



I – Identification of the Substance and of the Company

Supplier: RMO, Inc. 650 W. Colfax Ave. Denver, CO 80204 303-592-8200	Trade Name and Synonyms – Bendaloy® Description: Straight Wire; Arch Wires
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Emergency Information Chemtrec: 800-424-9300
Chemtrec International: 202-483-7616

Product Grade / Name:
BIII CNA™ Chemical Class: Titanium All

II – Composition / Information on Ingredients

<u>Beta 3 Alloy</u>	<u>COMPOSITION</u>
Ti	70-80%
Zr	5-10%
Sn	4-8%
Mo	10-20%

<u>MATERIAL</u>	<u>SYMBOL</u>	<u>CAS Number</u>	<u>Permissible Exposure Limit (OSHA) mg/m³</u>	<u>Threshold Limit Value in mg/m³</u>
Titanium	Ti	7440-32-6	5*	10
Zirconium	Zr	7440-67-7	5	5
Tin	Sn	7440-31-5	2	2
Molybdenum	Mo	7439-98-7	5*	10♦

♦ = exposure limit for metal or oxide of the metal
* = respirable fraction of dust

III – Hazards Identification

Titanium - Molybdenum products in their usual solid physical state do not constitute any physical or health hazard. However, subsequent operations such as brazing, burning, cutting, grinding, heat treating, pickling, welding, or processing in any other fashion may produce potentially hazardous dust or fume which can be inhaled, swallowed, or come in contact with the skin, eyes, or mucous membranes.

For purposes of this MSDS, occupational exposure to alloys is taken to mean dusts, fumes, or solutions containing metals that can become airborne or can spill on skin or in the eye. Occupation exposure to alloys does not include solid products (i.e. ingots or castings), provided no particle generating operations, such as grinding or cutting occur. In most industrial situations, the significant routes of exposure would include inhalation, skin and eye contact.

Titanium is considered relatively nontoxic.

POSSIBLE SYMPTONS OF EXPOSURE TO DUST, FUMES, OR GASES:

Prolonged or repeated contact to skin may cause skin irritation.

IV – First Aid Measures

PRIMARY ROUTES OF ENTRY:

Inhalation

EMERGENCY FIRST AID:

Remove to fresh air, if condition continues, consult physician.

Eye Contact

Flush well with running water to remove particulates and get medical attention.

Skin Contact

Brush off excess dust. Wash area well with soap and water.

Ingestion

Seek prompt medical help.

V – Fire Fighting Measures

Solid Metal: Not ignitable

Dust and Powder: Titanium fines can ignite if airborne. They are a moderate fire and explosive hazard when exposed to heat, flame, electric current or static electricity.

Extinguishing Media: DO NOT USE WATER OR CO2 EXTINGUISHERS! Sand, dolomite, graphite or sodium chlorides work best.

VI – Accidental Release Measures

Solids – return to original container; no special precautions necessary.

Dust – clean up personnel should wear protective clothing and equipment: gloves, goggles, aprons, respirators, etc. Keep airborne dust to a minimum. Avoid dry sweeping of fines. Sweep or vacuum up spilled materials. Wet down area if necessary, but do not flush into drains or waterways. Place in a metal or plastic drum, seal and recycle.

VII – Handling and Storage

Use good housekeeping procedures to prevent accumulation of dusts, thus minimizing airborne dust concentrations.

Do not eat, drink or smoke in areas where metal dusts or fumes are generated.

VIII – Exposure Controls / Personal Protection

Solid Form: Special protective clothing is not normally needed.

Fumes and Dust:

Ventilation Requirements:

Local exhaust recommended while burning, grinding, and / or welding and airborne levels of metal oxides exceed applicable OSHA Standards.

Personal Protective Equipment:

Respiratory Protection:

If fumes, misting or dust conditions occur and exceed applicable OSHA Standards.

Personal Protection:

Respiratory:

If fumes, misting or dust conditions occur and exceed applicable OSHA Standards, provide NIOSH approved air-supplied respirators.

Eye Protection:

Recommend approved safety glasses / goggles when grinding, welding, etc.

Hand Protection:
Gloves: As required.
Other Clothing: As required.

IX – Physical and Chemical Properties

Appearance: Dark Grey Metallic Solid
Odor: None
Solubility in Water: N/A

X – Stability and Reactivity

Stability:

Unstable () Stable (X)

Conditions to Avoid: Avoid generation of airborne dust which presents moderate fire and explosion hazards. Molten metal will react violently with water.

Incompatibility:

Materials to Avoid: Acids, bases, and oxidizers. Prevent buildups.

XI – Toxicological Information

No toxic effect would be expected from exposure to the solid form of Titanium - Molybdenum products. Prolonged, repeated exposure to fumes or dust generated during subsequent operations may or may not cause adverse health effects associated with the listed constituents in excess of OSHA permissible exposure limits established in 29 CFR Part 2920.1200 (See Section 2. Generic Ingredients). Chromium metal dust, ore, and various chemical compounds have been identified as suspect human carcinogens by the IARC, NTP Annual report. We believe there are no scientific studies that show increased incidence of cancer or other disease due to exposure to the form of chromium, or other elements, as incorporated in titanium products.

XII – Ecological Information

No ecological effects are known.

XIII – Disposal Considerations

Solids – Sell as scrap for reuse.

Dust – Follow federal, state and local regulations regarding disposal.

Grinding, Cutting and Welding Residue – Follow federal, state and local regulations regarding disposal.

XIV – Transportation Information

Technical Shipping Name: Not regulated

Freight Class Bulk: N/A

Freight Class Package: N/A

Product Label: N/A

Hazard Class or Division: Non-Hazardous

Hazard Class Division Number: Not Hazardous by D.O.T. Regulations

XV – Regulatory Information

These products are manufactured using Good Manufacturing Practices and are regulated as Class I Medical Devices by the U.S. Food and Drug Administration, Class II by the Canada CMDR, and Class IIa by the Medical Device Directive 93/42 EEC for the European Community.

XVI – Other Information

Note: While the information and recommendations set forth on this data sheet are believed to be accurate as received from our suppliers, RMO, Inc. makes no warranty with respect thereto and disclaims all liability from reliance thereon.