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## MATERIAL SAFETY DATA SHEET SLIDING CLIP FOR AGILITY® SELF LIGATING BRACKETS

Document Number: MSDS-061	Revision Date: June 02, 2014	Material Type: NiTiNOL Solid
Revision: A	Number of Pages: 3	

### 1-CHEMICAL PRODUCT INFORMATION

Product Name: NiTiNOL Solid

Product Use: Various

### 2-COMPOSITION INFORMATION

Component	CAS #	%
Nickel	7440-02-0	50-70%
Titanium	7440-32-6	30-50%
Niobium	7440-03-1	10-20%
Copper	7440-50-8	5-10%
Iron	7439-89-6	1-5%
Cobalt	7440-48-4	1-5%
Chromium	7440-47-3	<3.0%

Nickel (Dust): OSHA/PEL: 1.0 mg/m<sup>3</sup> ; ACGIH/TLV: 1.5 mg/m<sup>3</sup>

Titanium (Dust): OSHA/PEL: 15 mg/m<sup>3</sup> (total dust), 5 mg/m<sup>3</sup> (respiratory dust); ACGIH: 10 mg/m<sup>3</sup> (total dust)

Niobium (Dust): 15 mg/m<sup>3</sup> for inert or nuisance dust

Copper: OSHA/PEL: 1 mg/m<sup>3</sup> (dust), 0.1 mg/m<sup>3</sup> (fume); ACGIH: 1 mg/m<sup>3</sup> (dust); 0.2 mg/m<sup>3</sup> (fume)

Iron: OSHA/PEL: 10 mg/m<sup>3</sup> (fume); ACGIH/TLV: 5 mg/m<sup>3</sup> (oxide and dust)

Cobalt (Dust): OSHA/PEL: 0.1 mg/m<sup>3</sup>; ACGIH/TLV: 0.02 mg/m<sup>3</sup>

Chromium (Dust): OSHA/PEL: 1 mg/m<sup>3</sup>; ACGIH/TLV: 0.5 mg/m<sup>3</sup>

### 3-HAZARDS IDENTIFICATION

#### Potential Health Effects:

Inhalation: May cause irritation.

Ingestion: May cause gastrointestinal disorders. No chronic effects known.

Skin Contact: May cause irritation with redness and pain. No chronic effects known.

Eye Contact: May cause irritation. No chronic effects known.

### 4-FIRST AID MEASURES

Eyes: Flush with large amounts of cold water for at least 15 minutes. Do not let victim rub eyes. If irritation develops, contact a physician immediately.

Skin: Wash affected area with soap and water. Remove contaminated clothing. Launder contaminated clothing before reuse.

Inhalation: If inhaled, move to fresh air. If breathing is difficult, administer artificial respiration (mouth to mouth) or oxygen as indicated. Contact a physician immediately.

Ingestion: If swallowed, give 1 to 2 glasses of water or milk and induce vomiting, seek medical attention immediately. Never induce vomiting or give anything by mouth to an unconscious person.

Note to Physician: Although this product may cause irritation, it does not present a danger to human health by inhalation, ingestion, skin contact, or eye contact in the form it is used.

### 5-FIRE FIGHTING MEASURES

Flash Point: Not applicable.

Extinguisher Media: For the product as constituted in a solid form use carbon dioxide, dry chemical, foam, or water spray. If the product is present in a powder or granule form, then use special powder for metal fires.

Special Firefighting Procedures: Isolate fire area and deny unnecessary entry. Firefighters should wear self-contained breathing apparatus in the positive pressure mode with a full face piece where there is a possibility of exposure to smoke, fumes, or hazardous decomposition products.

Unusual Fire and Explosion Hazards: Solid form can burn at a minimum rate without flame (solder). Grinding or abrasive treatment can produce fine particulate dust that may explode in the presence of a strong ignition source.

HMIS Ratings (Solid Forms): Health 0 Flammability 0 Reactivity 0

HMIS Ratings (Powder) Health 3 Flammability 4 Reactivity 1

### 6-ACCIDENTAL RELEASE MEASURES

Spill & Leak Response: Do not allow spilled material to enter sewers or streams. Spills of the solid form of this product should be cleaned up either wet or dry. Small pieces should be cleaned up with a vacuum equipped with a high efficiency particulate air-purifying (HEPA) filter. Prolonged or repeated skin contact should be avoided if sensitive to nickel. Place collected material into no-sparking or anti-static containers (use of



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plastic bags is not recommended). Use non-sparking tools.

### 7–HANDLING AND STORAGE

**Handling:** Metal should be stored in covered containers to avoid contamination because of dampness and dust. Partly used containers should be recovered. In welding, precautions should be taken for airborne contaminants which may originate from components of the welding rod. Practice reasonable care to avoid repeated, prolonged skin contact.

**Work Practices:** Read label for instructions in use of product. If dust is encountered, do not blow dust off clothing or skin with compressed air. Do not eat or drink in the work area.

**Storage:** Store in closed containers in a cool, dry, well-ventilated area. Do not reuse container. Avoid container damage while storing.

### 8–EXPOSURE CONTRILS / PERSONAL PROTECTION

**Exposure Limits:** None established.

**Respiratory Protection:** If particulates containing metal are encountered, then approved NIOSH/MSHA respirators with a HEPA filter are recommended.

**Protective Gloves:** Wear neoprene rubber gloves.

**Eye Protection:** Safety glasses with side shields or chemical goggles are required. Contact lenses should also not be worn if the product could come in contact with the eyes.

**Other Protective Wear:** For prolonged or repeated exposures to the skin, wear impervious, protective clothing including rubber safety shoes to avoid skin contact.

**General Protection:** Do not inhale metal dust or powder. Avoid contact with eyes and skin.

### 9–PHYSICAL/CHEMICAL CHARACTERISTICS

**Appearance and Odor:** Solid in various forms, silver-colored metallic gloss, odorless.

**Boiling Point:** N/D

**Flash Point:** N/A

**Flammable Limits in Air % by Volume:** N/D

**Auto-Ignition Temp:** N/D

**UEL:** N/D

**LEL:** N/D

**Density:** 8-9 gm/cm<sup>3</sup>

**Vapor Pressure @ 20°C:** N/D

**Vapor Density:** N/D

**Solubility in Water:** Insoluble

**Melting Point:** >1400°C (>2552°F)

**pH:** N/A

### 10–STABILITY AND REACTIVITY

**Stability:** Stable

**Conditions to Avoid :** Grinding, crushing and melting may produce dust and fumes which may require control.

**Hazardous Decomposition Products:** Oxides of chromium, cobalt, copper, iron, nickel, niobium, and titanium.

**Hazardous Polymerization:** Will not occur.

### 11–TOXICOLOGICAL DATA

**Eye Irritation:** N/D

**Skin Irritation:** N/D

**Dermal Toxicity:** N/D

**Oral Toxicity:** N/D

**Inhalation Toxicity:** N/D

### 12–ECOLOGICAL INFORMATION

Ecological data are not available.

**Mobility:** Not established

**Persistence and Degradability:** Not established

### 13–DISPOSAL CONSIDERATIONS

**Waste Disposal:** All recovered material should be packaged, labeled, transported, and disposed or reclaimed in conformance with Good Engineering Practices. Comply with all applicable governmental regulations. Avoid land filling. Reclaim where possible. Product can be disposed of in a licensed facility.

### 14–TRANSPORTATION INFORMATION

**USA DOT:** Not designated as a hazardous material by the USA DOT.

**RID/ADR:** Not regulated by RID/ADR

**IMO:** Not regulated by IMO

**IATA:** Not regulated by IATA

### 15–REGULATORY INFORMATION

OSHA (Occupational Safety and Health Administration)

29 CFR 1910.1200 Hazardous Chemical: Yes

SARA (Superfund Amendment and Reauthorization Act)



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Section 311:  
 Hazardous Chemical – yes  
 Immediate – yes  
 Delayed – yes  
 Fire – no  
 Sudden Release – no  
 Reactive – no

Section 313: Toxic Chemical: yes

Nickel (CAS# 7440-02-0) 50%  
 Copper (CAS# 7440-50-8) 5-10%  
 Chromium (CAS# 7440-47-3): 0.2-0.3%

TSCA (Toxic Substance Control Act)  
 All of the ingredients in this product are listed on the TSCA inventory.

California Proposition 65  
 This product contains the following substances known to the State of California to cause cancer, birth defects, or other reproductive harm, at levels which would require a warning under the statute:  
 Nickel (CAS# 7440-02-0)  
 Cobalt (CAS# 7440-48-4)

Welding, thermal cutting, and melting this product may produce hexavalent chromium compounds which are known to the State of California to cause cancer.

**16-OTHER INFORMATION**  
 None

**17-DISCLAIMER OF EXPRESSED AND IMPLIED WARRANTIES**

This document has been prepared in good faith and from information provided to us by our suppliers and other sources considered to be reliable. No warranty, express or implied is given. The buyer is responsible to evaluate all available information when using this product for any particular use. The buyer is also responsible for complying with all federal, state, and local laws and regulations when using this product.