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DTC ORTHODONTICS

Material Safety Data Sheet Date:June 6, 2024

I – Identification of the Substance and of the Company	
Supplier:Hangzhou DTC Medical Apparatus.Co., Ltd. Company Address: Floor 1-3, Building 2, 8th Xiyuan Road, Sandun Town, Xihu District, Hangzhou 310030, China Tel: 0086-571-89774162 Fax: 0086-571-89774164 Web:www.dtchz.com	Trade Name: DTC Description: 1、Orthodontic Brackets 2、Orthodontic Tubes 3、Orthodontic Wires 4、Orthodontic Pliers 5、Dental Tweezer 6、Bath back rest/seat 7、NiTI Distalizing Open Coil Springs 8、 Dental Mirror(Reflector)
Product Grade / Name: STAINLESS 1、STEEL 304,316,17-4PH 2、 Ni-Ti Alloy 3、TiNi-01 4、SUS304/STS304(ASTM AISI 304) 5、SUS304L(ASTM-A240/A240M-10) 6、Glass	

II –Composition / Information on Ingredients (Principal Ingredients)

STEEL 304,316,17-4PH

MATERIAL	CAS Number	% (RANGE)	ACGIH-TLV	OSHA-PEL
IRON	7439-89-6	65-75	None	None
CHROMIUM	7440-47-3	17-19	0.5mg/m^3 (Dust)	1mg/m^3 (Dust)
NICKEL	7440-02-0	4-12	1mg/m^3 (Dust)	1mg/m^3 (Dust)
MOLYBDENUM	7439-98-7	2.0-3.0 (316L)	10mg/m^3 (Dust)	15mg/m^3 (Dust)

Ni-Ti Alloy

MATERIAL	CAS Number	% (RANGE)	ACGIH-TLV	OSHA-PEL
IRON	7439-89-6	≤0.400	None	None
Carbon	7440-44-0	≤0.0500	/	/
NICKEL	7440-02-0	54.5-56.3	1mg/m^3 (Dust)	1mg/m^3 (Dust)
Ti	7440-32-6	≤43	/	/
Others	/	≤0.03	/	/

TiNi-01

MATERIAL	CAS Number	% (RANGE)	ACGIH-TLV	OSHA-PEL
Titanium	7440-32-6	43.90	/	/
Nickel	7440-02-0	55.97	1mg/m^3 (Dust)	1mg/m^3 (Dust)
Cobalt	7440-48-4	<0.010	/	/
Copper	7440-50-8	<0.010	/	/
Chromium	7440-47-3	<0.010	0.5mg/m^3 (Dust)	1mg/m^3 (Dust)
Niobium	7440-03-1	<0.010	/	/
Iron	7439-89-6	0.023	5mg/m3	10mg/m3
Carbon	7440-44-0	≤0.0500	/	/

Oxygen	7782-44-7	0.020	/	/
Nitrogen	7727-37-9	0.020	/	/
Hydrogen	1333-74-0	0.0016	/	/
SUS304/STS304(ASTM AISI 304)				
MATERIAL	CAS Number	% (RANGE)	ACGIH-TLV	OSHA-PEL
IRON	7439-89-6	65-75	None	None
CHROMIUM	7440-47-3	17-19	0.5mg/m^3 (Dust)	1mg/m^3 (Dust)
NICKEL	7440-02-0	4-12	1mg/m^3 (Dust)	1mg/m^3 (Dust)
MOLYBDNUM	7439-98-7	2.0-3.0(316L)	10mg/m^3 (Dust)	15mg/m^3 (Dust)
SUS304L(ASTM-A240/A240M-10)				
IRON	7439-89-6	About 70	5mg/m3	10mg/m3
Carbon	7440-44-0	0.024	/	/
Manganese	7439-96-5	1.086	0.5mg/m^3 (Dust)	5mg/m^3 (Dust)
Silicon	7440-21-3	0.45	10mg/m^3 (Dust)	/
Sulphur	7704-34-9	0.0034	/	/
Phosphorus	7723-14-0	0.030	0.3mg/m^3 (Dust)	/
CHROMIUM	7440-47-3	18.15	0.5mg/m^3 (Dust)	1mg/m^3 (Dust)
NICKEL	7440-02-0	8.005	1mg/m^3 (Dust)	1mg/m^3 (Dust)
Copper Power	7440-50-8	0.075	1mg/m^3 (Dust)	1mg/m^3 (Dust)
MOLYBDENUM	7439-98-7	0.032	10mg/m^3 (Dust)	15mg/m^3 (Dust)
Glass				
MATERIAL	CAS Number	% (RANGE)	/	/
Silicon dioxide	14808-60-7	70-75	/	/
Calcium oxide	1305-78-8	8-10	/	/
Magnesium oxide	1309-48-4	2-4	/	/
Aluminium oxide	1344-28-1	0.5-1.5	/	/
Sodium oxide	1313-59-3	≤7.5	/	/
Potassium oxide	12136-45-7	≤7.5	/	/

III – Hazards Identification

1、Metal 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.
Possible symptoms of exposure to dust, fumes, or gages:
Acute: Irritation of eyes, nose, throat, and skin; metallic taste in mouth; nausea; metal fume fever.
Chronic: Only after six toten years of exposure to iron dust or fumes does one present any signs of pneumoconiosis. Physical examinations of those exposed to iron dust have not indicated any disability. Excess inhalation of Chromium fumes has been associated with respiratory cancer.
Carcinogenicity: Chromium and Nickel have been identified by the International Agency for Research on Cancer (IARC and the National Program (NTP) as potential cancer causing agents.

2、Glass products
Hazard category: hazard categories

Invasion way: Direct contact with the skin, and inhalation
Health hazard: The broken glass fragment is sharp, to scratch or cut a person's skin; Glass dust floating in the air inhaled through respiratory tract.
Environment hazard: Insignificance
Explosive danger: Insignificance

POSSIBLE SYMPTONS OF EXPOSURE TO DUST, FUMES, OR GASES:

Acute: Irritation of eyes, nose, throat, and skin; metallic taste in mouth; nausea, metal Fume fever.

Chronic: 1、Only after six toten years of exposure to iron dust or fumes does one present any signs of pneumoconiosis. Physical examinations of those exposed to iron dust have not indicated and disability. Excess inhalation of Chromium fumes has been associated with respiratory cancer.

2、Long term inhalation of nickel powder can cause respiratory irritation and chronic rhinitis. It can also cause allergic pneumonia, bronchitis, asthma.

IV – First Aid Measures	
Metal	
PRIMARY ROUTES OF ENTRY:	ENERGENCY FIRST AID:
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.
Ingestion	Seek medical help if large quantities of material have been ingested.
Glass	
PRIMARY ROUTES OF ENTRY:	ENERGENCY FIRST AID:
Inhalation	Insignificance
Eye Contact	Open eyelids, irrigate with flowing water or normal saline, go to a doctor.
Skin Contact	People should immediately flush skin with water and bind up. Must be sent to hospital to check if a person is scratched or cut badly.
Ingestion	Insignificance

V– Fire Fighting Measures
Metal（Except TiNi-01）
Flash Point: N/A Flammable Limits in Air % by Volume: N/A Extinguisher Media: N/A Auto-Ignition Temperature: N/A Special Fire Fighting Procedures: N/A Unusual Fire and Explosive Hazards: N/A
TiNi-01

Flash Point: N/A
Flammable Limits in Air % by Volume: N/A
Extinguisher Media: Dry powder, Dry sand
Auto-Ignition Temperature: N/A
Special Fire Fighting Procedures: Firefighters must wear filter type gas masks (full face masks) or isolation type respirators, wear full body fire and gas protective clothing, and extinguish fires upwind.
Fire extinguishing agents: dry powder, sand.
Unusual Fire and Explosive Hazards: When subjected to high heat or intense combustion, no use water.

Glass

Hazard property: No special burning explosion properties.
Meet does not react with acid (except for HF, the reaction of glass with HF can generate SiF4 and cause corrosion on glass); Encounter alkali will cause corrosion (KOH and NaOH, etc.)
Dangerous: Insignificance
Hazardous Combustion Products: Insignificance
Fire fighting methods: Insignificance
Fire extinguishing measures and precautions: Insignificance

VI – Accidental Release Measures

Metal（Except TiNi-01）

Spill or Leak Procedures: Remove by mechanical means.

TiNi-01

Isolate the contaminated area and restrict entry and exit. Cut off the fire source. It is recommended that emergency personnel wear self-contained positive pressure respirators and protective clothing. Do not come into direct contact with leaks. Collect in a dry, clean, and covered container using spark free tools. Transfer recycling.

Glass

Accidental release measures: Insignificance

VII–Handling and Storage

Metal

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

Glass

Operation cautions: Suggest wearing a helmet, canvas protective sleeve, rubber or canvas gloves, safety glasses, safety shoes, etc. Be careful of the glass corner(glass is easy broken when glass corners impacted
Attentions for Storage: Glass should be stored in a dry and ventilated warehouse. The warehouse humidity generally not more than 60%. Storage areas should be ventilated, fire control devices, etc. To avoid scratches, generally use paper or cork pad between glass and glass.

VIII – Exposure Controls / Personal Protection

Metal

Ventilation Requirements:
Local exhaust recommended while burning, grinding, and / or welding and airborne levels of metal oxides exceed applicable OSHA Standards.
Personal Protective Equipment:
Respiratory Protection:
If fumes, misting or dust conditions occurs and exceed applicable OSHA Standards.
Personal Protection:
Respiratory:

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

Eye Protection:

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

Hand Protection:

Gloves: As required.

Other Clothing: As required.

Glass

Respiratory protection :Wear a mask
Eyes protection: Wear protective glasses
Body protection: wear safety shoes
Hands protection: wear canvas protective sleeve, rubber or canvas gloves,

IX – Physical and Chemical Properties

Metal

Boiling Point: N/A
Specific Gravity: (H_2O=1) Approx. 8
Vapor Pressure: (mm Hg) N/A
Percent Volatile by Volume (%): N/A
Evaporation Rate=1: N/A
Solubility in Water: N/A
Reactivity in Water: N/A
Appearance and Odor: Odorless solid with metallic luster.

Glass

Appearance: Colorless transparent amorphous, more brittle. After toughened glass, the surface stress concentration, leading to its strength will increase than before toughened 5 ~ 6 times.
PH value: Insignificance
Softening temperature: about 720℃
Boiling temperature: Insignificance
Density: 2.5kg/m3
Solubility: insoluble in water

X – Stability and Reactivity

Metal

Stability:

Unstable ( ) Stable (X)

Conditions to Avoid: N/A

Incompatibility:

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

Hazardous Decomposition Products:

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

Hazardous Polymerization:

May Occur ( ) Will Not Occur (X)

Conditions to Avoid: N/A

MATERIAL	ACGIH-TLV	OSHA-PEL
CARBON MONOXIDE	50ppm	50ppm

CHROMIUM*(D)*	0.05mg/m^3 Suspected carcinogen-NTP & IARC Listed See Sections 5&7	0.1mg/m^3
IRON*(B)*	5mg/m^3	10mg/m^3
MOLYBDENUM	5mg/m^3	5mg/m^3
NICKEL	0.1mg/m^3 Suspected carcinogen-NTP & IARC Listed See Sections 5&7	1mg/m^3
NITROGEN DIOXIDES	3ppm	5ppm Maximum
OZONE	0.1ppm	0.1ppm

Glass

Stability: stable

Prohibited content: hydrofluoric acid (HF), alkali (KOH、NaOH)

Avoid contact with conditions: 50 ℃ high temperature and high humidity airtight environment (humidity of 85% or more) will cause the glass mould (weathering)

Aggregate harm: cannot occur

Breakdown products: no decomposition

XI – Toxicological Information

Metal

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 not cause adverse health effects associated with the listed constituents in excess of OSHA permissible exposure limits established in 29 CFR Part 2920.1200 (See Section 2. Generic Ingredients). This material contains nickel, which for some individuals, could result in development of nickel sensitization. This material should not be used for individuals with already known nickel sensitivity and should be discontinued for individuals whom develop nickel sensitization after prolonged contact.

Glass

Acute toxicity: LD50: no data available LC50: no data available

Stimulus: nonsense

XII – Ecological Information

No ecological effects are known.

XIII – Disposal Considerations

Metal

Solids – Sell as scrap for reuse.

Dust – Follow the government and local regulations regarding disposal.

Grinding, Cutting and Welding Residue – Follow the government and local regulations regarding disposal.

Glass

Glass and glass dust can be recycled into some new glass products and should be recycled wherever appropriate and possible.

Glass and glass dust is not considered a hazardous waste under USEPA RCAR, or European Hazardous Waster directive definitions

XIV – Transportation Information

Metal

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

Glass

Dangerous gauge number: no data available
The United Nations number: no data available
Packaging categories: no data available
Packing method: Use paper or cork pad between glassr, outside with PE film, then use wooden cases with steel belt tied up,
Transportation note: Glass in the process of transportation, transportation vehicles shall not stop in hurry , must be in the process of turning slowly, to avoid glass broken glass. The contact between glass and other materials must have corresponding buffer material.

XV – Regulatory Information

Metal

These products are manufactured using ISO 13485:2003 quality system and are regulated as Class II Medical Device by Chinese Food and Drug Administration, 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.

Glass

Regulatory information : no data available

XVI – Other Information

Metal

Note: While the information and recommendations set forth on this data sheet are believed to be accurate as received from our suppliers, Hangzhou DTC Medical Apparatus Co., Ltd. makes no warranty with respect thereto and disclaims all liability from reliance thereon.

Glass

References : 1. GB 11614-1999 Float glass
2.GB 15763.2-2005 Part 2 tempered glass