

Document number:	AR/TH-MS-010	Next Updated:	A/4
Updated number:	A/3	Updated by:	Jenny He
Date of updated:	Dec.30,2020	Approved by:	
Date of approval:	March,24 th ,2015		

1. Product and Company Identification

Company Name: Astar Orthodontics Inc.	Product Grade/ Name: Stainless Steel: 05Cr17Ni4Cu4Nb (S51740) Gold 24 Karat
Address: Suite1503, Lidu(No.1) Mansion, Lane#500, South Zhongshan Rd. Section1	Product Use : Gold Plated Lingual Cleat with Chain for unerupted tooth
City: Shanghai	Indication of use: For Orthodontic treatment only.
Country: China	
Telephone: +86-21-6303 1017	
E-mail: service@astar-ortho.com.cn	

2. Composition/Information on Ingredients

STAINLESS STEEL: 05Cr17Ni4Cu4Nb (S51740)				
Material	CAS Number	%(Range)	ACGIH-TLV*	OSHA-PEL*
Carbon (C),max	7440-44-0	0.07max	None	None
Silicon (Si) ,max	7440-21-3	1.00max	None	None
Manganese (Mn)	7439-96-5	1.00max	0.2mg/m ³	0.1mg/m ³
Phosphorus (P),max	7723-14-0	0.040max	None	None
Sulfur (S)	7704-34-9	0.030max	None	None
Nickel (Ni)	7440-02-0	3.00-5.00	1.5mg/m ³	1 mg/m ³
Chromium (Cr)	7440-47-3	15.00-17.50	0.5mg/m ³	1 mg/m ³
Copper(Cu)	7440-50-8	3.00-5.00	1 mg/m ³	1 mg/m ³ (Dust)

Gold 24 Karat

CAS Number:	7440-57-5	Formula:	Au
Molecular Weight:	196.97 g/mol		

*8-hour TWA.

3. Hazard Identification

Gold: None.
Stainless Steel: Made by stainless steel which is widely used in dental field to be proved safe enough, does not contain hazardous or volatile substance. Non-hazardous for human body and health. However, subsequent operations such as brazing, burning, cutting, grinding, heat treating, picking, welding, or processing in any other fashion may produce potentially hazardous dust or fume which can be inhaled, swallowed, or come in contact with skin, eyes, or mucous membranes.
Potential Environmental Effects : NA

4. First Aid Measures

Gold: None
STAINLESS STEEL: 05Cr17Ni4Cu4Nb (S51740) Product is solid appearance. However, during processing such as brazing, burning, cutting, grinding, heat treating, picking, welding, or processing in any other fashion may produce potentially hazardous dust or fume which can be inhaled,

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swallowed, or come in contact with skin, eyes, or mucous membranes. Notes to physician: May cause sensitization by skin contact or inhalation. Treat symptomatically.	
Routes of Exposure	First Aid Measures
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. Seek medical attention if skin irritation persists.
Inhalation	Remove to fresh air, if condition continues, consult physician.
Ingestion	Seek medical help if large quantities of material have been ingested.

5. Fire Fighting Measures

Product is solid appearance.	
Suitable Extinguishing Media:	N/A
Unsuitable Extinguishing Media:	N/A
Particular Hazards:	See section 3
Protective Equipment for Fire Fighters:	N/A

6. Accidental Release Measures

Gold: No special precautions required.
STAINLESS STEEL: 05Cr17Ni4Cu4Nb (S51740)
Personal precautions, protective equipment and emergency procedures: N/A because product in solid appearance. Only during processing such as brazing, burning, cutting, grinding, heat treating, picking, welding, wear self-contained breathing apparatus, masks and goggle is suggested.
Environmental Precautions: N/A
Clean-up procedures and equipment: N/A For spills involving fine dusts, remove by vacuuming or wet sweeping methods to prevent spreading of dust. Avoid inhalation of dusts.
Special Instructions N/A

7. Handling and Storage

Handling No special cares are requested. In case of spillage, sweep up, so as to avoid possible risk of slipping.
Storage Packed with sealed plastic bags. No special precautions, keep the package and containers closed and stored in the ventilated room. Avoid the corrosive gases.

8. Exposure Control/Personal Protection

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Ventilation	Local exhaust recommended while burning, grinding, and/or welding and airborne levels if metal oxides exceed applicable OSHA Standards.
Personal Protective Equipment:	
Respiratory Protection: if fumes, misting or dust conditions occurs and exceeds applicable OSHA Standards.The exposure limit for iron-containing fumes has been established at 5 mg/m ³ with ACGIH's TWA.	
Personal Protection: approved air-supplied respirators.	
Eye Protection	Recommend approved safety glasses when grinding, welding, etc.
Hand Protection	Gloves: As required. Other Clothing: As required.

9.Physical and Chemical Characteristics

Gold:	
Appearance and Odor	Plated thinner layer, odorless with gold colour.
Initial boiling point and boiling range	1063-2808 °C (1945F to 5086F)
Density(25 °C):	19.3g/ml
STAINLESS STEEL: 05Cr17Ni4Cu4Nb (S51740)	
Appearance and Odor	Solid, odorless solid with metallic luster.
Physical State:	Solid
Solubility in Water(20 °C):	Does not soluble
Solubility in Organic Solvent(20 °C):	Does not soluble
Melting Point/Range:	1400-1440 °C (2552F to 2624F)
Boiling Point:	NA
Flash Point:	NA
Ignition Point:	NA
Vapor Pressure(20 °C):	NIL
Density(20 °C):	7.78 specific gravity
PH Value (at 10g/1H ₂ O):	NA
Viscosity (20 °C)	Solid

10.Stability and Reactivity

Gold:	
Reactivity: no data available	Chemical stability: Stable under recommended storage conditions.
Possibility of hazardous reactions : no data available	Conditions to avoid : No data available
STAINLESS STEEL: 05Cr17Ni4Cu4Nb (S51740)	
Stability? <input checked="" type="checkbox"/> Stable <input type="checkbox"/> Unstable	Reactivity: N/D
Hazardous Polymerization? <input type="checkbox"/> May Occur <input checked="" type="checkbox"/> Will not Occur	Conditions to Avoid Contact with mineral acids will release flammable hydrogen gas.

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Hazardous Decomposition Products:
Metal fumes and certain noxious gases, such as CO, may be produced during welding or burning operations.

Incompatible materials:
Strong acids.

11.Toxicological Information

No toxic effect would be expected from exposure to the solid form of Steel products.
Prolonged, repeated exposure to fumes or dust generated during subsequent operations may or may cause adverse health effects associated with the listed constituents in excess of OSHA permissible exposure limits. This material contains nickel, which for some individuals, could result in development of nickel sensitization. This material should not be used for individuals with a known nickel sensitivity and should be discontinued for individuals whom develop nickel sensitization after prolonged contact.

12.Ecological Information

Biodegradability: N/D
Biodaccumulation: N/D
Follow the local regulation for non-hazardous metallic materials.

13.Disposal Considerations

Regulations:
Disposal as per medical devices solid wastage in accordance with local regulations.

Properties(Physical/Chemical) Affecting Disposal
NA

Follow instructions under points6 and 12.

14.Transport Information

Technical Shipping Name: Not regulated
Freight Class Bulk: N/A
Freight Class Package: N/A
Hazard Class or Division: Non-Hazardous
Further Details: Product is not considered dangerous for transport.

15.Regulatory Information

Final products :European Community: assigned to Class IIa by Medical Device Directive 93/42 EEC
U.S.A : assigned to Class I Medical Devices by U.S. Food and Drug Administration(FDA)
Label information follow the EN980: 2008 《Symbols for use in the labelling of medical devices》


16.Other Information

This information contained herein is based on the present state of our knowledge and is intended to describe our products from the point of view of safety requirements. Therefore, it should not be construed as guaranteeing specific properties.
The information in this MSDS is based on technical data that we believe to be reliable. Astar assumes no responsibility and makes no warranties, expressed or implied, regarding the accuracy or currency of any data so

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provided. Since conditions of storage, use, and disposal of this products are beyond our control, we make no warranties, expressed or implied, and assume no liability in connection with the use of this product.

Attention for final products:
 The final product is supplied non sterilize. Before used, it is recommended to be wiped by 75% alcohol.
 For professional use only.
 Disposable only.
 Single use .

 This product contains nickel and chromium. If patient reaction is suspected, contact a physician.

N/A=not applicable NA= not available N/D= not determined
 mg/m³= milligrams per cubic meter C = ceiling PEL = permissible exposure limit