ASW STEEL Inc.	**Safety Data Sheet**	SDS No. 1 (rev. 1)
		Issue Date: 2/17/2016
	Alloy Steel Ingot	Revision Date: 7/6/2016

* * * Section 1 - Product and Company Identification * * *

ASW Steel
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Product Identifiers
Alloy Engineering Steel

Trade Name/Synonyms
SAE/AISI/ELECTRIC/MODIFIED GRADES ALLOY STEEL

Restrictions on Use
NA

Recommended Use
Steel Products

* * * Section 2 – Hazards Identification * * *

GHS Classification

Alloy Steel is considered an article and not hazardous in its solid form. However, certain processes such as cutting, grinding, milling, and welding could result in some hazardous materials being emitted.

The following classification information is for the hazardous elements which may be emitted during these processes.

GHS Classification of Components

Respiratory Sensitizer – Category 1
Skin Sensitizer – Category 1
Carcinogenicity– Category 2
Specific target organ toxicity, repeated exposure – Category 1

GHS Label Elements:

Signal Word – Danger

Hazard Statements

May cause allergy or asthma symptoms or breathing difficulties if inhaled.
Causes damage to organs through prolonged or repeated exposure.

Precautionary Statements

Prevention

Under normal use and handling of the solid form of this material there are few preventive or precautionary measures required. Cutting, welding, melting, grinding etc. of these materials will produce dust, fume or particulate containing the component elements of these materials. Exposure to the dust, fume or particulate of these materials may present significant health hazards. Do not eat, drink or smoke when using this product. Wash thoroughly after handling

Response

In general no treatment is necessary when handling in compound form.

Storage

Store away from incompatible materials such as mineral acids

Disposal

Reuse or recycle material whenever possible

* * * Section 3 – Composition / Information on Ingredients * * *

Substance/mixture

Mixture

Other means of identification

SAE/AISI/ELECTRIC/MODIFIED GRADES ALLOY STEEL

CAS #	Component	Percent
7439-89-6	Iron	95%
7440-47-3	Chromium	5%
7440-02-0	Nickel	5%
7439-96-5	Manganese	2.5%
7439-98-7	Molybdenum	2%
1314-62-1	Vanadium	2%
7440-21-3	Silicon	2%

7429-90-5	Aluminum	1.5%
7440-48-4	Cobalt	0.75%
7740-50-8	Copper	0.1-1.3%
7440-32-6	Titanium	0.001-0.01%

* * * Section 4 – First Aid Measures * * *

First Aid: Eyes

Flush eyes with plenty of water while holding eyelids open. Seek medical attention if irritation persists.

First Aid: Skin

For irritation from coating material wash affected area with soap and water. Seek medical attention if skin irritation persists.

First Aid: Ingestion

N/A

First Aid: Inhalation

For overexposure to metal fumes, remove to fresh air, Seek medical attention

* * * Section 5 – Fire Fighting Measures * * *

General Fire Hazards

None

Hazardous Combustion Products

N/A

Extinguishing Media

N/A

Unsuitable Extinguishing Media

N/A

Fire Fighting Equipment/Instructions

N/A

* * * Section 6 – Accidental Release Measures * * *

Recovery and Neutralization

N/A

Materials and Methods for Clean-Up

N/A

Emergency Measures

N/A

Personal Precautions and Protective Equipment

See Section 8

Environmental Precautions

N/A

Prevention of Secondary Hazards

N/A

* * * Section 7 – Handling and Storage * * *

Handling Procedures

Put on appropriate personal protective equipment (see section 8). Avoid generation and spreading of dust. Do not breathe fumes or dust. Avoid contact with sharp edges.

Storage Procedures

Store in dry area

Incompatibilities

Contact with mineral acids will release hydrogen gas

* * * Section 8 – Exposure Controls / Personal Protection * * *

Component Exposure Limits

CAS #	Name	OSHA – PEL	ACGIH - TLV
7439-89-6	Iron	10 mg/m^3	5 mg/m^3
7440-47-3	Chromium	1 mg/m^3	0.5 mg/m^3
7440-02-0	Nickel	1 mg/m^3	1.5 mg/m^3
7439-96-5	Manganese	5 mg/m^3	0.2 mg/m^3

7439-98-7	Molybdenum	10 mg/m^3	3 mg/m^3
1314-62-1	Vanadium	0.5 mg/m^3	0.05 mg/m^3
7440-21-3	Silicon	15 mg/m^3	10 mg/m^3
7429-90-5	Aluminum	5 mg/m^3	1 mg/m^3
7440484	Cobalt	0.02 mg/m^3	0.1 mg/m^3
7740-50-8	Copper	0.1 mg/m^3	0.2 mg/m^3
7440-32-6	Titanium	5 mg/m^3	5 mg/m^3

Note: Concentrations represent a maximum for all grades within a category of steel products and must not be interpreted as a specification for a particular grade.

Engineering Measures

Have adequate ventilation during welding, burning, or grinding.

Hygienic Practices

Wash hands before eating, smoking, or drinking. Food or beverages should not be consumed anywhere this product is handled or stored. Wash thoroughly after handling.

Personal Protective Equipment: Respiratory

In areas where insufficient ventilation is provided wear dust mask or appropriate respiratory protection when dust is present.

Personal Protective Equipment: Hands, Skin and Body

Some of the steel grades may have an oil coating or lime coating. Use chemical resistant gloves when handling to prevent skin irritation.

Personal Protective Equipment: Eyes

Wear safety glasses, face shield or goggles when cutting or grinding.

* * * Section 9 – Physical & Chemical Properties * * *

Appearance:	Metallic	**Odor:**	Odorless
Physical State:	Solid	**pH:**	N/A
Vapor Pressure:	N/A	**Vapor Density:**	N/A
Boiling Point:	N/A	**Melting Point:**	N/A
Solubility (H2O):	Insoluble in water	**Specific Gravity:**	7.6-7.8
Evaporation Rate:	N/A	**VOC:**	N/A
Octanol/H2O Coeff:	N/A	**Flash Point:**	N/A
Flash Point Method:	N/A	**Upper Flammability Limit**	N/A

		(UFL):	
Lower Flammability Limit (LFL):	N/A	**Burning Rate:**	N/A
Auto Ignition Temperature	N/A		

* * * Section 10 – Chemical Stability & Reactivity Information * * *

Chemical Stability

Stable under normal conditions of use, storage, and transportation.

Hazardous Reaction Potential

Hazardous reactions will not occur under normal conditions

Conditions to Avoid

Avoid creating for spreading dust. Sparks, heat, open flame and other sources of ignition.

Incompatible Products

Mineral acids

Hazardous Decomposition Products

N/A

* * * Section 11 – Toxicological Information * * *

Acute Toxicity

A: General Product Information

Under normal use and handling of the solid form of this material there are few health hazards. Cutting, welding, melting, grinding etc. of these materials will produce dust, fume or particulate containing the component elements of these materials. Exposure to the dust, fume or particulate of these materials may present significant health hazards.

B: Component Analysis - LD50/LC50

Iron: Oral-LD50- Rat 30 g/kg

Chromium: Oral-LD50- Rat 0.0275 g/kg

Nickel: Oral-LD50- Rat 5 g/kg

Manganese: Oral-LD50- Rat 9 g/kg

Molybdenum: Intratracheal-LD50- Rabbit 70 mg/kg

Vanadium: Oral-LD50- Rat 10 mg/kg

Silicon: Oral-LD50- Rat 3160 g/kg

Cobalt: Oral-LD50- Rat 9 g/kg

Potential Health Effects

Skin Contact

May cause skin irritation.

Eye Contact

Welding or burning will generate metal fumes which can cause irritation to eyes.

Ingestion

No known effects.

Inhalation

Welding or burning will generate metal fumes which can cause irritation to nose and throat.

Generative Cell Mutagenicity

This product is not reported to have mutagenic effects.

Carcinogenicity

Certain nickel and chromium compounds have been listed by IARC as nasal lung carcinogens

Reproductive Toxicity

This product is not reported to have any reproductive toxicity effects.

Specified Target Organ General Toxicity: Single Exposure

N/A

Specified Target Organ General Toxicity: Repeated Exposure

N/A.

Aspiration Respiratory Organs Hazard

Not classified based on available information.

Effects of Acute Exposure

None to shipped product. Welding or burning will generate metal fumes which can cause irritation to eyes, nose and throat.

Effects of Chronic Exposure

None to shipped product. Chronic inhalation overexposure to metal fume (i.e. Oxide) may cause siderosis

* * * Section 12 – Ecological Information * * *

Ecotoxicity

No product information available.

Persistence/Degradability

No product information available.

Bioaccumulation

No product information available.

Mobility in Soil

No product information available.

* * * Section 13 – Disposal Considerations * * *

Waste Disposal Instructions

Dispose of in accordance with Federal, State, or Provincial requirements.

Disposal of Contaminated Containers or Packaging

N/A

* * * Section 14 – Transportation Information * * *

DOT/TDG Information: Not classified as a DOT Hazardous Material or Dangerous Good

* * * Section 15 – Regulatory Information * * *

Component Analysis

This material does contain chemicals subject to reporting requirements of CERCLA/SARA 313.

TSCA Inventory

All ingredients are on the TSCA Chemical Substance inventory.

SARA SECTION 313 - SUPPLIER NOTIFICATION

This product contains Iron, Chromium, Copper, Manganese, Aluminum, and Cobalt which are chemicals subject to the reporting requirements of section 313 of the Emergency Planning and Community Right-To-Know Act (EPCRA) of 1986 and of 40 CFR 372.

U.S. -Massachusetts-Right to Know List

The Following chemicals: Nickel, Chromium, Copper, Manganese, Molybdenum, Silicon, Vanadium, Aluminum, and Cobalt are on the U.S. Massachusetts right to know list

U.S. -New Jersey Right to know -Hazardous Substance List

The Following chemicals: Nickel, Chromium, Copper, Manganese, Molybdenum, Silicon, Vanadium, Aluminum, and Cobalt are on the U.S. Pennsylvania Right to know hazardous substance list.

U.S. -Pennsylvania-Right to know- Environmental Hazard List

The Following chemicals: Nickel, Chromium, Copper, Vanadium, Aluminum, and Cobalt are on the U.S. Pennsylvania Right to know environmental substance list.

U.S. -Pennsylvania-Right to know -Special Hazardous Substance List

The Following chemicals: Nickel, Chromium, and Cobalt are on the U.S. Pennsylvania Right to know hazardous substance list.

U.S. -Pennsylvania-Right to know List

The Following chemicals: Nickel, Chromium, Copper, Manganese, Molybdenum, Silicon, Vanadium, Aluminum, and Cobalt are on the U.S. Pennsylvania Right to know list.

U.S. -California - Proposition 65 - Carcinogens List

The Substances Nickel, Cobalt, and Vanadium are on the California Carcinogens list

DSL Inventory

All ingredients are listed on the DSL Chemical substance inventory

IDL Inventory

The following ingredients: Nickel, Chromium, Manganese, Molybdenum, Vanadium, Aluminum, and Cobalt are listed on the IDL Chemical substance inventory.

WHMIS Inventory

Class B division 4: **Aluminum** and **Iron**-Flammable solid

Class B division 6: **Aluminum**-Reactive flammable material

Class D division 1 subdivision A: **Vanadium**-Very toxic material causing immediate and serious toxic effects

Class D division 2 subdivision A: **Vanadium, Cobalt**-Very toxic material causing other toxic effects

Class D division 2 subdivision B: **Nickel** -Toxic material causing other toxic effects

Uncontrolled Product: **Chromium, Manganese, Molybdenum, Silicon, Copper**

* * * Section 16 – Other Information * * *

Disclaimers

This information is provided without warranty. The information is believed to be correct. This information should be used to make an independent determination of the methods to safeguard workers and the environment.

Language for consideration:

Information presented in this Safety Data Sheet for the product(s) described in Section 1 ("Product") has been compiled from sources considered to be dependable, accurate, and reliable, but manufacturer/importer does not guarantee the accuracy of any information presented. Except as expressly provided otherwise in a written contract executed by manufacturer/importer, to the fullest extent permitted by applicable law, manufacturer/importer disclaims, and the recipient or user of this safety data sheet ("recipient") hereby expressly waives, any and all warranties, whether express, implied or statutory, with respect to the product or this safety data sheet, and any results or effect obtained from their use by recipient and/or other users, including, without limitation, any statutory or implied warranties of merchantability or fitness for a particular purpose. Manufacturer/importer specifically, but not by way of limitation, disclaims any and all liability.