1. PRODUCT AND COMPANY INFORMATION

Product Name: Arch Hooks and Stops, Arch Lock, Bands, Bondable Tongue Directors, Brackets, Distema Closers, Expansions Screws, Facebows, Gentle Jumpers, Instruments, Jasper Jumpers, Jet Family Products, Jones Jigs, Kobayashi Hooks, Korn Mandibular Advancers, Lingual Attachments, Lingual Retainers, Ligature Wire, Lip Bumpers, Mesh Bars, Springs, Surgical Ball Hooks, Tubes, Stainless Steel Wires, Cheek Retractors, Retractors, Stainless Steel Products

Common Name: Stainless Steel Products / Stainless Steel Alloys

Associated Catalog Numbers: Various

Company Name:
DynaFlex
10403 International Plaza Dr.
St. Ann, MO 63074
(314) 426-4020

Emergency Response Number:
(314) 426-4020

2. HAZARDS INDENTIFICATION

Types of Dangerous/Toxic Categories
Category: N/A
Dangerous Material: N/A
Toxic Material: N/A

3. COMPOSITION/INFORMATION ON INGREDIENTS

Single or Compound: Compound
Chemical Name: Chromium Nickel Iron alloy, Stainless Steel
Chemical or Structural Formula: Cr-Ni-Fe

Component	CAS No.	% by Wt.
Silicon, Si	7440-21-3	0 to 1.0
Manganese, Mn	7439-96-5	0 to 2.0
Chromium, Cr	7440-47-3	13 to 23
Nickel, Ni	7440-02-0	3 to 14
Molybdenum, Mo	7439-98-7	0.5 to 3
Copper, Cu	7440-50-8	1.25 to 5
Niobium, Nb	7440-03-1	0.15 to 0.45
Iron, Fe	7439-89-6	50-80

Other elements may be present such as Carbon, Sulfur and Phosphorous. These are either not hazardous or below 0.1% by weight.
All other trace elements are below the levels specified in the European ELV, and RoHS Directives, the Japanese Green Procurement Standardization Initiative, and the US EIA Joint Industry Guide JIG.

4. FIRST AID MEASURES

Eye Contact: For irritation from particulate, flush with clean water for 15 minutes. Immediately consult a physician.

Inhalation: Not applicable to stainless steel in solid form. If breathing becomes difficult due to inhalation of dust and/or fumes results from machining operations, remove person from exposed area to fresh air. Immediately consult a physician.

Skin Contact: If an individual is already sensitized to nickel, prolonged skin contact may result in an allergic reaction. Skin irritation or laceration should be washed thoroughly with plenty of soap and water. In case of heavy injury, immediately consult a physician.

Ingestion: If ingested, immediately consult a physician.

5. FIRE FIGHTING MEASURES

Stainless steel is incombustible.

6. ACCIDENTAL RELEASE MEASURES

This is a solid material; contaminant should not pose problems.

7. HANDLING AND STORAGE

There are no special technical measures involved in handling or storing of stainless steels.

8. EXPOSURE CONTROL/PERSONAL PROTECTION

For solid metal articles:

Skin Protection: Wear protective gloves while handling stainless steel to prevent cuts and skin abrasions and to reduce the risk of sensitization from skin contact.

For fumes or dust generated from melting or abrasive cutting:

8-hour, TWA mg/m3

Component	OSHA PEL	ACGIH TLV
Silicon, Si	15.0	10.0
Manganese, Mn	5.0	0.2
Chromium, Cr	1.0	0.5
Nickel, Ni	1.0	1.5 (l)
Molybdenum, Mo	5.0	0.5 (R)
Copper, Cu	0.1	0.2
Niobium, Nb	N/E	N/E
Iron, Fe	10.0	5.0

Exposure guidelines: There are no occupational exposure limits for stainless steels.
Cleaning Wastes: Read and understand the cleaning product safety data sheet. Unintended for use of strong oxidizers (high pH) on stainless steel, which may cause Cr (VI) compounds to form at ambient temperatures.
Eye/Face Protection: Wear approved safety glasses with side shields or goggles where metal dust or fumes are present.
Respiratory Protection: Use approved respirator for dust and fumes where local exhaust or ventilation does not keep exposure below PEL or TLV levels.
Protective Clothing: Wear suitable protective clothing and equipment, such as hand and eye protection.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance/Color:	Varying from dull to very light grey, to shiny metallic light grey to bright mirror-finish
Odor:	Odorless
Odor Threshold:	N/A
Physical State:	Solid
pH:	N/A
Melting Point:	2500-2760°F (1370-1520°C)
Boiling Point:	N/A
Flash Point:	N/A
Evaporation Rate:	N/A
Flammability:	N/A
Explosive Limits:	N/A
Vapor Pressure:	N/A
Vapor Density:	N/A
Specific Gravity:	0.27-0.30 lbs./in^3 (7.7-8.1 kg/dm^3)
Solubility (water):	Insoluble
Partition Coefficient:	N/A
Auto-ignition Temperature:	N/A
Decomposition temperature:	N/A
Thermal Expansion (ambient to 100°C):	10-16x10^6 m/m°C
Thermal Conductivity (ambient temperature):	12-30 W/m°C
Magnetic:	Austenitic stainless steels are non-magnetic in most supply conditions, but may be para-magnetic in some supply conditions. Duplex, ferritic and martensitic stainless steels are magnetic.

10. STABILITY AND REACTIVITY

Chemical Stability: Stable and non-reactive under normal ambient atmospheric conditions.
Conditions to avoid: None known
Incompatible materials: May react with strong acids (hydrogen, oxides of nitrogen) and strong oxidizers (high pH).

In its solid form, stainless steel does not present inhalation, absorption or ingestion hazard. Metal dust may cause eye, skin and/or respiratory system irritation. Grinding, polishing, abrasive blasting thermal cutting or welding may produce stainless steel dust or fumes. Over long periods, inhalation of excessive airborne levels may have long term health effects. Long-term experience of stainless steels in the most varied applications has demonstrated that these very resistant materials are eminently suitable where hygiene is of paramount importance.

Toxic information for its Elements

Nickel: For stainless steels there is no direct evidence of carcinogenic effects in man, nor indirect evidence from animals tested by relevant routes.

Chromium: Grinding, polishing, abrasive blasting and fumes from thermal cutting or welding may contain Cr(VI) hexavalent chromium compounds. Studies have shown that some hexavalent chromium compounds can cause cancer.

Manganese: Overexposure to manganese can result in central nervous system effects referred to as manganism, including symptoms of muscular weakness, impaired speech and tremors similar to Parkinson's disease.

Molybdenum and Copper: Both molybdenum and copper are necessary nutritional elements. High doses of molybdenum may antagonize absorption of copper and vice versa. Overexposure to molybdenum causes anemia, gout-like syndrome and increase uric acid levels.

Dermatological Effects

Stainless steels do not cause nickel sensitization by prolonged skin contact in humans.

12. ECOLOGICAL INFORMATION

No known harmful effects. No special precautions are required.

13. DISPOSAL CONSIDERATIONS

Recyclable material should be recycled through authorized parties. If discarded, the material is classified as RCRA Hazardous waste due to the chromium, manganese and nickel contents.

14. TRANSPORTATION INFORMATION

Solid stainless steel is not a hazardous material. No label is required during transport.

EPCRA/SARA Section 302, 304, 311/312 and 313

Component	CAS No.	Section 302 EHS	Section 304 Spill (Reporting Quantity)	Section 311/312 Hazard Classes	Section 312 SARA Tier II (Threshold planning quantity)	Section 313 Form R (By weight %)
Chromium, Cr	7440-47-3	N/A	5,000	Chronic health hazard	10,000	16-28
Nickel, Ni	7440-02-0	N/A	100	Chronic health hazard	10,000	2.5-23
Manganese compounds, Mn	N450	N/A	No RQ established	Chronic health hazard	10,000	0-2.0

16. ADDITIONAL INFORMATION

Food Contact: Stainless steel grade 316L is approved by NSF for food and drinking water applications.

Some of the information presented and conclusions drawn herein are from sources other than direct test data on the product itself. The information in the SDS was obtained from sources that we believe are reliable and is believed to be valid and accurate. DynaFlex, however, makes no warranty, express or implied, regarding its correctness of the information provided. The conditions or method of handling, storage, use and disposal of the product are beyond our control and may be beyond our knowledge. For this and other reasons, we do not assume responsibility and expressly disclaim liability for loss, damage, or expense arising out of or in any way connected with the handling, storage, use or disposal of the product. If the product is used as a component in another product or used in a way other than recommended by the Company, this SDS information may not be applicable. **Reasonable safety precautions must always be observed.**

Revision Date: *03/16/2015*
Reason for revision: *New format*