

# Universal Stainless & Alloy Products (Dunkirk) - Stainless Steel, all grades (17-4Ph, 17-7Ph, 302 Air Melt)

## MATERIAL SAFETY DATA SHEET FOR USAP PRODUCTS

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PRODUCT NAME OR NUMBER: Stainless Steel Products, all grades

### SECTION I - COMPONENT DATA:

CHEMICAL COMPONENTS:	C.A.S. NUMBER	%WT.
Primary Metals:		
Iron	7439-89-6	0-99
Chromium	7440-47-3	0-30
Nickel	7440-02-0	0-99
Manganese	7439-96-5	0-20
Tungsten	7440-33-7	0-20
Molybdenum	7439-98-7	0-30
Aluminum	7429-90-5	0-5
Copper	7440-50-8	0-30
Silicon	7440-21-3	0-10
Cobalt	7440-48-7	0-30

### SECTION II - PHYSICAL DATA:

BOILING POINT (°F): Not Applicable (N/A)

VAPOR PRESSURE (mmHg @ 20°C): N/A

VAPOR DENSITY (AIR = 1): N/A

SOLUBILITY IN WATER: N/A

SPECIFIC GRAVITY (H<sub>2</sub>O=1): Approx. 8

PERCENT VOLATILE BY VOLUME: N/A

EVAPORATIVE RATE (ETHYL ETHER=1): N/A

pH INFORMATION: N/A

APPEARANCE AND ODOR: Odorless solid with metallic lustre. Available as plate, billets, and ingots.

### SECTION III - FIRE & EXPLOSION HAZARD DATA:

FLASH POINT (°F): N/A

METHOD USED: N/A

FLAMMABILITY LIMITS (%VOL):

LEL: N/A

UEL: N/A

AUTO IGNITION TEMPERATURE (°F): N/A

EXTINGUISHING MEDIA: No fire or explosion hazards.

SPECIAL FIRE-FIGHTING INSTRUCTIONS: N/A

UNUSUAL FIRE AND EXPLOSION HAZARDS: N/A

### SECTION IV - REACTIVITY DATA:

STABILITY (CONDITIONS TO AVOID): Stable

INCOMPATIBILITY (MATERIALS TO AVOID): None

HAZARDOUS DECOMPOSITION PRODUCTS: Metal fumes and certain noxious gases, such as CO, may be produced during welding or burning operations. Acid pickling of product may result in the formation of hexavalent chromium which is a hazardous waste and suspect carcinogen. See Sections V and IX for further information.

HAZARDOUS POLYMERIZATION: Will not occur.

### SECTION V - HEALTH HAZARD DATA:

PRIMARY ROUTE(S) OF ENTRY: Inhalation, skin contact.

EFFECTS OF EXPOSURE: No toxic effects would be expected from its inert solid form.

Prolonged, repeated overexposures to fumes or dusts generated during heating, cutting, brazing or welding may cause adverse health effects associated with the following constituents:

Inhalation:

**Iron:** Siderosis, no fibrosis. TDLo=506 mg/Kg (Intratracheal/rat).

**Chromium:** The dusts of chromium metal are usually reported to be relatively non-toxic, although there are reports of a nodular type of pulmonary disease with impairment of lung function. Some insoluble chromium compounds are suspect carcinogens. TDLo=2 mg/Kg (Intravenous/rat).

**Nickel:** Respiratory irritation and pneumonitis; several nickel compounds, including nickel oxide, are suspect lung and nasal carcinogens. LDLo=12 mg/Kg (Intratracheal/rat).

**Manganese:** Pneumonitis, CNS involvement, including irritability, difficulty in walking, speech disorders, compulsive behavior, mask-like face and a Parkinson-like syndrome. Persons with a history of alcoholism, psychiatric, neurologic and pulmonary diseases or liver dysfunction would be expected to be at increased risk from exposure. TDLo=400 mg/Kg (Intramuscular/rat).

**Aluminum:** No known health effects. Generally considered to be in the nuisance dust category. TDLo=90 mg/Kg (Intraleural/rat).

**Silicon:** May produce X-ray changes in the lungs without disability.

**Tungsten:** Some evidence of pulmonary involvement, such as cough. LD50=5000mg/Kg (Intraperitoneal/rat).

**Molybdenum:** Irritation of the nose and throat weight loss, and digestive disturbances in animals. No industrial poisoning has been reported. Persons with chronic respiratory, kidney, or liver diseases may be more susceptible to the effects of molybdenum exposure. LDLo=114 mg/Kg (Intraperitoneal/rat).

**Copper:** "Metal fume fever" - symptoms may include cough, headache, metal taste in mouth, nausea, fever, chills, pain in muscles and joints. This condition is transitory, usually lasting one day or less. Persons with the following medical conditions may be more susceptible to the effects from exposures to copper: chronic respiratory disease, liver disease, kidney disease, skin disease, hematopoietic disorders, and Wilson's disease. TDLo=120 mg/Kg (Oral/human).

**Cobalt:** May cause interstitial pneumonitis and sensitization of the respiratory system. Systems may include cough, dyspnea on exertion, decreased pulmonary function, wheezing and shortness of breath.

**NOTE:** Some constituents pose more potential hazards than others, depending upon their inherent toxicity and concentration. Of special concern are chromium, nickel and perhaps manganese.

### SKIN CONTACT:

Dermatitis due to sensitization may occur in some individuals from exposure to nickel and chromium fumes. Persons with pre-existing skin disorders may be more susceptible to dermatitis from these compounds.

### EYE CONTACT:

May cause irritation

### INGESTION:

May cause irritation of the mouth and throat

MEDICAL CONDITIONS KNOWN TO BE AGGRAVATED BY EXPOSURE TO THIS MATERIAL: Persons with lung disorders or diseases or skin disorders may be at an added risk as a result of overexposure to this material.

### EPA SARA TITLE III INFORMATION

#### PHYSICAL FORM:

Pure  
 Mixture  
 Solid  
 Liquid  
 Gas

#### SARA POTENTIAL HAZARD CATEGORIES:

Immediate Acute Health Hazard  
 Delayed Chronic Health Hazard  
 Fire Hazard  
 Sudden Release of Pressure Hazard  
 Reactivity Hazard

CONTAINS SECTION 313 CHEMICALS:  NO  YES

Name of 313 Chemical	CAS NO.	Percent by Weight
Copper	7440-50-8	0-4
Manganese	7439-96-5	0-15
Molybdenum	7439-98-7	0-4
Chromium	7440-47-3	10-27
Aluminum	7429-90-5	0-2
Cobalt	7440-48-4	0-5
Nickel	7440-02-0	0-22

### EXPOSURE LIMITS:

CHEMICAL COMPONENTS	OSHA PEL (mg/m3)	ACGIH-TLV (mg/m3)	NTP Listed	IARC Listed
Iron	10 (TWA as Fe2O3 fume)	5 (TWA as Fe 2O3 fume)	NO	NO
Chromium	1.0 (TWA)	0.5 (TWA)	YES	YES
Nickel	1.0 (TWA)	1.0 (TWA)	NO	YES
Manganese	1 (TWA as fume) 3 (STEL as fume)	1.0 (as fume) 3.0 (STEL as fume)	NO	NO
Molybdenum	5 (TWA as soluble comps.)	5 (TWA soluble comps.)	NO	NO
Aluminum	5 (TWA as welding fumes)	5 (TWA as welding fumes)	NO	NO
Copper	0.1 (TWA as fume)	0.2 (TWA as fume)	NO	NO
Silicon	10 (TWA)	10 (TWA)	NO	NO
Tungsten	5 (TWA) 10 (STEL)	5 (TWA as insoluble comps.) 10 (STEL as insoluble comps.)	NO	NO
Cobalt	0.05 (TWA)	0.05 (TWA)	NO	NO
Mineral Oil mist	5 (TWA)	5 (TWA) 10 (STEL)	NO	NO

### SECTION VI - EMERGENCY & FIRST-AID PROCEDURES:

INHALATION: Seek medical attention, if necessary.

SKIN: If irritation develops, remove contaminated clothing immediately, and wash contaminated skin with soap or mild detergent and water for five minutes. If irritation persists, seek medical attention.

EYES: In case of contact, immediately wash eyes with large amounts of water for fifteen minutes, occasionally lifting the lower and upper lids. Seek medical attention, if necessary.

INGESTION: Seek medical attention, if necessary.

### SECTION VII - SPECIAL HANDLING INFORMATION:

VENTILATION: Ventilation, as described in the Industrial Ventilation Manual, produced by the American Conference of Government Industrial Hygienists, shall be provided in areas where exposures are above the permissible exposure limits or threshold limit values specified by OSHA or other local, state and federal regulations.

RESPIRATORY PROTECTION: A properly fitted, NIOSH-approved dust-fume respirator should be worn during welding or burning whenever welding fumes exceed the threshold limit value (TLV) or other recommended limits, in accordance with the OSHA Respiratory Protection Standard (29 CFR 1910.134).

PROTECTIVE CLOTHING: Use appropriate protective clothing, such as welder's aprons and gloves, when welding or burning.

EYE PROTECTION: Use face shield (8" minimum) and/or goggles when welding, burning or grinding.

### SECTION VIII - SPILL, LEAK & DISPOSAL PROCEDURES:

ACTION TO TAKE FOR SPILLS (USE APPROPRIATE SAFETY EQUIPMENT): N/A

WASTE DISPOSAL METHOD: N/A

### SECTION IX - SPECIAL PRECAUTIONS/ADDITIONAL INFORMATION:

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: None

DOT INFORMATION:

Hazardous Material Proper Shipping Name: N/A

Hazard Class: N/A

Identification Number: N/A

EPA HAZARDOUS WASTE NUMBER: N/A

ADDITIONAL INFORMATION: During welding, precautions should be taken for airborne contaminants and noxious gases that may originate from the welding process or from components of the welding rod. Of special concern are silica or silicates, or both; fluorides; copper; manganese; carbon monoxide and nitrogen oxides. Arc and sparks generated when welding with this product could be a source of ignition for combustible and flammable materials.

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