

### COMPANY INFORMATION

**COMPANY NAME:** ORTHO SPECIALTIES  
**COMPANY ADDRESS:** 3820 OHIO AVE - SUITE 15  
 ST. CHARLES, IL 60174  
**COMPANY PHONE:** 630-443-0225  
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**COMPANY WEB ADDRESS:** www.orthospecialties.com

<b>17-4 PH</b>	
<b>DOCUMENT NUMBER:</b>	<b>SDS66</b>
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### SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE

**1.1 PRODUCT IDENTIFIER:** 17-4 PH

Contains the following substances with hazardous properties. - Nickel

1.2 Relevant Identified uses of the substance or mixture and uses advised against: Identified uses:

0	Other Process or activity:
AC7	Metal articles
ERC2	Formulation of preparations (mixtures)
ERC3	Formulation in materials
PROC14	Production of preparations or articles by tableting, compression, extrusion, pelletisation
PROC2	Use in closed, continuous process with occasional controlled exposure
PROC22	Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting
PROC27a	Production of metal powders (hot processes)
PROC5	Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact)
SU17	General manufacturing

#### Uses Advised Against:

Use of nickel in articles intended for direct and prolonged contact with the skin where the release of nickel exceeds the limit set out in Directives 94/27/EC and 2004/6/EC and REACH regulation 1907/2009 (Annex XVII).  
 Use of nickel in nickel-containing food contact materials for which migration into foodstuff would exceed more than 0.1 mg/kg of nickel in accordance with the Council of Europe Guidelines on metals and alloys used as food contact materials  
 Use of nickel in immersion-type kettles which would release more than 0.05 mg/l of nickel into the water in accordance with the Council of Europe Guidelines on metals and alloys used as food contact materials Use of nickel in commercially available "do-it-yourself" home electroplating kits.

### SECTION 2: HAZARDS IDENTIFICATION

#### 2.1 Classification of the substance or mixture:

##### 2.1.1 CLP



#### CLP

Hazard statements	
Aquatic Chronic 3 H412	Harmful to aquatic life with long lasting effects.
Carc. 2 H351	Suspected of causing cancer (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard).
STOT RE 1 H372	Causes damage to organs (or state all organs affected, if known) through prolonged or repeated exposure (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard).
Skin Sens. 1 H317	May cause an allergic skin reaction.
Precautionary statements	
P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P260	Do not breathe dust/fume/gas/mist/vapours/spray.
P264	Wash thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P272	Contaminated work clothing should not be allowed out of the workplace.
P273	Avoid release to the environment.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P281	Use personal protective equipment as required.
P302 + P352	IF ON SKIN: Wash with plenty of soap and water.
P314	Get medical advice/attention if you feel unwell.
P333 + P313	If skin irritation or rash occurs: Get medical advice/attention.
P363	Wash contaminated clothing before reuse.
P405	Store locked up.
P501	Dispose of contents/container in accordance with local and national regulations

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#### 2.1.2 CHIP



#### CHIP

Xn	Harmful
Carc. Cat 3	
R20	Harmful by inhalation.
R40	Limited evidence of a carcinogenic effect.
R43	May cause sensitisation by skin contact.
S20/21	When using do not eat, drink or smoke.
S22	Do not breathe dust.
S36	Wear suitable protective clothing.
S60	This material and its container must be disposed of as hazardous waste.

#### 2.2 Label Elements



Warning

#### Hazard statements:

Aquatic Chronic 3 H412	Harmful to aquatic life with long lasting effects.
Carc. 2 H351	Suspected of causing cancer (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard).
STOT RE 1 H372	Causes damage to organs (or state all organs affected, if known) through prolonged or repeated exposure (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard).

Skin Sens. 1 H317

May cause an allergic skin reaction.

#### Precautionary statements:

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P260	Do not breathe dust/fume/gas/mist/vapours/spray.
P273	Avoid release to the environment.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P302 + P352	IF ON SKIN: Wash with plenty of soap and water.

#### 2.3 Other Hazards

No Information

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### SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

#### 3.2 Mixture

Conc. %	CAS No	EC No	REACH Registration No	Classification according to CHIP (Chemicals Hazard Information for Packaging and Supply Regulations 2002)	Classification according to 67/548/EEC
Iron 70.00-80.00	7439-89-6	231-096-4		S20/21 S22 S60	P202 P260 P270 P272 P281 P501
Chromium 10.00-20.00	7440-47-3	231-157-5		S20/21 S22 S60	P202 P260 P270 P272 P281 P501
Nickel 1.00-4.00	7440-02-0	231-111-4	01-2119438727-29-0000	Xn Carc. Cat 3 R40 R43 S20/21 S22 S36 S60	Aquatic Chronic 3 H412 Carc. 2 H351 STOT RE 1 H372 Skin Sens. 1 H317 P201 P202 P260 P261 P264 P270 P272 P273 P280 P281 P302 + P352 P308 + P313 P314 P333 + P313 P363 P405 P501
Copper 1.00-10.00	7440-50-8	231-159-6	17-2119429821-40-0000	R20 S20/21 S22 S60	P202 P260 P270 P272 P281 P501

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**SECTION 4: FIRST-AID MEASURES**

**4.1 Description of first aid measures**

**Skin Contact:** Wash off thoroughly with soap and water. If rash develops seek medical attention.  
**Eye Contact:** Irrigate thoroughly with water for at least 10 minutes – obtain medical attention if irritation persists  
**Inhalation:** Remove from exposure, rest and keep warm. In severe cases or if exposure has been great, obtain medical attention.  
**Ingestion:** Wash out mouth thoroughly with water. Obtain medical attention if further symptoms develop.

**4.2 Most important symptoms and effects, both acute and delayed**

**Skin Contact:** Rash may develop.  
**Eye Contact:** Mechanical irritation.  
**Inhalation:** Possible asthma like symptoms.  
**Ingestion:** No information

**4.3 Indications of any immediate medical attention and special treatment needed**

**Skin Contact:** Treat symptomatically  
**Eye Contact:** Treat symptomatically  
**Inhalation:** Treat symptomatically

**SECTION 5: FIRE FIGHTING MEASURES**

**5.1 Extinguishing Media**

DO NOT use water jet. Use extinguishing type D powder or sand.

**5.2 Special Hazards arising from the substance or mixture**

Avoid formation of dust cloud as this may lead to an increased risk of a dust explosion.

**5.3 Advice for fire fighters**

No information

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**SECTION 6: ACCIDENT RELEASE MEASURES**

**6.1 Personal precautions**

6.1.1 For non-emergency personnel: Wear suitable protective clothing and equipment.  
 6.1.2 For emergency responders: Wear suitable protective clothing and equipment.

**6.2 Environmental precautions:**

Take precautions to ensure product does not contaminate ground or enter the drainage system.

**6.3 Methods and material for containment and clear up**

6.3.1 For containment: Not applicable  
 6.3.2 For cleaning up:  
 Small spillage: Vacuum with equipment fitted with HEPA filtration.  
 Large spillage: Solids should be carefully transferred to salvage containers. Any residues should be treated as small spillages.  
 6.3.3 Other information: No Information.

**6.4 Reference to other sections**

No Information

**SECTION 7: HANDLING AND STORAGE**

**7.1 Precautions for safe handling**

Protective measures: Avoid contact with skin and eyes. Do not breathe dust. Wash hand and face thoroughly after working with material.  
 Measures to prevent fire: Not applicable.  
 Measures to protect the environment: Use appropriate containment to avoid environmental hazard.  
 Advice on general occupational hygiene: Work using a suitable extraction/ventilation system. Contaminated clothing should be removed and washed before re-use.

**7.2 Conditions for safe storage**

Technical measures and storage conditions: Store in dry conditions and keep the container closed when not in use  
 Packaging materials: Keep in the container supplied, or suitable metal, plastic or polythene container.  
 Requirements for storage rooms and vessels: Containers should be stored under cover in a clean and dry environment.  
 Storage class: Not applicable.  
 Further information on storage conditions: Local regulations should be followed regarding the storage of this material.

**7.3 Specific end uses**

Identified uses:  
 0 Other Process or activity:  
 AC7 Metal articles  
 ERC2 Formulation of preparations (mixtures)  
 ERC3 Formulation in materials  
 PROC14 Production of preparations or articles by tableting, compression, extrusion, pelletisation  
 PROC2 Use in closed, continuous process with occasional controlled exposure  
 PROC22 Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting  
 PROC27a Production of metal powders (hot processes)  
 PROC5 Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact)  
 SU17 General manufacturing

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### SECTION 8: EXPOSURE CONTROLS AND PERSONAL PROTECTION

#### 3.2 Mixture

CAS No	Name	Legal Basis	WEL 8hr Limit		WEL 15min Limit	
			ppm TWA (8hour)	mg/m3 TWA (8hour)	ppm TWA (short term)	mg/m3 TWA (short term)
7439-89-6	Iron	HSE EH40/2005 Workplace exposure limits	-	Inhalable 10 Respirable 4	-	-
7440-02-0	Nickel	HSE EH40/2005 Workplace exposure limits	-	0.5	-	-
7440-50-8	Copper	HSE EH40/2005 Workplace exposure limits	-	1	-	2

#### 8.2 Exposure Controls



##### 8.2.1 Appropriate engineering controls:

Substance/mixture related measures to prevent exposure during identified uses: Not applicable

Structural measures to prevent exposure: Enclosed processes

Organisational measures to prevent exposure: Substance/Mixture only to be used by those trained in its safe use.

Technical measures to prevent exposure: Enclosed processes or local exhaust ventilation

##### 8.2.2 Personal protection equipment:

8.2.2.1 Eye and face protection: Safety glasses

8.2.2.2 Skin protection:

Hand protection: Impervious gloves

Other skin protection: Barrier cream

8.2.2.3 Respiratory protection: FFP3 dust mask to EN149:2001

8.2.2.4 Thermal hazards: Not applicable

##### 8.2.3 Environmental exposure controls:

Substance/mixture related measures to prevent exposure: Not applicable

Instruction measures to prevent exposure: Not applicable

Organisational measures to prevent exposure: Substance/Mixture only to be used by those trained in its safe use.

Technical measures to prevent exposure: Not applicable

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**SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES**

**9.1 Information on basic physical and chemical properties**

Appearance	Grey powder
Odour	Odourless
Odour	Threshold No data
pH	No data
Melting point/freezing point	1440
Initial boiling point and boiling range	No data
Flash point	No data
Evaporation rate	No data
Flammability (solid,gas)	No data
Upper/lower flammability or explosive limits	No data
Vapour pressure	No data
Vapour density	No data
Relative density	7.76
Solubility(ies)	No data
Partition coefficient; n-octanol/water	No data
Auto-ignition temperature	No data
Decomposition temperature	No data
Viscosity	No data
Explosive properties	No data
Oxidising properties	No data
Particle size	See label

**9.2 Other Information**

No data.

**SECTION 10: STABILITY AND REACTIVITY**

<b>10.1 Reactivity:</b>	<b>No data</b>
<b>10.2 Chemical stability:</b>	<b>Stable under normal conditions.</b>
<b>10.3 Possibility of hazardous reactions:</b>	<b>When wetted with tap or rain water may produce hydrogen gas</b>
<b>10.4 Conditions to avoid:</b>	<b>Oxidising agents and moisture.</b>
<b>10.5 Incompatible materials:</b>	<b>No data</b>
<b>10.6 Hazardous decomposition products:</b>	<b>No data</b>

**SECTION 11: TOXICOLOGICAL INFORMATION**

**11.1 Information on toxicological effects**

Acute toxicity	Oral: Non toxic - LD50 ORAL RAT >9000 mg/kg Human, lowest published toxic dose: 0.1 mg/kg, causing gastrointestinal nausea or vomiting, hypermotility, diarrhea.
Skin corrosion/irritation	No data
Serious eye damage/irritation	Mechanical irritation may be expected.
Respiratory or skin sensitisation	Respiratory tract: Nickel metal induced asthma is very rare. The data is not sufficient to conclude that nickel metal is classified as a respiratory sensitizer.  Skin: Nickel metal is a well-known skin sensitizer. Direct and prolonged skin contact with metallic nickel may induce nickel allergy and elicit nickel allergic skin reactions in those people already sensitised to nickel, so called nickel allergic contact dermatitis.
Germ cell mutagenicity	Oral rat, lowest published toxic dose: 250 ?g/kg (1 day prior to copulation)

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**11.1 Information on toxicological effects continued...**

Acute toxicity	Oral: Non toxic - LD50 ORAL RAT >9000 mg/kg Human, lowest published toxic dose: 0.1 mg/kg, causing gastrointestinal nausea or vomiting, hypermotility, diarrhea.
Skin corrosion/irritation	No data
Serious eye damage/irritation	Mechanical irritation may be expected.
Respiratory or skin sensitisation	Respiratory tract: Nickel metal induced asthma is very rare. The data is not sufficient to conclude that nickel metal is classified as a respiratory sensitizer.  Skin: Nickel metal is a well-known skin sensitizer. Direct and prolonged skin contact with metallic nickel may induce nickel allergy and elicit nickel allergic skin reactions in those people already sensitised to nickel, so called nickel allergic contact dermatitis.
Germ cell mutagenicity	Oral rat, lowest published toxic dose: 250 ?g/kg (1 day prior to copulation)
Carcinogenicity	a) Ingestion: The U.S. National Institute for Occupational Safety and Health (NIOSH) concluded that there is no evidence that nickel metal is carcinogenic when ingested.  b) Inhalation: To date, there is no evidence that nickel metal causes cancer in humans based on epidemiology data from workers in the nickel producing and nickel consuming industries. A recent animal (rat) inhalation study showed no increased respiratory cancer risk for nickel metal powder indicating that no carcinogen classification is warranted for nickel metal. The U.S. National Toxicology Program has listed metallic nickel as reasonably anticipated to be a human carcinogen. The International Agency for Research on Cancer (IARC)(Vol 49) found there was inadequate evidence that metallic nickel is carcinogenic to humans but since there was sufficient evidence that it is carcinogenic to animals, IARC concluded that metallic nickel is possibly carcinogenic to humans (Group 2B).
Reproductive toxicity	No data
Summary of evaluation of the CMR properties	No data
STOT-single exposure	No data
STOT-repeated exposure	No data
Aspiration hazard	No data



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<b>NUMBER OF PAGES:</b>	<b>11</b>

**SECTION 12: ECOLOGICAL INFORMATION**

**12.1 Toxicity**

Long-term Ecotoxicity No data

**12.2 Persistence and degradability**

Abiotic Degradation No data  
 Physical- and photo-chemical elimination No data  
 Biodegradation No data

**12.3 Bioaccumulative potential**

Partition coefficient n-octanol/water (log Kow) No data  
 Bioconcentration factor (BCF) No data

**12.4 Mobility in soil**

Known or predicted distribution to environmental compartments No data  
 Surface tension No data  
 Adsorption/Desorption No data

**12.5 Results of PBT & vPvB assessment** No data

**12.6 Other adverse effects** Elevated levels of copper are toxic in aquatic environments and may adversely affect fish, invertebrates, plants, and amphibians. Acute toxic effects may include mortality of organisms; chronic toxicity can result in reductions in survival, reproduction, and growth. (Information from USA EPA-822-R-07-001 dated Feb 2007)

**12.7 Additional information** No data

**SECTION 13: DISPOSAL CONSIDERATIONS**

**13.1 Waste treatment methods**

**13.1.1 Product/Packaging disposal:**

EWC for waste product, ferrous alloys 12-01-02, non-ferrous alloys 12-01-04  
 EWC for non product contaminated packaging, steel drums 15-01-04, card 15-01-01, plastic 15-01-02, wood 15-01-03  
 EWC for product contaminated packaging, all types 15-01-10

**13.1.2 Waste treatment – relevant information:**

Chemical residues are generally classified as special waste and as such, are covered by Directive 2008/98/EC of the European Parliament. Contact your local waste disposal authority for advice or pass to a chemical recovery company.

**13.1.3 Sewage disposal - relevant information:**

**13.1.4 Other disposal recommendations:**

**SECTION 14: TRANSPORT INFORMATION**

**14.1 UN Number**

**14.2 UN proper shipping name**

**14.3 Transport hazard class(es)**

**14.4 Packing group**

**14.5 Environmental hazards**

**14.6 Special precautions for user**

**14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IPBC code**

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<b>NUMBER OF PAGES:</b>	<b>11</b>

### SECTION 15: REGULATORY INFORMATION

#### 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

UK The use of this product must be assessed in accordance with the requirements of the COSHH Regulations 2002 as amended.

EU EC directive 98/24/EC on the Protection of the health and safety of workers from the risks related to chemical agents at work

#### Authorisation and/or restrictions on use

**Authorisations:** Not applicable

**Restrictions:** See section 1.2 on uses advised against.

**Chemical safety assessment:** No Chemical Safety Assessment has been carried out for this substance/mixture by the supplier.

### SECTION 16: OTHER INFORMATION

#### 16.1 Revision Information

**Revision:** 09/11/2011  
**Reason for revision:** Element Fe amended

#### 16.2 List of abbreviations.

ADR European Agreement concerning the International Carriage of Dangerous Goods by Road  
 CEN European Committee for Standardisation  
 CLP Classification Labelling Packaging Regulation ; Regulation (EC) No 1272/2008  
 CAS# Chemical Abstracts Service number  
 COSHH Control of Substances Hazardous to Health  
 CSA Chemical Safety Assessment  
 CSR Chemical Safety Report  
 DNEL Derived No Effect Level  
 DPD Dangerous Preparations Directive 1999/45/EC  
 DSD Dangerous Substances Directive 67/548/EEC  
 DU Downstream User  
 ECHA European Chemicals Agency  
 ES Exposure Scenario  
 ext-SDS Extended Safety Data Sheet (SDS with ES attached)  
 EWC European Waste Catalogue (replaced by LoW – see below)  
 GES Generic Exposure Scenario  
 GHS Globally Harmonized System  
 LC50 Lethal Concentration to 50 % of a test population  
 LD50 Lethal Dose to 50% of a test population (Median Lethal Dose)  
 MSDS Material Safety Data Sheet  
 OEL Occupational Exposure Limit  
 PBT Persistent, Bioaccumulative and Toxic substance  
 PEC Predicted Effect Concentration  
 PNEC(s) Predicted No Effect Concentration(s)  
 PPE Personal Protection Equipment  
 REACH Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation (EC) No 1907/2006  
 STOT Specific Target Organ Toxicity  
 RE Repeated Exposure  
 (STOT) SE Single Exposure  
 SVHC Substances of Very High Concern  
 TWA Time Weighted Average (long term 8 hours) (short term 15 minutes unless specified otherwise)  
 UN United Nations  
 vPvB Very Persistent and Very Bioaccumulative

#### 16.3 Key literature references and sources for data

Testing in accordance with the method described in 49 CFR 173 Appendix E and UN Recommendations on the Transport of Dangerous Goods for flammability was used to establish the non-flammability of this product.

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**16.4 Classification and procedure used to derive the classification for mixtures according to Regulation 1272/2008/EC & 1907/2006/EC.**

Classification in accordance with 67/458/EEC & 1999/45/EC until 1st June 2015.

**16.6 Training advice:**

**16.7 Further information:**

Testing in accordance with the method described in 49 CFR 173 Appendix E and UN Recommendations on the Transport of Dangerous Goods for flammability was used to establish the non-flammability of this product.

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### WELDABLE LUGS/CLEATS

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<b>NUMBER OF PAGES:</b>	<b>4</b>

### SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE

**1.1 Product Identifier:** 304

Austenitic stainless steel alloy with Cr-Ni or Cr-Ni and Mo.: Can be supplied in tape or wire form. Brackets, bands, tubes and devices made of tape and wire for orthodontic.

PVC Products: Polychloride of vinyla.

### SECTION 2: COMPOSITION/INFORMATION ON INGREDIENTS

Stainless steel type 302, 303, 304, 304L, 304V, 305, 316, and 316L:

Cr: 17.0-20.0%  
 Ni: 8.0-13.0%  
 Mn: ≤ 2.0%  
 Mo: Max 2.5%

PVC products: Polychloride of vinyla.

### SECTION 3: HAZARDS IDENTIFICATION

Stainless steel type 302, 303, 304, 304L, 304V, 305, 316, and 316L:

The term "hazards" and risk material has been used with "MSDS" (Material Safety Data Sheet), and should be understood and defined according to "OSHA" Hazard Communication Standard" (Occupational Safety and Health Act) (Document reference: 29 CFR Part 2920, 1200), PEL (Personal Exposure Limit), from USA. Observe the laws and directives in each country. The documents attached, appendices, reference lists, etc.. that are or could be incorporated, should be considered.

Element	CAS No.	OSHA (PEL)	TLV (ACGH)	IARC (Listado
Cr	7440-47-3	1	0.5	No
Ni	7440-02-0	1	1	Yes
Mn	7439-96-5	5	0.1	No
Mo	7439-98-7	15	10	No

CAS=Chemical Abstracts Service (USA)

PEL=Permissible Exposure Limit in mg/m3

TLV=Threshold Limit Value (ACGIH=American Conference of Governmental Industries Hygienists).

IARC=International Agency for Research on Cancer

Nickel is listed on "National Toxicology Programs" from USA and on "Annual Report on Carcinogens," as well as on "International Agency for Research on Cancer (IARC). Monographs point it out as potentially carcinogenic. However, recent epidemiological notes studied and published by IARC do not attach the increase rate disease associated to alloys in metallic use.

PVC products:

Ingestion: Take care to avoid ingestion.  
 Skin: Casting material causes burning.  
 Eyes: Mechanical irritation.  
 Inhalation: Avoid inhaling in powder form.

**COMPANY INFORMATION**

**COMPANY NAME:** ORTHO SPECIALTIES  
**COMPANY ADDRESS:** 3820 OHIO AVE - SUITE 15  
 ST. CHARLES, IL 60174  
**COMPANY PHONE:** 630-443-0225  
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**COMPANY WEB ADDRESS:** www.orthospecialties.com

<b>WELDABLE LUGS/CLEATS</b>	
<b>DOCUMENT NUMBER:</b>	<b>SDS106</b>
<b>REVISION DATE:</b>	<b>09/26/2014</b>
<b>REVISION:</b>	<b>REV. E</b>
<b>NUMBER OF PAGES:</b>	<b>4</b>

**4-FIRST AID MEASURES**

Stainless steel type 302, 303, 304, 304L, 304V, 305, 316, and 316L:

**Powder Inhalation:** Remove the affected person to a place with fresh air and ventilation; if it is not enough, see a physician immediately.  
**Eye Contact with Powder:** Wash the eyes with plenty of water to remove the particles. See a physician immediately.  
**Skin Contact with Powder:** Wash in current water to remove the excess, and then wash with water and soap. See a physician.  
**Ingestion:** See a physician immediately.

PVC products: If exposed to smoke generated by heating, remove the patient to fresh and ventilated air.  
**Skin:** Wash with water and soap.  
**Eyes:** Wash with plenty of water.

**5-FIRE FIGHTING MEASURES**

Stainless steel type 302, 303, 304, 304L, 304V, 305, 316, and 316L:

Fire fighting measures should be taken especially when the material is subject to operations that make powder, sparks, or excessive heat.

PVC products:  
 When burned liberates HCl. Use protective clothes and EPI's. Extinguish the fire with water, CO2, and foam.

**6-ACCIDENTAL RELEASE MEASURES**

Stainless steel type 302, 303, 304, 304L, 304V, 305, 316, and 316L:

Not required. Observe laws and directives in use in each country.

PVC products:  
 Remove from ground areas. Avoid smoke propagation in the atmosphere. Observe the laws and regulations in use.

**7-HANDLING AND STORAGE**

Stainless steel type 302, 303, 304, 304L, 304V, 305, 316, and 316L:

**Handling:** The packaged form does not require special care for handling or storage. Should observe the following process for handling and operation

- Ventilation requirements: General recommendation: keep the maximum concentration allowed for powder and smoke in the air in accordance with "ACGIH RLVS" or laws and directives more actual in each country. Local work requirements: ventilated areas for abrasives operations or that can make smoke. Obs: ACGIH=American Conference of Governmental Industrial Hygienists. Observe the laws and directives in use in each country.

**Storage:** Keep in the original package. The material is supplied in non-sterile form.

PVC products:

**Handling:** Handling for exclusive use of the qualified professional. Keep the product in the original package until use. Storage: Storage against contamination. Use good practices of work.

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<b>REVISION:</b>	<b>REV. E</b>
<b>NUMBER OF PAGES:</b>	<b>4</b>

**8-EXPOSURE CONTROLS/PERSONAL PROTECTION**

Stainless steel type 302, 303, 304, 304L, 304V, 305, 316, and 316L:

Long and repetitive exposure to smoke generated during heat operations, cut, abrasion or welding should not be problematic if the limits for the OSHA and PEL values are observed. The nickel is listed on "National Toxicology Programs" of the USA, and the "Annual Report on Carcinogens," as in the "International Agency for Research on Cancer (IARC). Monograph point as been potentially carcinogenic. However, recent publish notes of epidemiological studies does not make a parallel with the increase of this disease with the use of worked metallic alloys. The use of individual protection equipment is required for sanding or grinding operation that creates sparks or smoke. In this case use safety glasses, gloves, and an air exhauster. The risk values "S" for nickel are: S22: do not breathe the powder; S36: during the work use protective and security equipment.

PVC products:

Use typical dentistry EPIs: security glasses, protection mask, and gloves.

**9-PHYSICAL AND CHEMICAL PROPERTIES**

Stainless steel type 302, 303, 304, 304L, 304V, 305, 316, and 316L:

Solid material. Usual metallic color and shine. Can present iron magnetism because of the martensitic properties in the microstructure. Density=7.9 g/cm3. React with some inorganic acid moisture origin smoke that are prejudicial for health.

PVC products:

Solid. Insoluble in water. Typical density: 1.4 g/cm3.

**10-STABILITY AND REACTIVITY**

Stainless steel type 302, 303, 304, 304L, 304V, 305, 316, and 316L:

Stable material in the supplied condition.

PVC Products:

Stable in ambient temperature.

**11-TOXICOLOGICAL INFORMATION**

Stainless steel type 302, 303, 304, 304L, 304V, 305, 316, and 316L:

Powder exposition symptoms, smoke of gases and solder. Short period exposition: metallic flavor, nausea, chest compression, fever, eye irritation, nose, throat, lose conscience/death of the gases beyond the welding or oxygen care. Use Individual or Collective Protection Equipment. Long periods of exposition: no collateral effects when the product is used in its solid form. Based in studies realized until now, it can be sure about the exposition of the operators in the nickel alloy; it can increase the incidence of pulmonary cancer and other diseases.

PVC Products:

The Vinyl Chloride when breathed can cause asthma.

**12-ECOLOGICAL INFORMATION**

Stainless steel type 302, 303, 304, 304L, 304V, 305, 316, and 316L:

This material (granulated) should be evacuated; avoid the use of air compressors. Observe the laws and directives.

PVC Products:

Aquatic toxicity decrease. Observe the laws and directives in use.

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### WELDABLE LUGS/CLEATS

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<b>REVISION:</b>	<b>REV. E</b>
<b>NUMBER OF PAGES:</b>	<b>4</b>

## 13-DISPOSAL INFORMATION

Stainless steel type 302, 303, 304, 304L, 304V, 305, 316, and 316L:

The elimination doesn't applied in known hazards. Observe the laws and directives in each country.

PVC Products:

Discharge observing the laws and directives of good manufacturing work in use to protect the environment.

## 14-TRANSPORT INFORMATION

Stainless steel type 302, 303, 304, 304L, 304V, 305, 316, and 316L:

Keep in the original package. Do not use the product if the package has been breached. Observe the laws and directives in each country.

PVC Products:

Transport in original package only.

## 15-REGULATORY INFORMATION

Stainless steel type 302, 303, 304, 304L, 304V, 305, 316, and 316L:

Attempt to follow good work practices. Material intended for use by qualified person.

PVC Products:

Attempt to follow good work practices. Material intended for use by qualified professionals.

## 16-OTHER INFORMATION

The document's information is based on the knowledge obtained until the present date and it is intended to be a description of the product regarding its safety measures. This description does not ensure the properties or characteristics of the product. Ortho Specialties has rights reserved on performing technical alterations in its technical specifications, with no prior advertising.

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SHEATHS	
DOCUMENT NUMBER:	SDS107
REVISION DATE:	09/26/2014
REVISION:	REV. E
NUMBER OF PAGES:	4

### SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE

#### 1.1 Product Identifier:

#### Sheaths

Silver alloy wire for brazing:

Ag-Cu-Zn-Sn.

Austenitic stainless steel alloy with Cr-Ni or Cr-Ni and Mo:

Can be supplied in tape or wire form. Brackets, bands, tubes and devices made of tape and wire for orthodontic.

PVC Products:

Polychloride of vinyla.

### SECTION 2: COMPOSITION/INFORMATION ON INGREDIENTS

Silver alloy wire for brazing:

Silver alloys with the following nominal composition in accordance with DIN EN 1044:1999 – Alloy AG 102 (values in weight percent): Ag 55-57 / Cu=21.0 – 23.0 / Zn = 15.0-19.0 / Sn=4.0 – 6.0.

Stainless steel type 302, 303, 304, 304L, 304V, 305, 316, and 316L:

Cr: 17.0-20.0%  
 Ni: 8.0-13.0%  
 Mn: ≤ 2.0%  
 Mo: Max 2.5%

PVC products: Polychloride of vinyla.

### SECTION 3: HAZARDS IDENTIFICATION

Silver alloy wire for brazing:

The chemical elements do not represent any known hazards regarding this intention of use.

CAS=Chemical Abstracts Service (USA)

PEL=Permissible Exposure Limit in mg/m3

TLV=Threshold Limit Value

ACGIH=American Conference of Governmental Industries Hygienists

IARC=International Agency for Research on Cancer

Stainless steel type 302, 303, 304, 304L, 304V, 305, 316, and 316L:

The term "hazards" and risk material has been used with "MSDS" (Material Safety Data Sheet), and should be understood and defined according to "OSHA" Hazard Communication Standard" (Occupational Safety and Health Act) (Document reference: 29 CFR Part 2920, 1200), PEL (Personal Exposure Limit), from USA. Observe the laws and directives in each country. The documents attached, appendices, reference lists, etc.. that are or could be incorporated, should be considered.

Element	CAS No.	OSHA (PEL)	TLV (ACGH)	IARC (Listado)
Cr	7440-47-3	1	0.5	No
Ni	7440-02-0	1	1	Yes
Mn	7439-96-5	5	0.1	No
Mo	7439-98-7	15	10	No

CAS=Chemical Abstracts Service (USA)

PEL=Permissible Exposure Limit in mg/m3

TLV=Threshold Limit Value (ACGIH=American Conference of Governmental Industries Hygienists).

IARC=International Agency for Research on Cancer

Nickel is listed on "National Toxicology Programs" from USA and on "Annual Report on Carcinogens," as well as on "International Agency for Research on Cancer (IARC). Monographs point it out as potentially carcinogenic. However, recent epidemiological notes studied and published by IARC do not attach the increase rate disease associated to alloys in metallic use.



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<b>SHEATHS</b>	
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<b>REVISION DATE:</b>	<b>09/26/2014</b>
<b>REVISION:</b>	<b>REV. E</b>
<b>NUMBER OF PAGES:</b>	<b>4</b>

PVC products:

Ingestion: Take care to avoid ingestion.  
 Skin: Casting material causes burning.  
 Eyes: Mechanical irritation.  
 Inhalation: Avoid inhaling in powder form.

**4–FIRST AID MEASURES**

Silver alloy wire for brazing:

The alloy that shall be used with paste or solder flux when not used in correct form may be very harmful to human organism. The flow components may cause some irritation to the respiratory system or skin damage. Avoid contact with skin. Use hand protector cream. Be careful so that you don't ingest flow residues accidentally. The respiratory system irritation is caused by detached smoke, which contains, in low quantities, H<sub>2</sub>O<sub>3</sub>, HBO<sub>3</sub> and in lower quantities HF; this quantity should never be over 3ppm. For this reason, the German standard DIN 8511 recommends, "The workplace or station for brazing must be appropriately ventilated." In case of accidental ingestion or skin damage, see a physician immediately. In case of skin contact, wash immediately with water.

Stainless steel type 302, 303, 304, 304L, 304V, 305, 316, and 316L:

Powder Inhalation: Remove the affected person to a place with fresh air and ventilation; if it is not enough, see a physician immediately.  
Eye Contact with Powder: Wash the eyes with plenty of water to remove the particles. See a physician immediately.  
Skin Contact with Powder: Wash in current water to remove the excess, and then wash with water and soap. See a physician.  
Ingestion: See a physician immediately.

PVC products: If exposed to smoke generated by heating, remove the patient to fresh and ventilated air.

Skin: Wash with water and soap.  
Eyes: Wash with plenty of water.

**5–FIRE FIGHTING MEASURES**

Silver alloy wire for brazing: Extent fire fighting measures according to requirements and directives in use. Normal corrective measures for metallic materials.

Stainless steel type 302, 303, 304, 304L, 304V, 305, 316, and 316L:

Not required. Observe laws and directives in use in each country. Fire fighting measures should be taken especially when the material is subject to operations that make powder, sparks, or excessive heat.

PVC products: When burned liberates HCl. Use protective clothes and EPI's. Extinguish the fire with water, CO<sub>2</sub>, and foam.

**6–ACCIDENTAL RELEASE MEASURES**

Silver alloy wire for brazing: Not necessary.

Stainless steel type 302, 303, 304, 304L, 304V, 305, 316, and 316L: Not required. Observe laws and directives in use in each country.

PVC products: Remove from ground areas. Avoid smoke propagation in the atmosphere. Observe the laws and regulations in use.

**7–HANDLING AND STORAGE**

Silver alloy wire for brazing:

Handling: Material destined to qualified person.  
 Storage: No special measures for storage.

Stainless steel type 302, 303, 304, 304L, 304V, 305, 316, and 316L:

Handling: The packaged form does not require special care for handling or storage. Should observe the following process for handling and operation:  
 • Ventilation requirements: General recommendation: keep the maximum concentration allowed for powder and smoke in the air in accordance with "ACGIH RLVs" or laws and directives more actual in each country. Local work requirements: ventilated areas for abrasives operations or that can make smoke. Obs: ACGIH=American Conference of Governmental Industrial Hygienists. Observe the laws and directives in use in each country.

Storage: Keep in the original package. The material is supplied in non-sterile form.

PVC products:

Handling: Handling for exclusive use of the qualified professional. Keep the product in the original package until use.  
 Storage: Storage against contamination. Use good practices of work.

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<b>REVISION DATE:</b>	<b>09/26/2014</b>
<b>REVISION:</b>	<b>REV. E</b>
<b>NUMBER OF PAGES:</b>	<b>4</b>

**8-EXPOSURE CONTROLS/PERSONAL PROTECTION**

Silver alloy wire for brazing:

Requires: environment with appropriate ventilation; respiratory mask: use filter B; Hand soothing cream; safety glasses; work apron. See the requirements for fluxes for brazing 35.30.020 or similar product. ODP does not take the responsibility for the use of fluxes of brazing from another manufacturer with these silver alloys.

Stainless steel type 302, 303, 304, 304L, 304V, 305, 316, and 316L:

Long and repetitive exposure to smoke generated during heat operations, cut, abrasion or welding should not be problematic if the limits for the OSHA and PEL values are observed. The nickel is listed on "National Toxicology Programs" of the USA, and the "Annual Report on Carcinogens," as in the "International Agency for Research on Cancer (IARC). Monograph point as been potentially carcinogenic. However, recent publish notes of epidemiological studies does not make a parallel with the increase of this disease with the use of worked metallic alloys. The use of individual protection equipment is required for sanding or grinding operation that creates sparks or smoke. In this case use safety glasses, gloves, and an air exhauster. The risk values "S" for nickel are: S22: do not breathe the powder; S36: during the work use protective and security equipment.

PVC products: Use typical dentistry EPLs: security glasses, protection mask, and gloves.

**9-PHYSICAL AND CHEMICAL PROPERTIES**

Silver alloy wire for brazing:

Solid material. Metallic color: yellowish. Fusion temperature: 620oC-655oC. Density: 9.5 g/cm3. Nominal work temperature: 650oC-700oC.

Stainless steel type 302, 303, 304, 304L, 304V, 305, 316, and 316L:

Solid material. Usual metallic color and shine. Can present iron magnetism because of the martensitic properties in the microstructure. Density=7.9 g/cm3. React with some inorganic acid moisture origin smoke that are prejudicial for health.

PVC products: Solid. Insoluble in water. Typical density: 1.4 g/cm3.

**10-STABILITY AND REACTIVITY**

Silver alloy wire for brazing:

Reacts with oxygen and oxidization substances.

Stainless steel type 302, 303, 304, 304L, 304V, 305, 316, and 316L:

Stable material in the supplied condition. PVC Products: Stable in ambient temperature.

**11-TOXICOLOGICAL INFORMATION**

Silver alloy wire for brazing:

Not necessary. See toxicological information for solder paste. According to "OSHA – Occupational Safety & Health Administration" the following shall be observed:

Permissible exposure limits:

Final rule limits

Fluorides: 2.5 mg/m3 pondered average in exposition time (TWA): 3 ppm TWA

Hydrogen Fluoride: 6 ppm Short-Term Exposure Limits (STEL)

Transitional Limits: Fluoride dust (as F): 2.5 mg/m3 (TWA). Hydrogen fluoride: 3 ppm (TWA).

Stainless steel type 302, 303, 304, 304L, 304V, 305, 316, and 316L:

Powder exposition symptoms, smoke of gases and solder. Short period exposition: metallic flavor, nausea, chest compression, fever, eye irritation, nose, throat, lose conscience/death of the gases beyond the welding or oxygen care. Use Individual or Collective Protection Equipment. Long periods of exposition: no collateral effects when the product is used in its solid form. Based in studies realized until now, it can be sure about the exposition of the operators in the nickel alloy; it can increase the incidence of pulmonary cancer and other diseases.

PVC Products:

The Vinyl Chloride when breathed can cause asthma.

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## SHEATHS

<b>DOCUMENT NUMBER:</b>	<b>SDS107</b>
<b>REVISION DATE:</b>	<b>09/26/2014</b>
<b>REVISION:</b>	<b>REV. E</b>
<b>NUMBER OF PAGES:</b>	<b>4</b>

## 12-ECOLOGICAL INFORMATION

### Silver alloy wire for brazing:

Attempt to laws and directives. No forecasting product discharge such as supplied.

### Stainless steel type 302, 303, 304, 304L, 304V, 305, 316, and 316L:

This material (granulated) should be evacuated; avoid the use of air compressors. Observe the laws and directives.

### PVC Products:

Aquatic toxicity decrease. Observe the laws and directives in use.

## 13-DISPOSAL INFORMATION

### Silver alloy wire for brazing:

See a specialist and attempt to follow laws and directives in use.

### Stainless steel type 302, 303, 304, 304L, 304V, 305, 316, and 316L:

The elimination doesn't applied in known hazards. Observe the laws and directives in each country.

### PVC Products:

Discharge observing the laws and directives of good manufacturing work in use to protect the environment.

## 14-TRANSPORT INFORMATION

### Silver alloy wire for brazing:

The transport doesn't require special measures, as there is no intrinsic danger.

### Stainless steel type 302, 303, 304, 304L, 304V, 305, 316, and 316L:

Keep in the original package. Do not use the product if the package has been breached. Observe the laws and directives in each country.

### PVC Products:

Transport in original package only.

## 15-REGULATORY INFORMATION

### Silver alloy wire for brazing:

Attempt to follow good work practices. Material intended for use by qualified person.

### Stainless steel type 302, 303, 304, 304L, 304V, 305, 316, and 316L:

Attempt to follow good work practices. Material intended for use by qualified person.

### PVC Products:

Attempt to follow good work practices. Material intended for use by qualified professionals.

## 16-OTHER INFORMATION

The document's information is based on the knowledge obtained until the present date and it is intended to be a description of the product regarding its safety measures. This description does not ensure the properties or characteristics of the product. Ortho Specialties has rights reserved on performing technical alterations in its technical specifications, with no prior advertising.

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### STAINLESS STEEL, AUSTENITIC AND MARTINSITIC 302, 303, 304, 316L, 17-4, 425 AND 440

<b>DOCUMENT NUMBER:</b>	<b>SDS108</b>
<b>REVISION DATE:</b>	<b>10/22/2014</b>
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<b>NUMBER OF PAGES:</b>	<b>4</b>

### I - IDENTIFICATION OF SUBSTANCE

#### 1.1 Product Identifier:

**STAINLESS STEEL, AUSTENITIC AND MARTINSITIC 302, 303, 304, 316L, 17-4, 425 AND 440**

#### Trade Names or Synonyms:

Steel Products: Straight Wire; Arch Wire; Ligature Wire; Wire Form Appliances; Sectionals, Adapters; Space Maintainers; Brackets; Tubes; bands; Lugs/Cleats/Eyelets/Hooks; Buttons; Pins; Locks; Clasps; Screws; Expansion Screws; Springs; Instruments; Facebows; Lip Bumper;

### II - COMPOSITION / INFORMATION ON INGREDIENTS

Component	CAS#	% (RANGE)	ACGIH - TLV	OSHA - PEL
IRON	7439-89-6	65-75	None	None
CHROMIUM <sup>3</sup>	7440-47-3	15-20	0.5mg/m <sup>3</sup> (Dust)	1mg/m <sup>3</sup> (Dust)
		0.5mg/m <sup>3</sup> /M2 (Cr+6)		
NICKEL	7440-02-0	8-12	1mg/m <sup>3</sup> (Dust)	1mg/m <sup>3</sup> (Dust)
		Suspected Carcinogen- NTP & IARC Listed See Sections 5 & 7		
MANGANESE (E)	7439-96-5	0-2	5mg/m <sup>3</sup> Max. (Dust)	5mg/m <sup>3</sup> (Dust)
TUNGSTEN	7440-33-7	0-4	5mg/m <sup>3</sup> (Dust)	None
MOLYBDENUM	7439-98-7	0-4	10mg/m <sup>3</sup> (Dust)	15mg/m <sup>3</sup> (Dust)
ALUMINUM	7429-90-5	0-2	15mg/m <sup>3</sup> (Dust)	15mg/m <sup>3</sup> (Dust)
COPPER	7440-50-8	0-4	1mg/m <sup>3</sup> (Dust)	1mg/m <sup>3</sup> (Dust)
SILICON	7440-21-3	0-5	10mg/m <sup>3</sup> (Dust)	15mg/m <sup>3</sup> (Dust)
COBALT	7440-48-4	0-5	0.5mg/m <sup>3</sup> (Dust)	0

### III - HAZARDOUS IDENTIFICATION

Steel products in their usual solid physical state do not constitute any physical 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 GASES:

**Acute:** Irritation of eyes, nose, throat, and skin; metallic taste in mouth; nausea; metal fume fever.  
**Chronic:** Only after six to ten 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.  
 Excessive and prolonged inhalation to manganese (generally over 2 years exposure) can cause damage to the central nervous system. Specifically, the pathology resembles Parkinson's Disease.  
**Carcinogenicity:** Chromium, Cobalt-Chromium Alloys, and Nickel have been identified by the International Agency for Research on Cancer (IARC) and the National Program (NTP) as potential cancer causing agents.

#### POSSIBLE SYMPTOMS OF EXPOSURE TO DUST, FUMES, OR GASES:

**Acute:** Irritation of eyes, nose, throat, and skin; metallic taste in mouth; nausea; metal fume fever.  
**Chronic:** Only after six to ten 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.  
 Excessive and prolonged inhalation to manganese (generally over 2 years exposure) can cause damage to the central nervous system. Specifically, the pathology resembles Parkinson's Disease.

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**STAINLESS STEEL, AUSTENITIC AND  
 MARTINSITIC 302, 303, 304, 316L,  
 17-4, 425 AND 440**

<b>DOCUMENT NUMBER:</b>	SDS108
<b>REVISION DATE:</b>	10/22/2014
<b>REVISION:</b>	REV. D
<b>NUMBER OF PAGES:</b>	4

**IV - FIRST AID MEASURES**

PRIMARY ROUTES OF ENTRY

**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.

**V - FIRE FIGHTING MEASURES**

Flash Point:	N/A
Flammability 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

**VI - ACCIDENTAL RELEASE MEASURES**

Spill or Leak Procedures: Remove by mechanical means.

**VII - HANDLING AND STORAGE**

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

**VIII - EXPOSURE CONTROLS / PERSONAL PROTECTION**

**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 occurs 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.

### COMPANY INFORMATION

**COMPANY NAME:** ORTHO SPECIALTIES  
**COMPANY ADDRESS:** 3820 OHIO AVE - SUITE 15  
 ST. CHARLES, IL 60174  
**COMPANY PHONE:** 630-443-0225  
**COMPANY FAX:** 630-443-0224  
**COMPANY WEB ADDRESS:** www.orthospecialties.com

### STAINLESS STEEL, AUSTENITIC AND MARTINSITIC 302, 303, 304, 316L, 17-4, 425 AND 440

<b>DOCUMENT NUMBER:</b>	SDS108
<b>REVISION DATE:</b>	10/22/2014
<b>REVISION:</b>	REV. D
<b>NUMBER OF PAGES:</b>	4

### IX - PHYSICAL & CHEMICAL PROPERTIES

Boiling Point:	N/A
Specific Gravity (H <sub>2</sub> O=1)	Approx. 8
Vapor Pressure:	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.

### X - STABILITY AND REACTIVITY

**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

<u>MATERIAL</u>	<u>ACGIH - TLV</u>	<u>OSHA - PEL</u>
ALUMINUM	5mg/m <sup>3</sup>	None
CARBON MONOXIDE	50ppm	50ppm
CHROMIUM (D)	0.05mg/m <sup>3</sup>	0.1mg/m <sup>3</sup>
	Suspected Carcinogen-NTP & IARC Listed See Sections 5 & 7	
COBALT FUME	0.05mg/m <sup>3</sup>	0.1mg/m <sup>3</sup>
COPPER FUME	0.2mg/m <sup>3</sup>	0.1mg/m <sup>3</sup>
IRON (B)	5mg/m <sup>3</sup>	10mg/m <sup>3</sup>
MANGANESE (F)	1mg/m <sup>3</sup>	5mg/m <sup>3</sup> Maximum
MOLYBDENUM	5mg/m <sup>3</sup>	5mg/m <sup>3</sup>
NICKEL	0.1mg/m <sup>3</sup>	1mg/m <sup>3</sup>
	Suspected Carcinogen-NTP & IARC Listed See Sections 5 & 7	
NITROGEN DIOXIDES	3ppm	5ppm Maximum
OZONE	0.1ppm	0.1ppm
SILICON (C)	10mg/m <sup>3</sup>	None
TUNGSTEN FUME	1mg/m <sup>3</sup>	None



# Ortho Specialties

## SAFETY DATA SHEET

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### XI - TOXICOLOGY 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 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 a known nickel sensitivity and should be discontinued for individuals whom develop nickel sensitization after prolonged contact.

### XII - ECOLOGICAL INFORMATION:

No ecological effects are known.

### XIII - DISPOSAL CONSIDERATIONS:

Solids - Sell as scrap for reuse.  
 Dust- Follow Federal, State and Local Regulations regarding disposal.  
 Grinding, Cutting and Welding Residue- Follow Federal, State and Local Regulations regarding disposal.

### XIV - TRANSPORTATION INFORMATION:

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

### XV - REGULATORY INFORMATION:

These products are manufactured using Good Manufacturing Practices and are regulated as 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.

### XVI - OTHER INFORMATION:

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