

I – Identification of the Substance and of the Company

Supplier: RMO, Inc. Trade Name and Synonyms – CuNiTi,
650 W. Colfax Ave. Copper Nickel-Titanium Orthodontic
Denver, CO 80204 wires, springs, straights and spools
303-592-8200

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

Product Grade / Name:

Metal Alloy

II – Composition / Information on Ingredients

<u>MATERIAL</u>	<u>% (RANGE)</u>	<u>ACGIH-TLV</u>	<u>CAS Number</u>
NICKEL (Ni)	45-60	1.5mg/m ³	7440-02-0
TITANIUM (Ti)**	40-50	10.0mg/m ³	7440-32-6
Copper (Cu)	5-6	1 mg/ m ³	7440-50-8

* TLV's in accordance with ACGIH levels.

** Is considered a nuisance and covered under ACGIH nuisance dust standard level of 10mg/m³, total dust 8 HR TWA.

III – Hazards Identification

Copper 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. Store in a cool, well ventilated location away from incompatible materials.

VIII – Exposure Controls / Personal Protection

Ventilation Requirements:

If solid forms 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: (H₂O=1) 8.94 (Water + 1)
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:

Toxic metal fumes and oxides are emitted when product is heated above the melting point.

Hazardous Polymerization:

May Occur () Will Not Occur (X)
Conditions to Avoid: N/A

XI – Toxicological Information

Potential Health Effects:

Eyes: Dust or fines may cause mechanical irritation.

Skin: Dust may cause skin irritation. May cause allergic skin reaction (sensitization).

Ingestion: No acute effects expected from swallowing small amounts. Ingestion of large amounts of copper may cause abdominal pain, nausea or vomiting.

Inhalation: Exposure to nickel dust or fumes may cause irritation of the mucous membranes and upper respiratory tract. May cause allergic respiratory reaction (sensitization). Exposure to copper dust may cause cough, headache, shortness of breath, and eye, skin and respiratory irritation. Exposure to fumes may cause metal fume fever or skin and hair discoloration.

Chronic Health Effects: Prolonged or repeated skin contact to nickel may cause sensitization. Prolonged inhalation of dust may cause lung damage, fibrotic lung disease, and effects on the cardiovascular system. Prolonged inhalation of nickel dust or fumes may cause perforation of the nasal septum and lung damage. Long-term exposures to copper may cause respiratory, liver and kidney effects.

Carcinogenicity: Nickel compounds (may be formed in welding) are classified by IARC as known human carcinogens (Group 1) and by NTP as "Known Human Carcinogens". Metallic nickel is classified by IARC as possibly carcinogenic to humans (Group 2B) and by NTP as "Reasonably Anticipated to be a Carcinogen". None of the other components is listed as a carcinogen by IARC, NTP, ACGIH or OSHA.

Medical Conditions Aggravated by Exposure: Individuals with pre-existing skin disorders may be at increased risk from exposure.

NIOSH RTECS No.: GL5325000

Acute Toxicity Data:

Nickel	No data available
Titanium	No data available
Copper	No data available

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.