

**MATERIAL SAFETY DATA SHEET – METAL ORTHODONTIC BRACKETS**

**Document Number:** 2012010201

**Material Type:** Cobalt Chromium Molybdenum Alloys

**Revision Date:** 02 January 2012

**Revision:** 0

1. Identification

Cobalt Chromium Molybdenum Alloys Metal Orthodontic Bracket

2. Composition

Base Metal	% Composition by Weight	OSHA PEL (mg/ m3)	ACGIH TLV (mg/ m3)
Cobalt, Co	63-68	10.0	10.0
Chromium, Cr	27-30	10.0	10.0
Molybdenum, Mo	5-7	10.0	10.0

3.

Physical / Chemical Characteristics

- a. Material at Normal Conditions: SOLID
- b. Boiling Pt.: 4800 - 5500 F
- c. Melting Pt.: 2300 – 2700 F
- d. Specific Gravity App.: 6.0 – 6.5
- e. Solubility in Water: Insoluble pH NA
- f. Reactivity in Water: None
- g. Appearance /Odor: Metallic appearance; no odor

4. Fire and Explosion Hazard Data

- a. Flash Point: NA
- b. Flammable Limits: NA
- c. Extinguishing Media: Non Flammable; Preferably Dry Powder
- d. Unusual Fire and Explosion: Hazards None

5. Reactivity Data

- a. Stable Under Normal Conditions: YES
- b. Conditions to Avoid: NONE
- c. Materials to Avoid: Anhydrous Bromine; Chlorine; Fluorine; Strong Oxidizers & Acids
- d. Hazardous Decomposition Products: May Release Metal Oxide Fumes By Thermal Decomposition
- e. Hazardous Polymerization Possible: NO

#### 6. Health Hazards Data

- a. Routes of Entry: Inhalation, Ingestion, Skin, and Eyes if material machined
- b. Acute and Chronic Health Hazards: No Known Chronic or Acute Hazards
- c. Signs and Symptoms of Exposure: Eye – Irritation; Skin – Possible Irritation to Sensitive Skin;  
Respiratory – Possible Irritation
- d. Emergency and First Aid Procedures: Eye and Skin – Flush with Copious Amounts of Water  
Respiratory – Remove to Fresh Air; Consult Physician If Necessary

#### 7. Precautions For Safe Handling And Use

- a. Precautions Taken in Handling and Storage: Material Oxides in Air to Form Rust so Keep Material Covered and Dry; Do Not Mix Wet Material with Molten Metal
- b. Steps to be Taken if Material is Spilled: Normal Cleanup
- c. Waste Disposal Method: According to the Requirements of 40 CFR Subtitle C and other Applicable Federal, State, and Local Regulations

#### 8. Control Measures

- a. Respiratory Protection: Select and Use Respirators According to OSHA Regulations 29 CFR 1910.134
- b. Ventilation Requirements: Local Exhaust and General Ventilation
- c. Local Exhaust: Use Local Exhaust During Welding, Cutting, or Milling to Avoid Exposure to Metal Oxide Fumes
- d. Mechanical: Good General Ventilation During Handling of Solid Material Should be Used to Control Dust Generated
- e. Protective Gloves: Gloves Recommended During Handling to Prevent Cuts and Abrasions
- f. Eye Protection: Safety Glasses or Goggles
- g. Other Protective Clothing: Safety Toe Footwear

#### 9. Disclaimer

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