

**I – Identification of the Substance and of the Company**

Supplier: RMO, Inc. Trade Name and Synonyms – Orthonol & Thermaloy, Biolastic, Super Elastic, Thermal Plus, Thermaloy Plus  
650 W. Colfax Ave.  
Denver, CO 80204  
303-592-8200

Emergency Information Chemtrec: 800-424-9300 Description: Straight Wire; Arch Wire; Compression Springs; Extension Springs; Chemtrec International: 202-483-7616 Coil Springs; Distalizing Springs

Product Grade / Name:  
**NICKEL BASE ALLOY**

**II – Composition / Information on Ingredients**

<u>MATERIAL</u>	<u>% (RANGE)</u>	<u>ACGIH-TLV</u>	<u>CAS Number</u>
NICKEL (Ni)	55.0	1.5mg/m <sup>3</sup>	7440-02-0
TITANIUM (Ti)**	45.0	10.0mg/m <sup>3</sup>	7440-32-6

\* TLV's in accordance with ACGIH levels.

\*\* Is considered a nuisance and covered under ACGIH nuisance dust standard level of 10mg/m<sup>3</sup>, total dust 8 HR TWA.

**III – Hazards Identification**

Nickel Titanium 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.

Sensitization – Prolonged or repeated contact may cause skin irritation or other allergic reactions to sensitive individuals.

Effect of Overexposure – Inhalation is most serious. Prolonged excessive exposure to dust, mist and fumes of this alloy may contribute to chronic respiratory ailments.

Possible Cancer Hazard – According to OSHA, nickel is treated as a potential carcinogen for hazard communication purposes because it is included in the NTP and IARC lists of potential human carcinogens. Some scientific studies have found an excess incidence of cancer of the respiratory tract among workers involved in certain steps of certain nickel refining processes. However, several reliable studies of workers exposed to various forms of nickel and its compounds have not shown any increased risk of cancer.

Primary Routes of Entry – Inhalation of dusts or fumes.

Permissible Occupation Exposure – (as established by OSHA PEL and ACGIH TLV)

#### **IV – First Aid Measures**

<u>PRIMARY ROUTES OF ENTRY:</u>	<u>EMERGENCY FIRST AID:</u>
Inhalation	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. Prolonged or repeated contact may cause skin irritation or other allergic reactions to sensitive individuals; if condition occurs consult physician.
Ingestion	Seek medical help if large quantities of material have been ingested.

#### **V – Fire Fighting Measures**

Flash Point: N/A  
Flammable Limits in Air % by Volume: N/A  
Extinguisher Media: Use dry powder extinguishing agent  
Fire & Explosion Hazard: Metal powder dispersed in air may cause fire and explosion hazard.  
Explosion hazard, good housekeeping must be maintained. Molten metal can ignite combustibles.

#### **VI – Accidental Release Measures**

Spill or Leak Procedures: Remove by mechanical means. Pick up powder or dust by methods such as vacuuming or wet mopping – prevent dusty conditions.

#### **VII – Handling and Storage**

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

#### **VIII – Exposure Controls / Personal Protection**

Ventilation Requirements:

If solid forms of nickel are converted to dusts or fumes, working environment should be maintained below the recommended exposure limits (See Section 2), by use of appropriate ventilation.

Personal Protective Equipment:

Respiratory Protection:

If solid nickel forms are converted in manufacturing processes to produce dust or fumes and the ventilation is not adequate to maintain nickel concentrations below recommended exposure limits (See Section 2), then respiratory protection should be used.

Personal Protection:

Respiratory:

If fumes, misting or dust conditions occur and exceed applicable OSHA CFR 1919.134 Standards, provide NIOSH approved air-supplied respirators.

Eye Protection:

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

Hand Protection:

Gloves: Use of protective gloves is recommended (leather or rubber).

#### **IX – Physical and Chemical Properties**

Boiling Point: N/A

Vapor Pressure: N/A

Vapor Density (Air = 1): N/A

Solubility in Water: Insoluble

Reactivity in Water: N/A

Appearance and Odor: Odorless solid with metallic gray luster.

Specific Gravity: (H<sub>2</sub>O=1) 6.9

Percent Volatile by Volume (%): N/A

Evaporation Rate=1: N/A

Melting Point: (F°) 2500-2700

#### **X – Stability and Reactivity**

Stability:

Unstable ( ) Stable (X)

Conditions to Avoid: N/A

Incompatibility:

Material to Avoid: React with strong acids to form hydrogen gas.

\*\* Under certain specific conditions, exposure to carbon monoxide may produce nickel carbonyl, a highly toxic gas.

Hazardous Decomposition Products:

None

Hazardous Polymerization:

May Occur ( ) Will Not Occur (X)

Conditions to Avoid: N/A

#### **XI – Toxicological Information**

No toxic effect would be expected from exposure to the solid form of Nickel Titanium products. Prolonged excessive inhalation exposure to fumes or dust generated during subsequent operations of this alloy may contribute to chronic respiratory ailments (See Section 2). Prolonged or repeated contact to skin may cause skin irritation or other allergic reactions to sensitive individuals.

#### **XII – Ecological Information**

No ecological effects known.

#### **XIII – Disposal Considerations**

Dispose of in accordance with Federal, State and Local Regulations.

**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.