible Dust	Non-hazardous

Hazards not otherwise classified

None

Symbol(s)

None required.

Signal Word

Warning!

Hazard Statements

May form combustible dust concentrations in air during processing.

Precautionary Statements

None

SECTION 3. COMPOSITION / INFORMATION ON INGREDIENTS

<u>Hazardous Components</u>	<u>CAS #</u>	<u>Weight %</u>
Molybdenum	7439-98-7	0 – 37
Zirconium	7440-67-7	0 – 15
Tin	7440-31-5	0 – 8
Titanium	7440-32-6	50 – 99

SECTION 4. FIRST AID MEASURES

- No first aid required for contact with solid product. The following information applies to contact from processing.

Eye Contact

Flush with large quantities of water, holding the eyelids apart to assure that the material is washed out. Get medical attention if irritation persists.

Skin Contact

Remove contaminated clothing. Wash skin thoroughly with soap and water. Get medical attention if irritation develops.

Inhalation

If irritation or other symptoms develop, remove to fresh air. Get medical attention if symptoms persist.

Ingestion

If conscious, wash mouth out with water. Do not induce vomiting. Never give anything by mouth to an unconscious or convulsing person. Get medical attention.

Most important symptoms/effects, acute and delayed

Eye and skin contact with dust may cause mechanical irritation. May cause gastrointestinal effects if swallowed. Excessive exposure to welding fumes, gases, or dust may cause irritation of eyes, nose, or throat. Inhalation of fumes may result in metal fume fever (metallic taste in mouth, dryness and irritation of throat, chills and fever).

SECTION 5. FIRE FIGHTING MEASURES

Suitable (and unsuitable) Extinguishing Media

Not flammable in the form as distributed. Use any media that is appropriate for the surrounding fire. Finely divided particles, dusts, or pieces resulting from processing of this product may burn or ignite. Use dry sand, dry graphite, or inert gas to smother the fire. Do not use water or carbon dioxide on burning metal as an explosion may occur.

Specific Hazards Arising From The Chemical

Very fine, high surface area material resulting from grinding, buffing, polishing, or similar processes of this product may ignite and burn. Fine particles resulting from processing of this product may form combustible dust-air mixtures. Settled dust presents a fire hazard. Resuspension of the dust into the air by vibration, traffic, material handling, etc. in high concentrations in the presence of an ignition source could result in a dust explosion. Minimize the generation and accumulation of dust. Burning may produce the following hazardous decomposition products. Titanium dioxide is an IARC Group 2B carcinogen.

Special Protective Equipment and Precautions for Fire-Fighters

Firefighters should wear full emergency equipment and NIOSH approved positive pressure self-contained breathing apparatus for all fires involving chemical products.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment, and Emergency Procedures

Wear appropriate protective clothing and equipment (see Section 8). Avoid contact with skin, eyes, or clothing. Do not breathe dust or fume.

Environmental Precautions

Avoid release into the environmental. Report releases as required by local, state, and federal authorities.

Methods and Materials for Containment and Cleaning Up

Pick up material and place into a container for disposal or reprocessing. If dust is present, wet down and collect in a manner to minimize the generation of airborne dusts or vacuum with a high efficiency vacuum cleaner. If a vacuum is used, explosion proof equipment is required. Non-sparking tools should be used. Dust deposits should not be allowed to accumulate on surfaces as these may form an explosive mixture if they are released into the atmosphere in sufficient concentrations. Avoid dispersal of dust in the air (i.e.: clearing dust surfaces with compressed air).

SECTION 7. HANDLING & STORAGE

Precautions for Safe Handling

Avoid contact with eyes, skin, and clothing. Avoid creating and breathing dusts. Wear protective clothing and equipment as described in Section 8. Use only with adequate ventilation. Launder contaminated clothing before re-use. Wash thoroughly with soap and water after handling. Minimize the generation and accumulation of dust. Keep dust away from open flames, hot surfaces, and sources of ignition. Follow good housekeeping practices to keep surfaces, including areas overhead such as piping, drop ceilings, ductwork, etc. free from settled dust. Provide adequate precautions, such as electrical grounding and bonding, or inert atmospheres. Empty containers retain product residue. Follow all SDS precautions in handling empty containers.

Conditions for Safe Storage, Including Any Incompatibilities

Store in a dry location. Keep away from acids, oxidizing agents, and halogens.

SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Chemical Name	ACHIH TLV	OSHA PEL
Titanium	None established	None established
Molybdenum	10 mg/m ³ TWA (inhalable) 3 mg/m ³ TWA (respirable)	15 mg/m ³ TWA (total dust)
Zirconium	5 mg/m ³ TWA 10 mg/m ³ Ceiling	5 mg/m ³ TWA
Tin	2 mg/m ³ TWA	2 mg/m ³ TWA

Appropriate Engineering Controls

Use local exhaust or general ventilation as required to minimize exposure to dust and fumes; and to maintain the concentration or contaminants below occupations applicable limits

Individual Protection Measures, Such As Personal Protective Equipment

Respiratory Protection

Use NIOSH approved respirator if exposure limits are exceeded or where dust/fume exposures are excessive. Selection of respiratory protection depends on the contaminant type, form, and concentration. Select and use respirators in accordance with OSHA 1910-134 and good industrial hygiene practice.

Skin Protection

Wear protective gloves. Fire/flammable resistant/retardant clothing may be appropriate during hot work with the product.

Eye Protection

Safety glasses with side shields.

Other

Protective clothing as needed to prevent contamination of personal clothing. Thermal protection as needed when working with heated material.

SECTION 9. PHYSICAL & CHEMICAL PROPERTIES

- **Form** – Solid
- **Color** – Silver
- **Odor** – Odorless
- **Flash Point** – Not applicable
- **Boiling Point** – Not applicable
- **Freezing Point** – Not available
- **Melting Point** – 3020 °F
- **Lower Explosion Limit** – Not applicable
- **Upper Explosion Limit** – Not applicable
- **Vapor Pressure** – Not Applicable
- **Solubility in Water** – Insoluble

SECTION 10. STABILITY & REACTIVITY

- **Specific Gravity** – Not available

Hazardous Reactions – Hazardous polymerization will not occur.

Stability – Stable

Materials to Avoid – Acids, alkalies, oxidizing agents, potassium nitrate, and turpentine.

Conditions to Avoid – Avoid dust formation

Hazardous Decomposition Products – Metal fumes and oxides are emitted when product is heated above the melting point.

SECTION 11. TOXICOLOGICAL INFORMATION

Routes of Exposure

Ingestion

None expected under normal use conditions. May cause gastrointestinal effects if swallowed.

Inhalation

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

Eye

Dust particles or filings may cause abrasive injury to the eyes.

Skin

May cause mechanical irritation or abrasions.

Chronic

Long-term overexposure to dust may cause lung damage (fibrosis) with symptoms of coughing, shortness of breath and diminished breathing capacity.

Carcinogenicity

None of the components are listed as a carcinogen or potential carcinogen by OSHA, NTP, or IARC.

Numerical Measures of Toxicity

Titanium –	Oral Rat LD 50 > 5000 mg/kg
Molybdenum –	Oral Rat LD50 > 2000 mg/kg Inhalation Rat LC50 > 3.92 mg/L Dermal Rat LD50 > 2000 mg/kg
Zirconium -	Oral Rat LD 50 > 5000 mg/kg Inhalation Rat LC50 > 4.3 mg/L/4 hr.
Tin -	Oral Rat LD 50 > 2000 mg/kg Dermal Rat LD 50 > 2000 mg/kg Inhalation Rat LC50 4.75 mg/L/4 hr.

SECTION 12. ECOLOGICAL INFORMATION (non-mandatory)

Ecotoxicity

Titanium – 96 hr. LC50 Oncorhynchus mykiss > 100 mg/L

Molybdenum – 96 hr. LC50 Pimephales Promelas 609.1 mg/L

Zirconium - 96 hr. LC50 Danio Rerio > 100 mg/L
48 hr. EC50 Daphnia Magna > 100 mg/L

Tin - 96 hr. LC50 Pimephales Promelas > 12.4 ug/L

Persistence and Degradability

Biodegradation is not applicable to inorganic compounds.

Bio-accumulative Potential

No data available.

Mobility in Soil

No data available.

Other Adverse Effects

No data available.

SECTION 13. DISPOSAL CONSIDERATIONS (non-mandatory)
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Waste Disposal Method

Dispose in accordance with national and local regulations.

SECTION 14. TRANSPORT INFORMATION (non-mandatory)
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DOT Hazardous Materials Description: Not Regulated

SECTION 15. REGULATORY INFORMATION (non-mandatory)
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SARA Section 311 / 312 Hazard Categories

Not applicable (manufactured articles)

SARA Section 313

This product contains the following toxic chemicals subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372 (Toxic Chemical Release Reporting): None.

SARA 311/312 Hazard Categories

Acute Health Hazard – **No**

Chronic Health Hazard – **No**

Fire Hazard – **Yes**

Sudden Release of Pressure Hazard – **No**

Reactive Hazard – **No**

CWA (Clean Water Act)

This product contains the following substances which are regulated pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42): None.

CERCLA

This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302): None.

US STATE REGULATIONS**California Proposition 65**

This product contains the following Proposition 65 chemicals: None.

INTERNATIONAL INVENTORIES

TSCA (United States Toxic Substances Control Act Section 8(b) Inventory) – Complies

DSL/NDSL (Canadian Domestic Substances List / Non-Domestic Substances List) – Complies

EINECS/ELINCS (European Inventory of Existing Chemical Substances / European List of Notified Chemical Substances List) – Complies

ENCS (Japan Existing and New Chemical Substances) – Complies

IECSC (China Inventory of Existing Chemical Substances) – Complies

KECL (Korean Existing and Evaluated Chemical Substances) – Complies

PICCS (Philippines Inventory of Chemicals and Chemical Substances – Complies

AICS (Australian Inventory of Chemical Substances) – Complies

SECTION 16. OTHER INFORMATION (non-mandatory)

HMIS Rating:

- **Health** – 1
- **Flammability** – 1
- **Physical Hazard** – 0

0 = Minimal, 1 = Slight, 2 = Moderate, 3 = Serious, 4 = Severe

* = Chronic Health Hazard

EU Classes and risk phrases for reference (See Section 2 and 3) – None listed.