Don Fonda 8172451 (updated version)

Meets the Requirements of OSHA Standard 29 CFR 1910.1200 Hazard Communication and EPA Supplier Notification Requirements under Section 313 of the Emergency Planning and Community Right-to-Know Act.

SAFETY DATA SHEET (SDS)

HIGH-ALLOYED STEEL CASTINGS

SDS SC-000-002 Rev. 14

DATE ISSUED

09/15

SECTION 1—PRODUCT IDENTIFICATION & COMPANY INFORMATION

PRODUCT NAME

HIGH-ALLOYED STEEL CASTINGS

OTHER DESIGNATIONS: ASTM (American Society for Testing & Materials) Specification No's., (ACI (Alloy Casting Institute) Alloy Designations—Grades)

A297/A297M (HE, HF, HH, HI, HK, HL, HN, HT, HU, HW, HX, HP)

A351/A351M4 (CF3, CF3A, CF8, CF8A, CF3M, CF3MA, CF8M, CF8C, CF-10, CF-10M, CG3M, CH8, CH10, CH20, CK20, HK30, HK40, HT30,CF10MC, CN7M, CG6MMN, CG8M)

A447/A447M (I, II)

A451-80 (CPF3, CPF3A, CPF3M, CPF8, CPF8A, CPF8M, CPF10, MC, CPH10, CPF8C, CPH8, CPK20, CPH20)

A494/A494M (CY-40, CW3-12MW, CW-7M, CW-2M, CW-6MC)

A560/A560M (50 Cr-50 Ni-Cb, 50 Cr-50 Ni, 60 Cr-40 Ni)

A608-79 (HE35, HF30, HH30, HH33, HI35, HK30, HK40, HL30, HL40, HN40, HT50, HU50, HW50, HX50)

A743/A743M (CA6NM, CF-8, CG-12, CF-20, CF-8M, CF-8C, CF-16F, CH-20, CK-20, CE-30, CF-3, CF-3M, CG6MMN, CG-8M, CN-7M, CN-7MS, CW-12M, CY-40)

A744/A744M (CF-8, CF-8M, CF-8C, CF-3, CF-3M, CG-8M, CN-7M, CN-7NS, CW-12M, CY-40, CK3MCUN)

A890/A890M (CD4MCu, CD4MCuN, CD3MCuN, CE8MN, CD6MN, CD3MN, CE3MN, CD3MWCuN)

Mil-S 867 A (I, II, III)

PRODUCT IDENTIFICATION (Label Identifier)

High-Alloyed Steel Castings

MANUFACTURER'S NAME PA Precision Cast Parts, Inc.	**STREET ADDRESS** 521 N. 3rd Ave.
EMERGENCY TELEPHONE NO. 717-273-3338 (M-F 7am - 4pm)	**MAILING ADDRESS** P.O. Box 1429
TELEPHONE NO. 717-273-3338	**CITY, STATE, ZIP CODE, COUNTRY** Lebanon, PA 17042
FAX NO. 717-273-2662	**E-MAIL ADDRESS/WEBSITE** www.ppcpinc.com

RECOMMENDED USE OF CHEMICAL AND RESTRICTIONS ON USE

Solid casting; no restrictions

SECTION 2—HAZARD IDENTIFICATION

CLASSIFICATION

Castings are metallic articles that do not present hazards in their original form.

OTHER INFORMATION

1. Grinding castings that have not been cleaned or that contain embedded sand may generate significant amounts of dust containing crystalline silica.
2. Fumes from hot processes may contain other compounds with different exposure limits. Dust or fumes generated by machining, grinding, welding or thermal cutting of the casting may produce airborne contaminants. Consult Sections 3 & 8 for further information.

SECTION 3—COMPOSITION/INFORMATION ON INGREDIENTS

CHEMICAL NAME/COMMON NAME/SYNONYM	Wt %	CAS NUMBER
Chromium (Cr)	10.0–52.0	7440-47-3
Cobalt (Co)	0–2.5	7440-48-4
Copper (Cu)	0–4.0	7440-50-8
Iron (Fe)	Remainder	7439-89-6
Manganese (Mn)	0.3–6.0	7439-96-5
Molybdenum (Mo)	2.0–7.0	7439-98-7
Nickel (Ni)	3.0–72.0	7440-02-0
Niobium (Nb) formerly Columbium (Cb)	0–1.2	7440-03-1
Silicon (Si)	0–3.5	7440-21-3
Tantalum (Ta)	0.1–1.0	7440-25-7
Tungsten (W)	0.5–2.5	7440-33-7

SECTION 4—FIRST AID MEASURES

EYE CONTACT:	Not applicable
SKIN CONTACT:	No special requirements
INGESTION:	Not applicable
INHALATION:	Not applicable

SECTION 5—FIREFIGHTING MEASURES

FLAMMABLE PROPERTIES:	Not applicable
EXTINGUISHING MEDIA:	Not applicable
PROTECTION OF FIREFIGHTERS:	Not applicable

SECTION 6—ACCIDENTAL RELEASE MEASURES

Not applicable

SECTION 7—HANDLING & STORAGE

RECOMMENDED STORAGE

No special requirements

PROCEDURES FOR HANDLING

Proper hand and foot protection is recommended.

SECTION 8—EXPOSURE CONTROLS/PERSONAL PROTECTION

ENGINEERING CONTROLS:

None Required. There are no health hazards from castings in solid form.

SUBSTANCE	ACGIH TLV mg/m³	OSHA PEL mg/m³
Chromium (Cr)	0.5	1
Cobalt (Co)	0.02	N/E
Copper (Cu)	1	1
Iron (Fe)	N/E	N/E
Manganese (Mn)	0.02 (R); 0.1 (I)	5 (C)
Molybdenum (Mo)	10 (I), 3 (R)	15 (as total dust)
Nickel (Ni)	1.5 (I)	1
Niobium (Nb) formerly Columbium (Cb)	N/E	N/E
Silicon (Si)		
Total dust	N/E	15
Respirable dust	N/E	5
Tantalum (Ta)	N/E	5
Tungsten (W)	5; 10 (STEL)	N/E

SUPPLEMENTAL INFORMATION

Grinding castings that have not been cleaned or that contain embedded sand may generate significant amounts of dust containing crystalline silica.

Fumes from hot processes may contain other compounds with different exposure limits than those listed above. Dust or fumes generated by machining, grinding, welding or thermal cutting of the casting may produce airborne contaminants. Exposure limits for the most common contaminants are offered as reference. Please consult a competent person for guidance on exposure assessment and controls.

In particular, Hexavalent Chromium is an OSHA Expanded Health Standard; refer to OSHA 29 CFR 1910.1026-Chromium (VI) for complete requirements.

SUBSTANCE	ACGIH TLV mg/m³	OSHA PEL mg/m³
Chromium Compounds (as Cr)		
Chromium (II) inorganic compounds	N/E	0.5
Chromium (III) inorganic compounds	0.5	0.5
Chromium (VI) inorganic compounds, certain water insoluble	0.01	0.005
Chromium (VI) inorganic compounds, water soluble	0.05	0.005
Chromium (VI) all forms and compounds	N/E	0.005
Cobalt (Co)		
Metal dust and fume	N/E	0.1
Elemental and inorganic compounds	0.02	N/E
Copper Compounds		
Fume, as Cu	0.2	0.1
Dusts and mists, as Cu	1	1
Iron Compounds		
Iron oxide (Fe_2O_3) fume	N/E	10
Iron oxide (Fe_2O_3)	5 (R)	N/E
Nickel Compounds (as Ni)		
Insoluble, inorganic compounds	0.2(I)	1
Soluble, inorganic compounds	0.1(I)	1
Nickel oxide	0.2(I)	1

Tantalum (as Ta) Metal dust and oxide dust	N/E	5
Tungsten compounds (as W) Metal and insoluble compounds, as W Soluble compounds, as W	 5; 10 (STEL) 1; 3 (STEL)	 N/E N/E

TERMS

All exposure limits referenced above are 8 hour time weighted averages (TWA) unless otherwise noted.

N/E = None Established
C = Ceiling
I = Inhalable fraction
R = Respirable fraction
TLV = Threshold Limit Value/ACGIH (American Conference of Industrial Hygienists)
PEL = Permissible Exposure Limit/OSHA (Occupational Safety & Health Administration)
STEL = Short Term Exposure Limit
mg/m^3 = milligrams per cubic meter

PERSONAL PROTECTION:

Proper hand and foot protection is recommended.

SECTION 9—PHYSICAL & CHEMICAL PROPERTIES

APPEARANCE/PHYSICAL STATE
Solid, silver gray in color

ODOR/ODOR THRESHOLD None	**VAPOR DENSITY** Not applicable
MELTING POINT/FREEZING POINT 2744-3199°F (1504-1704°C)	**SPECIFIC GRAVITY (relative density)** 0.28 lb/in^3 (7.74 g/cm^3) for cast alloy steels
BOILING POINT 5000°F (2760°C) for iron	**VAPOR PRESSURE** Not applicable
FLASH POINT Not applicable for solid castings	**EVAPORATION RATE** Not applicable
FLAMMABILITY Not flammable	**SOLUBILITY IN WATER** Insoluble
UPPER AND LOWER FLAMMABILITY LIMITS Not applicable for solid castings	**pH** Not applicable
AUTO IGNITION TEMPERATURE Not applicable	**VISCOSITY** Not applicable
DECOMPOSITION TEMPERATURE Not applicable	**PARTITION COEFFICIENT** Not applicable

SECTION 10—STABILITY & REACTIVITY

CHEMICAL STABILITY
Stable

CONDITIONS TO AVOID
None

REACTIVITY Not reactive	**INCOMPATIBLE MATERIALS** None
HAZARDOUS DECOMPOSITION PRODUCTS None	**POSSIBILITY OF HAZARDOUS REACTIONS** Not applicable

SECTION 11—TOXICOLOGICAL INFORMATION

POTENTIAL HEALTH EFFECTS

EYE CONTACT: None

SKIN: None

INGESTION:	None
INHALATION:	None

Carcinogen Classification of Ingredients

INGREDIENT	OSHA	NTP	IARC	TARGET ORGAN
Cobalt	NL	NL	2B	Lung
Nickel (metal)	NL	K	2B	Lung, Nose

TERMS

OSHA—Occupational Safety & Health Administration

Y = Listed as a Human Carcinogen

NTP—National Toxicology Program

K = Known to be a Human Carcinogen

R = Reasonably Anticipated to be a Human Carcinogen (RAHC)

IARC—International Agency for Research on Cancer

1 = Carcinogen to Humans

2A = Probably Carcinogenic to Humans

2B = Possibly Carcinogenic to Humans

3 = Unclassifiable as to Carcinogenicity in Humans

4 = Probably not Carcinogenic to Humans

Other

NL = Not Listed

SECTION 12—ECOLOGICAL INFORMATION

ECOTOXICITY
Not applicable

PERSISTENCE AND DEGRADABILITY
Not applicable

BIOACCUMULATION POTENTIAL
Not applicable

MOBILITY IN SOIL
Not applicable

OTHER ADVERSE EFFECTS
Not applicable

SECTION 13—DISPOSAL CONSIDERATIONS

Recover or recycle if possible. Dispose of according to federal, state and local regulations. Dust collected from machining, welding, etc. may be classified as a hazardous waste. Consult federal, state and local regulations.

SECTION 14—TRANSPORT INFORMATION

US DEPARTMENT OF TRANSPORTATION (DOT)-HMR (Hazardous Materials Registration)
Not regulated

CANADIAN TRANSPORTATION OF DANGEROUS GOODS (TDG)
Not regulated

UN SHIPPING NAME
Not regulated

UN NUMBER
Not regulated

TRANSPORT HAZARD CLASS
Not regulated

PACKING GROUP
Not regulated

ENVIRONMENTAL HAZARDS
None

LABEL(S) REQUIRED?
No

TRANSPORT IN BULK
Not applicable

SPECIAL SHIPPING INFORMATION
Not applicable

SECTION 15—REGULATORY INFORMATION

US-OSHA (Hazard Communication Standard)

Reference 29 CFR 1910.1200 and 1910.1000. A finished casting is an article as defined in the OSHA Hazard Communication Standard 29CFR 1910.1200 (c). Dust or fumes generated by cleaning, machining, grinding, or welding of the casting may produce airborne contaminants, such as chromium, cobalt, copper, iron, manganese, molybdenum, nickel, silicon, tantalum and silica.

For hexavalent chromium references see 29 CFR 1910.1026.

US-EPA (Toxic Substances Control Act–TSCA)

All components of these products are on the TSCA inventory list or are excluded from listing.

US-EPA (SARA Title III)

Releases to the environment of **Chromium, Cobalt, Copper, Manganese and Nickel,** may be subject to reporting under Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372.

CANADA-WHMIS (Workplace Hazardous Materials Information System)

This SDS has been prepared according to the hazard criteria of the Controlled Product Regulations (CPR) and the SDS contains the information required by the CPR.

CANADA DSL (Domestic Substance List) Inventory Status

All components of these products are on the DSL Inventory.

CEPA (Canadian Environmental Protection Act)

Chromium and nickel are on the CEPA Priorities Substances Lists

EINECS No. (European Inventory of Existing Commercial Chemical Substances)

All components of these products are on the EINECS list.

RoHS (Restriction of Certain Hazardous Substances) Compliance

Castings comply with RoHS

CALIFORNIA PROPOSITION 65 Compliance

WARNING: This product contains or produces chemicals known to the State of California to cause cancer and birth defects (or other reproductive harm). (California Health & Safety Code 25248.5 et seq.)

US STATE REGULATORY INFORMATION

Some of the components listed in Section 3 may be covered under specific state regulations.

SECTION 16—OTHER INFORMATION

SDS SHEET PREPARED BY:	**DATE**
American Foundry Society, Inc. Occupational Safety & Health Committee (10-Q)	**09/15**

NOTE:

This data and label information is offered in good faith as typical values and not as a product specification. No warranty either expressed or implied is hereby made. The recommended industrial hygiene and safe handling procedures are believed to be generally applicable. However, each user should review the recommendations in specific context of the intended use and determine if they are appropriate.