STANFORD ADVANCED MATERIALS

SAFETY DATA SHEET

Issue Date 28-May-2024 **Revision Date** 17-Jul-2024 **Version** 7

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

Product identifier

Product Name Iron Alloy Powder

Other means of identification

Synonyms Iron Alloy Powder: 304, Bor07, 316, 330, 422, VIMCRU 20, 15Cr-5Ni, 17Cr-4Ni, Fe-3B-5.6Si, Fe-8Si-6Nb-1.5Cu, 800H (Fe-21Cr-32.5Ni-0.4Al-0.4Ti), AMS355 (Fe-15.5Cr-4.5Ni-2.87Mo), Fe-18Cr-10Ni-0.7Ti, Fe-12Cr-9.65Ni-0.65Mo-0.2Ti, Fe-14.25Cr-5.45Ni-0.9Mo-0.85W-0.2V, Fe-25Cr-25Mn-25Ni

Recommended use of the chemical and restrictions on use

Recommended Use Iron alloy product manufacture.

Uses advised against

Details of the supplier of the safety data sheet

Manufacturer Address

23661 Birtcher Dr.,
Lake Forest, CA 92630 U.S.A.

Emergency telephone number

Emergency Telephone Chemtrec: (949) 407-8904
(This telephone number is available 24 hours per day, 7 days per week.)

2. HAZARDS IDENTIFICATION

Classification

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Skin sensitization	Category 1
Carcinogenicity	Category 2
Specific target organ toxicity (repeated exposure)	Category 1
Chronic aquatic toxicity	Category 3

Label elements

Emergency Overview

Danger

Hazard statements

May cause an allergic skin reaction
Suspected of causing cancer
Causes damage to the respiratory tract through prolonged or repeated exposure if inhaled
Harmful to aquatic life with long lasting effects

Appearance Powder	**Physical state** Solid	**Odor** Odorless

Precautionary Statements - Prevention
Do not handle until all safety precautions have been read and understood
Use personal protective equipment as required
Wear protective gloves
Avoid breathing dust/fume
Avoid release to the environment
Contaminated work clothing should not be allowed out of the workplace
IF ON SKIN: Wash with plenty of soap and water

Precautionary Statements - Response
Wash contaminated clothing before reuse
If skin irritation or rash occurs: Get medical advice/attention

Precautionary Statements - Disposal
Dispose of contents/container to an approved waste disposal plant

Hazards not otherwise classified (HNOC)
Not applicable
Other Information

When product is subjected to welding, burning, melting, sawing, brazing, grinding, buffing, polishing, or other similar heat-generating processes, the following potentially hazardous airborne particles and/or fumes may be generated:
Titanium dioxide an IARC Group 2B carcinogen.
Hexavalent Chromium (Chromium VI) may cause lung, nasal, and/or sinus cancer.
Vanadium pentoxide (V2O5) affects eyes, skin, respiratory system.
Zinc, copper, magnesium, or cadmium fumes may cause metal fumes fever.
Soluble molybdenum compounds such as molybdenum trioxide may cause lung irritation.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms Iron Alloy Powder: 304, Bor07, 316, 330, 422, VIMCRU 20, 15Cr-5Ni, 17Cr-4Ni, Fe-3B-5.6Si, Fe-8Si-6Nb-1.5Cu, 800H (Fe-21Cr-32.5Ni-0.4Al-0.4Ti), AMS355 (Fe-15.5Cr-4.5Ni-2.87Mo), Fe-18Cr-10Ni-0.7Ti, Fe-12Cr-9.65Ni-0.65Mo-0.2Ti, Fe-14.25Cr-5.45Ni-0.9Mo-0.85W-0.2V, Fe-25Cr-25Mn-25Ni.

Chemical Name	CAS No.	Weight-%
Iron	7439-89-6	50 - 80
Nickel	7440-02-0	0 - 42
Chromium	7440-47-3	0 - 40
Manganese	7439-96-5	0 - 30
Vanadium	7440-62-2	0 - 15
Silicon	7440-21-3	0 - 12
Molybdenum	7439-98-7	0 - 11
Aluminum	7429-90-5	0 - 10
Niobium (Columbium)	7440-03-1	0 - 8
Tungsten	7440-33-7	0 - 8
Boron	7440-42-8	0 - 6
Copper	7440-50-8	0 - 5
Titanium	7440-32-6	0 - 3
Carbon	7440-44-0	0 - 1.6

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4. FIRST AID MEASURES

First aid measures

Eye contact In the case of particles coming in contact with eyes during processing, treat as with any foreign object.

Skin Contact In the case of skin irritation or allergic reactions see a physician. Wash off immediately with soap and plenty of water.

Inhalation If excessive amounts of smoke, fume, or particulate are inhaled during processing, remove to fresh air and consult a qualified health professional.

Ingestion IF SWALLOWED. Call a POISON CENTER or doctor/physician if you feel unwell.

Most important symptoms and effects, both acute and delayed

Symptoms May cause allergic skin reaction.

Indication of any immediate medical attention and special treatment needed

Note to physicians Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media
Product not flammable in the form as distributed, flammable as finely divided particles or pieces resulting from processing of this product. Isolate large fires and allow to burn out. Smother small fires with salt (NaCl) or class D dry powder fire extinguisher.

Unsuitable extinguishing media Do not spray water on burning metal as an explosion may occur. This explosive characteristic is caused by the hydrogen and steam generated by the reaction of water with the burning material.

Specific hazards arising from the chemical
Intense heat. Very fine, high surface area material resulting from grinding, buffing, polishing, or similar processes of this product may ignite spontaneously at room temperature. WARNING: Fine particles of this product may form combustible dust-air mixtures. Keep particles away from all ignition sources including heat, sparks, and flame. Prevent dust accumulations to minimize combustible dust hazard.

Hazardous combustion products Titanium dioxide an IARC Group 2B carcinogen. Hexavalent Chromium (Chromium VI) may cause lung, nasal, and/or sinus cancer. Vanadium pentoxide (V_2O_5) affects eyes, skin, respiratory system. Zinc, copper, magnesium, or cadmium fumes may cause metal fumes fever. Soluble molybdenum compounds such as molybdenum trioxide may cause lung irritation.

Explosion data
Sensitivity to Mechanical Impact None.
Sensitivity to Static Discharge None.

Protective equipment and precautions for firefighters
Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal precautions Use personal protective equipment as required.

For emergency responders Use personal protective equipment as required. Follow Emergency Response Guidebook, Guide No. 171, EXCEPT for FIRE follow Emergency Response Guidebook, Guide No. 170.

Environmental precautions

Environmental precautions Collect spillage to prevent release to the environment.

Methods and material for containment and cleaning up

Methods for containment Prevent further leakage or spillage if safe to do so.

Methods for cleaning up Sweep or shovel material into dry containers. Avoid creating uncontrolled dust.

7. HANDLING AND STORAGE

Precautions for safe handling

Advice on safe handling Very fine, high surface area material resulting from grinding, buffing, polishing, or similar processes of this product may ignite spontaneously at room temperature. WARNING: Fine particles of this product may form combustible dust-air mixtures. Keep particles away from all ignition sources including heat, sparks, and flame. Prevent dust accumulations to minimize combustible dust hazard.

Conditions for safe storage, including any incompatibilities

Storage Conditions Keep away from heat, sparks, flame and other sources of ignition (i.e., pilot lights, electric motors and static electricity).

Incompatible materials Dissolves in hydrofluoric acid. Ignites in the presence of fluorine. When heated above 200°C, reacts exothermically with the following: Chlorine, bromine, halocarbons, carbon tetrachloride, carbon tetrafluoride, and freon.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Chemical Name	ACGIH TLV	OSHA PEL
Iron 7439-89-6	-	-
Nickel 7440-02-0	TWA: 1.5 mg/m³ inhalable fraction	TWA: 1 mg/m³
Chromium 7440-47-3	TWA: 0.5 mg/m³	TWA: 1 mg/m³
Manganese 7439-96-5	TWA: 0.02 mg/m³ respirable fraction TWA: 0.1 mg/m³ inhalable fraction TWA: 0.02 mg/m³ Mn TWA: 0.1 mg/m³ Mn	(vacated) STEL: 3 mg/m³ fume (vacated) Ceiling: 5 mg/m³ Ceiling: 5 mg/m³ fume Ceiling: 5 mg/m³ Mn
Vanadium 7440-62-2	-	Ceiling: 0.5 mg/m³ V2O5 respirable dust Ceiling: 0.1 mg/m³ V2O5 fume
Silicon 7440-21-3	-	TWA: 15 mg/m³ total dust TWA: 5 mg/m³ respirable fraction
Molybdenum 7439-98-7	TWA: 10 mg/m³ inhalable fraction TWA: 3 mg/m³ respirable fraction	-
Aluminum 7429-90-5	TWA: 1 mg/m³ respirable fraction	TWA: 15 mg/m³ total dust TWA: 5 mg/m³ respirable fraction
Tungsten 7440-33-7	STEL: 10 mg/m³ STEL: 10 mg/m³ W TWA: 5 mg/m³ TWA: 5 mg/m³ W	(vacated) STEL: 10 mg/m³ (vacated) STEL: 10 mg/m³ W
Niobium (Columbium) 7440-03-1	-	-
Boron 7440-42-8	-	-
Copper 7440-50-8	TWA: 0.2 mg/m³ fume TWA: 1 mg/m³ Cu dust and mist	TWA: 0.1 mg/m³ fume TWA: 1 mg/m³ dust and mist
Titanium 7440-32-6	-	-
Carbon 7440-44-0	-	-

Appropriate engineering controls

Engineering Controls Avoid generation of uncontrolled particles.

Individual protection measures, such as personal protective equipment

Eye/face protection When airborne particles may be present, appropriate eye protection is recommended. For example, tight-fitting goggles, foam-lined safety glasses or other protective equipment that

shield the eyes from particles.

Skin and body protection Fire/flame resistant/retardant clothing may be appropriate during hot work with the product. Wear protective gloves.

Respiratory protection When particulates/fumes/gases are generated and if exposure limits are exceeded or irritation is experienced, proper approved respiratory protection should be worn. Positive-pressure supplied air respirators may be required for high airborne contaminant concentrations. Respiratory protection must be provided in accordance with current local regulations.

General Hygiene Considerations Handle in accordance with good industrial hygiene and safety practice.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical state	Solid		
Appearance	Powder	**Odor**	Odorless
Color	metallic Grey silver	**Odor threshold**	Not applicable

Property	**Values**	**Remarks • Method**
pH	-	
Melting point/freezing point	1320-1400 °C / 2400-2550 °F	
Boiling point / boiling range	-	
Flash point	-	
Evaporation rate	-	Not applicable
Flammability (solid, gas)	-	Product not flammable in the form as distributed, flammable as finely divided particles or pieces resulting from processing of this product
Flammability Limit in Air		Not applicable
Upper flammability limit:	-	
Lower flammability limit:	-	
Vapor pressure	-	Not applicable
Vapor density	-	Not applicable
Specific Gravity	8.0 - 8.5	
Water solubility	Insoluble	
Solubility in other solvents	-	Not applicable
Partition coefficient	-	Not applicable
Autoignition temperature	-	Not applicable
Decomposition temperature	-	Not applicable
Kinematic viscosity	-	Not applicable
Dynamic viscosity	-	Not applicable
Explosive properties	Not applicable	
Oxidizing properties	Not applicable	

Other Information

Softening point	-
Molecular weight	-
VOC Content (%)	Not applicable
Density	-
Bulk density	-

10. STABILITY AND REACTIVITY

Reactivity
Not applicable

Chemical stability
Stable under normal conditions.

Possibility of Hazardous Reactions
None under normal processing.

Hazardous polymerization Hazardous polymerization does not occur.

Conditions to avoid
Dust formation and dust accumulation.

Incompatible materials
Dissolves in hydrofluoric acid. Ignites in the presence of fluorine. When heated above 200°C, reacts exothermically with the following: Chlorine, bromine, halocarbons, carbon tetrachloride, carbon tetrafluoride, and freon.

Hazardous Decomposition Products
When product is subjected to welding, burning, melting, sawing, brazing, grinding, buffing, polishing, or other similar heat-generating processes, the following potentially hazardous airborne particles and/or fumes may be generated: Titanium dioxide an IARC Group 2B carcinogen. Hexavalent Chromium (Chromium VI) may cause lung, nasal, and/or sinus cancer. Vanadium pentoxide (V_2O_5) affects eyes, skin, respiratory system. Soluble molybdenum compounds such as molybdenum trioxide may cause lung irritation.

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Product Information

Inhalation Suspected of causing cancer if inhaled. Causes damage to the respiratory tract through prolonged or repeated exposure if inhaled.

Eye contact Product not classified.

Skin Contact Nickel or Cobalt containing alloys may cause sensitization by skin contact.

Ingestion Product not classified.

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50
Iron 7439-89-6	98,600 mg/kg bw	-	> 0.25 mg/L
Nickel 7440-02-0	> 9000 mg/kg bw	-	> 10.2 mg/L
Chromium 7440-47-3	> 3400 mg/kg bw	-	> 5.41 mg/L
Manganese 7439-96-5	>2000 mg/kg bw	-	>5.14 mg/L
Vanadium 7440-62-2	> 2000 mg/kg bw	-	-
Silicon 7440-21-3	> 5000 mg/kg bw	> 5000 mg/kg bw	> 2.08 mg/L
Molybdenum 7439-98-7	> 2000 mg/kg bw	> 2000 mg/kg bw	> 5.10 mg/L
Aluminum 7429-90-5	15,900 mg/kg bw	-	> 1 mg/L
Tungsten 7440-33-7	> 2000 mg/kg bw	> 2000 mg/kg bw	> 5.4 mg/L
Niobium (Columbium) 7440-03-1	> 10,000 mg/kg bw	> 2000 mg/kg bw	-
Boron 7440-42-8	> 2000 mg/kg bw	-	> 5.08 mg/L
Copper 7440-50-8	481 mg/kg bw	>2000 mg/kg bw	>5.11 mg/L
Titanium 7440-32-6	> 5000 mg/kg bw	-	-
Carbon 7440-44-0	> 2000 mg/kg bw	-	-

Information on toxicological effects

Symptoms Nickel or Cobalt containing alloys may cause sensitization by skin contact.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Acute toxicity Product not classified.
Skin corrosion/irritation Product not classified.
Serious eye damage/eye irritation Product not classified.
Sensitization Nickel or Cobalt containing alloys may cause sensitization by skin contact.
Germ cell mutagenicity Product not classified.
Carcinogenicity May cause cancer by inhalation.

Chemical Name	ACGIH	IARC	NTP	OSHA
Nickel 7440-02-0		Group 1 Group 2B	Known Reasonably Anticipated	X
Chromium 7440-47-3		Group 3		

Reproductive toxicity Product not classified.
STOT - single exposure Product not classified.
STOT - repeated exposure Causes disorder and damage to the: Respiratory System.
Aspiration hazard Product not classified.

12. ECOLOGICAL INFORMATION

This product contains a chemical which is listed as a severe marine pollutant according to DOT.

Ecotoxicity

This product as shipped is classified for aquatic chronic toxicity

Chemical Name	Algae/aquatic plants	Fish	Toxicity to microorganisms	Crustacea
Iron 7439-89-6	-	The 96 h LC50 of 50% iron oxide black in water to Danio rerio was greater than 10,000 mg/L.	The 3 h EC50 of iron oxide for activated sludge was greater than 10,000 mg/L.	The 48 h EC50 of iron oxide to Daphnia magna was greater than 100 mg/L.
Nickel 7440-02-0	NOEC/EC10 values range from 12.3 µg/l for Scenedesmus accuminatus to 425 µg/l for Pseudokirchneriella subcapitata.	The 96h LC50s values range from 0.4 mg Ni/L for Pimephales promelas to 320 mg Ni/L for Brachydanio rerio.	The 30 min EC50 of nickel for activated sludge was 33 mg Ni/L.	The 48h LC50s values range from 0.013 mg Ni/L for Ceriodaphnia dubia to 4970 mg Ni/L for Daphnia magna.
Chromium 7440-47-3	-	-	-	-
Manganese 7439-96-5	The 72 h EC50 of manganese to Desmodesmus subspicatus was 2.8 mg of Mn/L.	The 96 h LC50 of manganese to Oncorhynchus mykiss was greater than 3.6 mg of Mn/L	The 3 h EC50 of manganese for activated sludge was greater than 1000 mg/L.	The 48 h EC50 of manganese to Daphnia magna was greater than 1.6 mg/L.
Vanadium 7440-62-2	The 72 h EC50 of vanadium pentoxide to Desmodesmus subspicatus was 2,907 ug of V/L.	The 96 h LC50 of vanadium pentoxide to Pimephales promelas was 1,850 ug of V/L .	The 3 h EC50 of sodium metavanadate for activated sludge was greater than 100 mg/L.	The 48 h EC50 of sodium vanadate to Daphnia magna was 2,661 ug of V/L.
Silicon 7440-21-3	The 72 h EC50 of sodium metasilicate pentahydrate to Pseudokirchnerella subcapitata was greater than 250 mg/L.	-	-	-
Molybdenum 7439-98-7	The 72 h EC50 of sodium molybdate dihydrate to Pseudokirchneriella subcapitata was 362.9 mg of Mo/L.	The 96 h LC50 of sodium molybdate dihydrate to Pimephales promelas was 644.2 mg/L	The 3 h EC50 of molybdenum trioxide for activated sludge was 820 mg/L.	The 48 h LC50 of sodium molybdate dihydrate to Ceriodaphnia dubia was 1,015 mg/L. The 48 h LC50 of sodium molybdate dihydrate to

				Daphnia magna was greater than 1,727.8 mg/L.
Aluminum 7429-90-5	The 96-h EC50 values for reduction of biomass of Pseudokirchneriella subcapitata in AAP-Medium at pH 6, 7, and 8 were estimated as 20.1, 5.4, and 150.6 µg/L, respectively, for dissolved Al.	The 96 h LC50 of aluminum to Oncorhynchus mykiss was 7.4 mg of Al/L at pH 6.5 and 14.6 mg of Al/L at pH 7.5	-	The 48-hr LC50 for Ceriodaphnia dubia exposed to Aluminium chloride increased from 0.72 to greater than 99.6 mg/L with water hardness increasing from 25 to 200 mg/L.
Tungsten 7440-33-7	The 72 h EC50 of sodium tungstate to Pseudokirchnerella subcapitata was 31.0 mg of W/L.	The 96 h LC50 of sodium tungstate to Danio rerio was greater than 106 mg of W/L.	The 30 min EC50 of sodium tungstate for activated sludge were greater than 1000 mg/L.	The 48 h EC50 of sodium tungstate to Daphnia magna was greater than 96 mg of W/L.
Niobium (Columbium) 7440-03-1	-	-	-	-
Boron 7440-42-8	The 72-h EC50 value for reduction of biomass of Pseudokirchneriella subcapitata exposed to Boric acid at pH 7.5 to 8.3 was 40.2 mg/L.	The 96-hr LC50 for Pimephales promelas exposed to Boric acid (82%)/borax (18%) mixture was 79.7 mg/L with water hardness of 91 mg/L and water pH of 8.0.	The 3 h NOEC of boric acid for activated sludge ranged from 17.5 to 20 mg/L.	The 48-hr LC50 for Ceriodaphnia dubia exposed to Boric acid/borax mixture ranged from 91 to 165 mg/L with pH ranging from 6.7 to 8.4.
Copper 7440-50-8	The 72 h EC50 values of copper chloride to Pseudokirchneriella subcapitata ranged between 30 µg/L (pH 7.02, hardness 250 mg/L CaCO3, DOC 1.95 mg/L) and 824 µg/L (pH 6.22, hardness 100 mg/L CaCO3, DOC 15.8 mg/L).	The 96-hr LC50 for Pimephales promelas exposed to Copper sulfate ranged from 256.2 to 38.4 ug/L with water hardness increasing from 45 to 255.7 mg/L.	The 24 h NOEC of copper chloride for activated sludge ranged from 0.32 to 0.64 mg of Cu/L.	The 48 h LC50 values for Daphnia magna exposed to copper in natural water ranged between 33.8 µg/L (pH 6.1, hardness 12.4 mg/L CaCO3, DOC 2.34 mg/L) and 792 µg/L (pH 7.35, hardness 139.7 mg/L CaCO3, DOC 22.8 mg/L).
Titanium 7440-32-6	The 72 h EC50 of titanium dioxide to Pseudokirchnerella subcapitata was 61 mg of TiO2/L.	The 96 h LC50 of titanium dioxide to Cyprinodon variegatus was greater than 10,000 mg of TiO2/L. The 96 h LC50 of titanium dioxide to Pimephales promelas was greater than 1,000 mg of TiO2/L .	The 3 h EC50 of titanium dioxide for activated sludge were greater than 1000 mg/L.	The 48 h EC50 of titanium dioxide to Daphnia Magna was greater than 1000 mg of TiO2/L.
Carbon 7440-44-0	The 72 h EL50 of Carbon to Pseudokirchneriella subcapitata was greater than 100 mg/L.	The 96 h LL50 of Carbon in water to Danio rerio was greater than 100 mg/L.	The 3 h EC50 of Carbon for activated sludge was 1000 mg/L.	The 48 h EL50 of Carbon to Daphnia magna was greater than 100 mg/L.

Persistence and degradability

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Bioaccumulation

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Other adverse effects

13. DISPOSAL CONSIDERATIONS

Waste treatment methods

Disposal of wastes Disposal should be in accordance with applicable regional, national and local laws and regulations.

Contaminated packaging Disposal should be in accordance with applicable regional, national and local laws and regulations.

Chemical Name	RCRA - D Series Wastes
Chromium	5.0 mg/L regulatory level

7440-47-3	

This product contains one or more substances that are listed with the State of California as a hazardous waste.

14. TRANSPORT INFORMATION

Note: Regulated, if transported in bulk or by vessel

DOT Regulated per 49 CFR, if quantity with particles smaller than 100 micrometers (0.004 inches) in an individual package equals or exceeds the reportable quantity (RQ) of 5000 pounds of chromium, 5000 pounds of copper, or 100 pounds of nickel

Proper shipping name	UN/ID No. 3077 Environmentally hazardous substance, solid, n.o.s. (nickel alloy powder), RQ
Hazard Class	9
Packing Group	III
Special Provisions	8, 146, 335, A112, B54, B120, IB8, IP3, N20, N91, T1, TP33
Marine pollutant	This product contains a chemical which is listed as a severe marine pollutant according to DOT.
Emergency Response Guide Number	Guide No. 171, Except for FIRE follow Guide No. 170

15. REGULATORY INFORMATION

International Inventories

TSCA	Complies
DSL/NDSL	Complies
EINECS/ELINCS	Complies
ENCS	Complies
IECSC	Complies
KECL	Complies
PICCS	Not Listed
AICS	Complies

Legend:

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
ENCS - Japan Existing and New Chemical Substances
IECSC - China Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances
AICS - Australian Inventory of Chemical Substances

US Federal Regulations

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

Chemical Name	CAS No.	Weight-%	SARA 313 - Threshold Values %
Nickel - 7440-02-0	7440-02-0	0 - 42	0.1
Chromium - 7440-47-3	7440-47-3	0 - 40	1.0
Manganese - 7439-96-5	7439-96-5	0 - 30	1.0
Copper - 7440-50-8	7440-50-8	0 - 5	1.0

SARA 311/312 Hazard Categories

Acute health hazard	Yes
Chronic Health Hazard	Yes
Fire hazard	No
Sudden release of pressure hazard	No
Reactive Hazard	No

CWA (Clean Water Act)
This product contains the following substances which are regulated pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

Chemical Name	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous Substances
Nickel 7440-02-0		X	X	
Chromium 7440-47-3		X	X	
Copper 7440-50-8		X	X	

CERCLA
This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Chemical Name	Hazardous Substances RQs
Nickel 7440-02-0	100 lb
Chromium 7440-47-3	5000 lb
Copper 7440-50-8	5000 lb

US State Regulations

California Proposition 65
This product contains the Proposition 65 chemicals listed below. Proposition 65 warning label available at ATImetals.com.

Chemical Name	California Proposition 65
Nickel - 7440-02-0	Carcinogen

U.S. State Right-to-Know Regulations

Chemical Name	New Jersey	Massachusetts	Pennsylvania
Nickel 7440-02-0	X	X	X
Chromium 7440-47-3	X	X	X
Manganese 7439-96-5	X	X	X
Vanadium 7440-62-2	X	X	X
Silicon 7440-21-3	X	X	X
Molybdenum 7439-98-7	X	X	X
Aluminum 7429-90-5	X	X	X
Tungsten 7440-33-7	X	X	X
Copper 7440-50-8	X	X	X
Titanium 7440-32-6	X		

U.S. EPA Label Information
EPA Pesticide Registration Number Not applicable

16. OTHER INFORMATION

NFPA	**Health hazards** 1	**Flammability** 0	**Instability** 0	**Physical and Chemical Properties** -
HMIS	**Health hazards** 2*	**Flammability** 1	**Physical hazards** 0	**Personal protection** X

Chronic Hazard Star Legend * = Chronic Health Hazard

Issue Date 28-May-2024
Revision Date 17-Jul-2024
Revision Note
Updated Section(s): 1, 2, 3, 5, 7, 9, 10, 15
Note:
The information provided in this safety data sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

End of Safety Data Sheet

Additional information available from: Safety data sheets and labels available at sales@samaterials.com