



**The Leader in Laser Products**

24410 N 20th Drive  
Phoenix, AZ 85085

1-800-733-7705  
www.LaserBits.com

## RING TOP TAG, KEY TAG, DOG TAG, NAME PLATE, TECHLINE PLATE

### STAINLESS STEEL MSDS 1-01

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#### SECTION I - GENERAL INFORMATION

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PRODUCT NAME: Stainless Steel                      Synonym: None                      CAS No. None  
PRODUCTS COVERED: All chromium-nickel and straight chromium grades such as: 300 series, including 201, 301, 301D, 302B, 303, 304, 304L, 309, 310S, 316, 317L, 317M, 321, 347, 348; 400 series, such as 400, 405, 406, 409, 409L, 410, 410H, 410S, 411, 420, MOD420, 430, 434, MOD435, 436, 439, 440. For actual composition please refer to "Certified Material Test Report" or specific grade specification sheets.

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#### SECTION II - PHYSICAL DATA

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Melting Point Range: 2600°F to 2790°F  
Specific Gravity: 7.65 to 7.94      .28 - .29 lb/in<sup>3</sup>  
Solubility: Insoluble in water  
Reactivity in Water: None  
Appearance and Odor: Silvery metallic. No odor.

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#### SECTION III - PRINCIPAL INGREDIENTS

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No threshold limit values (TLV) exist for stainless steel; TLV's may be applicable to constituent elements.

INGREDIENTS:	CAS NO.:	PERCENT:	OSHA (PEL) mg/m <sup>3</sup>	ACCIH (TWA) mg/m <sup>3</sup>
Iron	1309-37-1	45 - 90	10 iron oxide fume	5
Chromium	7440-47-3	10.5 - 30	.05 as salt 1.0 metal & insoluble	.5 .5
Nickel	7440-02-2	0 - 40	1	0.1
Molybdenum	7439-98-7	0 - 5	5 soluble 15 insoluble	5 10
Copper	7440-50-8	0 - 5	1 dust & mist 0.1 fume	1.0 .2
Manganese	7439-96-5	0 - 15	5 dust ceiling —	5 dust ceiling 1 fume
Silicon	7440-21-3	0 - 3	15 total dust	—
Tantalum	7440-25-7	0 - 1 max.	5	—
Columbium	—	0 - 1 max.	—	—

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#### SECTION IV - FIRE AND EXPLOSION HAZARD

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Lump material is not combustible. Some metal dust or powders may be flammable. Use dry chemical to extinguish.

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#### SECTION V - REACTIVITY DATA

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Stability: Stable in all sizes.

Oxidizes at elevated temperature.

Materials to avoid: None.

Conditions to Avoid: Avoid generation of air-borne dusts

Hazardous Reaction/Decomposition Products: No hazardous reaction though under certain conditions metallic oxides may be formed.



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## SECTION VI - HEALTH HAZARD DATA

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TOTAL DUST	TLV	15 mg/m <sup>3</sup>
RESPIRABLE DUST	TLV	5 mg/m <sup>3</sup>

PRIMARY ROUTES OF ENTRY: Inhalation of dust or fume

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### First Aid Procedures:

Inhalation: Remove from dusty area to fresh air; if discomfort persists, consult physician.

Skin Contact: No hazard associated with skin contact, however wash skin thoroughly with soap and water to remove dust.

Eye contact: Wash eyes with copious amounts of water for 15 minutes to ensure that no particles remain in the eye. Seek medical advice if irritation persists.

### Effects of Overexposure:

Lump (or bulk) material overexposure is not toxic and presents no health hazard. Overexposure to dusts may irritate eye, nose or throat.

Thermal cutting, welding, melting or grinding may make fumes containing component elements which may present potentially significant health hazards.

Chromium and nickel have been identified as potential carcinogenic agents.

Iron: Iron compounds as a class are not associated with any particular industrial risk. The inhalation of iron oxide fumes may cause a benign pneumoconiosis (siderosis).

Chromium: Acute exposure to dust may irritate eye, nose or throat. Chronic overexposure to dust may cause irritation and/or pulmonary disease.

Nickel: Acute exposure to dust may irritate eyes, nose or throat. Chronic overexposure to dust may cause a skin sensitivity which may result in a rash or eczema, "Nickel itch."

Molybdenum: Acute overexposure of dust may cause irritation of eyes, nose or throat. No reports of toxic effects of molybdenum in the industrial setting have appeared.

Copper: Acute overexposure to dust or fumes may cause irritation of upper respiratory tract, metallic taste, nausea, metal fume fever. Chronic exposure to dusts can cause skin irritation or discoloration of skin or hair.

Manganese: Acute exposure to dusts and fumes are only minor irritants to the eyes and mucous membranes of the respiratory tract, and may cause metal fume fever and chills. Chronic overexposure may cause a central nervous system disorder - manganese poisoning with symptoms of headache, hypersomnia, spasms, weakness of the legs. Manganese psychosis may develop with symptoms of unaccountable laughter, euphoria, aggressiveness. It should be noted that the above disturbances may resolve with removal from manganese exposure.

Silicon: Silicon does not produce significant toxic effect when exposures are kept under reasonable control. Acute overexposure may cause irritation of eyes or nose.

Tantalum: There are no known harmful effects in humans

Columbium: There are no known harmful effects in humans

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## SECTION VII - SPILL, LEAK OR DISPOSAL INFORMATION

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Spills: Fine material should be swept or vacuumed to avoid creating air-borne dust. Avoid compressed air on spills or leaks of fine material.

Waste Disposal: Dispose of in accordance with all applicable federal, state and local regulations.

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## SECTION VIII - EMPLOYEE PROTECTION

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Respiratory Protection: In dusty areas, use NIOSH - approved Schedule 21C respirator

Ventilation: Local for operations generating fumes and dust to keep air-borne concentration levels below the TLV.

Eye Protection: Recommend the use of safety goggles.

Other Clothing and Equipment: Protective gloves are recommended during handling for both fines exposure and handling plates and sheets which may have sharp edges.