GEN⁴ WELDING
CENTRAL WIRE INDUSTRIES

Safety Data Sheet

Section 1: Identification

Product identifier

Product Name • **Nickel Alloys Bare Welding Wire**

Product Description • GEN 55, GEN 99, GEN 208, GEN 276, GEN 413, GEN 418, GEN 600, GEN 604, GEN 606, GEN 617, GEN 622, GEN 625, GEN 652, GEN 659, GEN 686, GEN 718, GEN 825, GEN HX, Alloy 36

Details of the supplier of the safety data sheet

Manufacturer • Central Wire Industries Ltd.

1 North Street
Perth, Ontario K7H 2S2 Canada
http://www.centralwire.com

Manufacturing Locations
US Locations: Lancaster, South Carolina
Canada Locations: Perth, Ontario
United Kingdom Location: Rotherham, South Yorkshire, England

Emergency telephone number

Manufacturer • 613-326-3006

Section 2: Hazard Identification

Classification of the mixture in accordance with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS), OSHA Hazard Communication Standard (29 CFR 1910.1200) and the Canadian Controlled Products Regulations.

- This product is generally an article and is considered non-hazardous in its solid form, but is regulated under OSHA for the release of dust and fumes during mechanical processing operations.

Skin Sensitization 1B	H317	STOT-SE 3 (Resp. Irritation)	H335
Skin Irritation 2	H315	STOT-SE 1	H370
Eye Irritation 2	H320	Respiratory Sensitization 1B	H334
Carcinogenicity 1B	H350	Combustible Dust	
STOT RE 1	H372		

Label elements

DANGER

Hazard statements • There are no health hazards from nickel alloys bare welding wire in solid form. Exposure to dust and/or fumes from processing such as burning, welding, sawing, brazing and grinding may cause serious health effects.
Causes skin irritation.
May cause an allergic skin reaction.
Causes serious eye irritation.

May cause respiratory irritation.
May cause cancer.
Causes damage to organs - lungs via inhalation.
Causes damage to organs - lungs through prolonged or repeated exposure via inhalation.
May form combustible dust concentrations in air.

Precautionary statements

Prevention
- Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Avoid breathing dusts, fumes and gasses.
Wash thoroughly after handling.
Do not eat, drink or smoke when using this product.
Contaminated work clothing should not be allowed out of the workplace.
Wear protective gloves and protective clothing to prevent injury from radiation, sparks and electrical shock. Wear helmet or use face shield with filter lens shade number 12. Shield others by providing screens or flash goggles
In case of inadequate ventilation wear respiratory protection.

Response
- IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. IF exposed or concerned: Get medical advice/attention.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.
IF ON SKIN: Wash with plenty of soap and water. If skin irritation or rash occurs: Get medical advice/attention. Take off contaminated clothing and wash before reuse.

Storage/Disposal
- Dispose of content and/or container in accordance with local, regional, national, and/or international regulations. Refer to manufacturer/supplier for information on recovery/recycling.

Other hazards

- No additional information available.

Other information

NFPA •Health = 1, Flammability = 0, Special Information = None

HMIS •Health = 1*, Flammability = 0, Reactivity = 0, PPE = E

* Chronic Health Hazard

E = Safety glasses, gloves and respirator if above exposure levels

Section 3 - Composition/Information on Ingredients

Mixtures

Nickel alloys products in their solid state are not considered hazardous. However, operations such as burning, welding, sawing, brazing or grinding may release dust and/or fumes, which may present health hazards. These elements may appear in some or various combinations in any particular grade of stainless steel.

Composition			
Chemical Name	**Identifiers**	**%**	**Hazardous**
Aluminum	**CAS:** 7429-90-5	< 4%	Yes
Chromium*	**CAS:** 7440-47-3	< 25%	Yes
Cobalt	**CAS:** 7440-48-4	<15%	Yes
Copper	**CAS:** 7440-50-8	< 35%	Yes
Iron	**CAS:** 7439-89-6	< 70%	No
Manganese	**CAS:** 7439-96-5	< 6%	Yes
Molybdenum	**CAS:** 7439-98-7	< 34%	No
Nickel	**CAS:** 7440-02-0	< 99%	Yes
Silicon	**CAS:** 7440-21-3	< 3%	Yes
Niobium (Columbium)	**CAS:** 7440-03-1	< 6%	Yes
Tungsten	**CAS:** 7440-33-7	< 5%	Yes
Vanadium	**CAS:** 7440-62-2	< 0.5%	Yes

*Nickel alloy products as provided contain chromium metal in the zero valence state. As such, chromium metal does not present an unusual health hazard. However, operations such as burning, welding, sawing, brazing or grinding may generate airborne concentrations of hexavalent chromium.

Section 4: First-Aid Measures

Description of first aid measures

Inhalation
- IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.

Skin
- If skin irritation occurs: Get medical advice/attention. Take off contaminated clothing and wash before reuse.

Eye
- IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.

Ingestion
- Low hazard for usual industrial or commercial handling. Get medical attention if symptoms occur.

Most important symptoms and effects, both acute and delayed

- Refer to Section 11 - Toxicological Information.

Section 5: Fire-Fighting Measures

Extinguishing media

Suitable Extinguishing Media
- For solid formed alloys, as appropriate for surrounding fire. A fire involving finely divided alloy should be treated as a Class D metal fire. Use DRY sand, graphite powder, dry sodium chloride based extinguishers, G-1 or Met-L-X powder.

Unsuitable Extinguishing Media
- Do not use halogenated extinguishing agents or foam.

Special hazards arising from the substance or mixture

Unusual Fire and Explosion Hazards
- Nickel alloys products in the form shipped are not considered combustible. During subsequent processing (cutting, welding, grinding, etc.), the generation of dust in high concentrations may present fire and explosion hazards.

Hazardous Combustion Products
- May produce hazardous metal fumes.

Advice for firefighters

- Fire fighters should wear complete protective clothing including self-contained breathing apparatus.

Section 6 - Accidental Release Measures

Personal precautions, protective equipment and emergency procedures

Personal Precautions
- No data available

Emergency Procedures
- Solid Form: Not Applicable. In dusty environment, ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). Clean up using methods which avoid dust generation. Compressed air should not be used. During cleanup avoid inhalation and skin and eye contact. Provide local exhaust or dilution ventilation as required.

Environmental precautions

- No data available.

Methods and material for containment and cleaning up

Containment/Clean-up Measures
- Use appropriate Personal Protective Equipment (PPE)
  Use clean non-sparking tools to collect material and place it into loosely covered plastic containers for later disposal.
  Dust deposits should not be allowed to accumulate on surfaces, as these may form an

explosive mixture if they are released into the atmosphere in sufficient concentration. Avoid dispersal of dust in the air (i.e., clearing dust surfaces with compressed air).

Section 7 - Handling and Storage

Precautions for safe handling

Handling
- Welding may produce dust, fumes, and gases hazardous to health. Do not breathe (dust or fumes). Do not use in areas without adequate ventilation. Do not eat, drink and smoke in work areas. Use good safety and industrial hygiene practices.

Conditions for safe storage, including any incompatibilities

Storage
- Do not store and transport with oxidizers, acids, etc.

Special Packaging Materials
- None for solid stainless steel product.

Incompatible Materials or Ignition Sources
- Oxidizers. Reacts with strong acids to form explosive hydrogen gas and oxides of nitrogen.

Section 8 - Exposure Controls/Personal Protection

Control parameters

Exposure Limits/Guidelines • No data available on product. Individual elements may be emitted during processing.

Exposure Limits/Guidelines				
	Result	**ACGIH**	**NIOSH**	**OSHA**
Vanadium (7440-62-2)	TWAs	Not established	1 mg/m^3 TWA (listed under Ferrovanadium dust)	Not established
Aluminum (7429-90-5)	TWAs	1 mg/m^3 TWA (respirable fraction)	10 mg/m^3 TWA (total dust); 5 mg/m3 TWA (respirable dust)	15 mg/m^3 TWA (total dust); 5 mg/m3 TWA (respirable fraction)
Silicon (7440-21-3)	TWAs	Not established	10 mg/m^3 TWA (total dust); 5 mg/m^3 TWA (respirable dust)	15 mg/m^3 TWA (total dust); 5 mg/m^3 TWA (respirable fraction)
Tungsten (7440-33-7)	TWAs	5 mg/m^3 TWA	5 mg/m^3 TWA	Not established
Manganese (7439-96-5)	TWAs	0.02 mg/m^3 TWA (respirable fraction); 0.1 mg/m3 TWA (inhalable fraction)	1 mg/m^3 TWA (fume)	Not established
Molybdenum (7439-98-7)	TWAs	10 mg/m^3 TWA (inhalable fraction); 3 mg/m^3 TWA (respirable fraction)	Not established	Not established
Chromium (7440-47-3)	TWAs	0.5 mg/m^3 TWA	0.5 mg/m^3 TWA	1 mg/m^3 TWA
Cobalt (7440-48-4)	TWAs	0.02 mg/m^3 TWA	0.05 mg/m^3 TWA (dust and fume)	0.1 mg/m^3 TWA (dust and fume)
Nickel (7440-02-0)	TWAs	1.5 mg/m^3 TWA (inhalable fraction)	0.015 mg/m^3 TWA	1 mg/m^3 TWA

Exposure controls

Engineering Measures/Controls
- Adequate ventilation systems as needed to control concentrations of airborne contaminants below applicable threshold limit values. Use only appropriately classified electrical equipment.

Personal Protective Equipment

Pictograms
- 

Respiratory
- Use of a NIOSH/MSHA approved fume respirator is recommended where airborne concentrations exceed appropriate PELs and TLVs.

Eye/Face	• Wear helmet or use face shield with filter lens shade number 12 or darker for open arc processes. No specific lens shade recommendation for submerged arc processes. Shield others by providing screens or flash goggles.
Hands	• Wear protective gloves - suitable for protection against physical injury and skin contact during handling and processing.
Skin/Body	• Wear protective clothing - such as arm protectors, aprons, which help to prevent injury from radiation, sparks and electrical shock. See Z.49.1.
General Industrial Hygiene Considerations	• Practice good housekeeping and do not eat, drink or smoke when using the product.. Maintain, clean, and fit test respirators in accordance with OSHA regulations. Provide readily accessible eyewash stations. Determine the composition and quantity of fume and gases to which workers are exposed by taking an air sample inside the welder's helmet if worn or in the worker's breathing zone. Improve ventilation if exposures are not below limits.
Environmental Exposure Controls	• No data available

Section 9 - Physical and Chemical Properties

Information on Physical and Chemical Properties

Material Description			
Physical Form	Solid	Appearance/Description	Solid wire of various grades.
Color	Silver-gray metallic	Odor	Odorless
Taste	No data available.	Particulate Type	No data available
Particulate Size	No data available	Aerosol Type	No data available
Odor Threshold	No data available	Physical and Chemical Properties	No data available
General Properties			
Boiling Point	No data available	Melting Point	2500 to 2800 F(1371 to 1538 C)
Decomposition Temperature	No data available	Heat of Decomposition	No data available
pH	No data available	Specific Gravity/Relative Density	No data available
Density	No data available	Bulk Density	7.75 g/cm^3 0.28 lb/in^3
Water Solubility	Insoluble	Solvent Solubility	No data available
Viscosity	No data available	Explosive Properties	No data available
Oxidizing Properties:	No data available		
Volatility			
Vapor Pressure	No data available	Vapor Density	No data available
Evaporation Rate	No data available	VOC (Wt.)	No data available
VOC (Vol.)	No data available	Volatiles (Wt.)	No data available
Volatiles (Vol.)	No data available		
Flammability			
Flash Point	No data available	UEL	No data available
LEL	No data available	Autoignition	No data available
Self-Accelerating Decomposition Temperature (SADT)	No data available	Heat of Combustion (ΔHc)	No data available
Burning Time	No data available	Flame Height	No data available
Flame Extension	No data available	Ignition Distance	No data available
Flame Duration	No data available	Flammability (solid, gas)	Not Applicable.
Environmental			
Half-Life	No data available	Octanol/Water Partition coefficient	No data available
Coefficient of water/oil distribution	No data available	Bioaccumulation Factor	No data available
Bioconcentration Factor	No data available	Biochemical Oxygen Demand BOD/BOD5	No data available
Chemical Oxygen Demand	No data available	Persistence	No data available
Degradation	No data available		

Section 10: Stability and Reactivity

Reactivity

- No dangerous reaction known under conditions of normal use.

Chemical stability

- Stable

Possibility of hazardous reactions

- Hazardous polymerization will not occur.

Conditions to avoid

- Incompatible materials.

Incompatible materials

- Oxidizers, strong acids

Hazardous decomposition products

- There is no simple classification of welding fumes and gases. The composition and quantity of fumes and gases are dependent upon the metal being welded, the process, procedure and welding consumables used. When an electrode is consumed, the fume and gas decomposition products generated are different in percent and form from the ingredients listed in Section 3. Reasonably expected gaseous products would include complex oxides of iron, aluminum, manganese, nickel, chromium, titanium, carbon oxides, nitrogen oxides, and ozone. The fume limit for chromium, nickel, vanadium, and/or manganese may be reached before the general welding fume limit of 5 mg/m^3 is reached.

Section 11 - Toxicological Information

Information on toxicological effects

Other Material Information

- Toxicological impacts expected to be minimal for products in purchased form. Individual component information is provided below if available.

Components		
Aluminum (< 3.5%)	7429-90-5	**Multi-dose Toxicity:** Inhalation-Rat TCLo • 206 mg/m³ 5 Hour(s) 30 Day(s)-Intermittent; *Lungs, Thorax, or Respiration*:**Fibrosis (interstitial)**; *Endocrine*:**Hypoglycemia**; *Blood*:**Changes in serum composition (e.g., TP, bilirubin cholesterol)**
Chromium (< 30%)	7440-47-3	**Tumorigen / Carcinogen:** Implant-Rat TDLo • 1200 µg/kg 6 Week(s)-Intermittent; *Tumorigenic*:**Equivocal tumorigenic agent by RTECS criteria**; *Blood*:**Lymphoma, including Hodgkin's disease**; *Tumorigenic*:**Tumors at site of application**; Intravenous-Rat TDLo • 2160 µg/kg 6 Week(s)-Intermittent; *Tumorigenic*:**Equivocal tumorigenic agent by RTECS criteria**; *Gastrointestinal*:**Tumors**; *Blood*:**Lymphoma, including Hodgkin's disease**
Copper (< 34%)	7440-50-8	**Acute Toxicity:** Ingestion/Oral-Mouse LD50 • 413 mg/kg; Ingestion/Oral-Human TDLo • 120 µg/kg; *Gastrointestinal*:**Nausea or vomiting**
Manganese (< 10%)	7439-96-5	**Irritation:** Eye-Rabbit • 500 mg 24 Hour(s) • Mild irritation; Skin-Rabbit • 500 mg 24 Hour(s) • Mild irritation; **Multi-dose Toxicity:** Inhalation-Rat TCLo • 3709 mg/m³ 6 Hour(s) 13 Week(s)-Intermittent; *Brain and Coverings*:**Other degenerative changes**; *Behavioral*:**Changes in motor activity (specific assay)**; *Lungs, Thorax, or Respiration*:**Other changes**; Inhalation-Rat TCLo • 0.3 mg/m³ 5 Hour(s) 26 Week(s)-Intermittent; *Lungs, Thorax, or Respiration*:**Fibrosis (interstitial)**; *Immunological Including Allergic*:**Decrease in cellular immune response**
Molybdenum (< 18%)	7439-98-7	**Multi-dose Toxicity:** Ingestion/Oral-Rat TDLo • 7 mg/kg 2 Week(s)-Intermittent; *Liver*:**Other changes**; *Biochemical:Enzyme inhibition, induction, or change in blood or tissue levels*:**Other oxidoreductases**
Nickel (< 80%)	7440-02-0	**Acute Toxicity:** Ingestion/Oral-Rat LDLo • 500 mg/kg; *Gastrointestinal*:**Other changes**; Inhalation-Mouse TCLo • 10 mg/m³ 2 Hour(s); *Immunological Including Allergic*:**Decrease in cellular immune response**; **Multi-dose Toxicity:** Inhalation-Rabbit TCLo • 130 µg/m³ 6 Hour(s) 35 Week(s)-Intermittent; *Lungs, Thorax, or Respiration*:**Other changes**; *Biochemical:Metabolism (intermediary)*:**Lipids, including transport**; Inhalation-Rat TCLo • 350 mg/m³ 2 Week(s)-Intermittent; *Lungs, Thorax, or Respiration*:**Other changes**; *Blood*:**Changes in erythrocyte (RBC) count**; *Related to Chronic Data*:**Death in the Other Multiple Dose data type field**; **Tumorigen / Carcinogen:** Inhalation-Guinea Pig TCLo • 15 mg/m³ 91 Week(s)-Intermittent; *Tumorigenic*:**Equivocal tumorigenic agent by RTECS criteria**; *Lungs, Thorax, or Respiration*:**Tumors**; *Lungs, Thorax, or Respiration*:**Bronchiogenic carcinoma**; Intramuscular-Rat TDLo • 56 mg/kg; *Tumorigenic*:**Carcinogenic by RTECS criteria**; *Musculoskeletal*:**Tumors**; *Tumorigenic*:**Tumors at site of application**; Subcutaneous-Rat TDLo • 3000 mg/kg 6 Week(s)-Intermittent; *Tumorigenic*:**Equivocal**

		tumorigenic agent by RTECS criteria; *Skin and Appendages:Other*:**Tumors**; *Tumorigenic*:**Tumors at site of application**
Niobium (<6%)	7440-33-7	**Acute Toxicity:** Ingestion/Oral-Rat LDLo • >10 g/kg
Silicon (< 4.5%)	7440-21-3	**Acute Toxicity:** Ingestion/Oral-Rat LD50 • 3160 mg/kg; **Irritation:** Eye-Rabbit • 3 mg • Mild irritation
Tungsten (< 6.5%)	7440-33-7	**Irritation:** Eye-Rabbit • 500 mg 24 Hour(s) • Mild irritation; Skin-Rabbit • 500 mg 24 Hour(s) • Mild irritation

GHS Properties	Classification
Acute toxicity	**OSHA HCS 2012**•Acute Toxicity - Dermal - Not relevant; Acute Toxicity - Inhalation - No data available; Acute Toxicity - Oral - Not relevant
Aspiration Hazard	**OSHA HCS 2012**•Data lacking
Carcinogenicity	**OSHA HCS 2012**•Carcinogenicity 1
Germ Cell Mutagenicity	**OSHA HCS 2012**•No data available
Skin corrosion/Irritation	**OSHA HCS 2012**•Skin Irritation 2
Skin sensitization	**OSHA HCS 2012**•Skin Sensitizer 1B
STOT-RE	**OSHA HCS 2012**•Specific Target Organ Toxicity Repeated Exposure 1
STOT-SE	**OSHA HCS 2012**•Specific Target Organ Toxicity Single Exposure 1; Specific Target Organ Toxicity Single Exposure 3: Respiratory Tract Irritation
Toxicity for Reproduction	**OSHA HCS 2012**•Data lacking
Respiratory sensitization	**OSHA HCS 2012**•Respiratory Sensitizer 1B
Serious eye damage/Irritation	**OSHA HCS 2012**•Eye Irritation 2

Target Organs
- Skin/Dermal, Lungs, Central Nervous System (CNS), Liver/Hepatotoxin, Kidney/Nephrotoxin, Metal Fume Fever, Nasal Cavity

Route(s) of entry/exposure
- Dermal contact with and/or inhalation of dust or fumes during welding, cutting, grinding, burning, and other operations. Overexposure to dusts and/or fume generated during processing can pose health hazards as defined below:

Medical Conditions Aggravated by Exposure
- May aggravate asthma or other respiratory disorders. May aggravate skin disorders.

Potential Health Effects

Inhalation

Acute (Immediate)
- May cause respiratory irritation. May cause sensitization. May cause metal fume fever.

Chronic (Delayed)
- Prolonged inhalation of dust or fume may cause lung, central nervous system, liver, kidney and nasal cavity damage.

Skin

Acute (Immediate)
- Causes skin irritation. May cause skin sensitization. Symptoms include redness, and skin rash.

Chronic (Delayed)
- Repeated and prolonged exposure may cause irritation. Repeated and prolonged exposure may cause sensitization.

Eye

Acute (Immediate)
- Exposure to dust and fumes may cause irritation. Exposure to fumes and dusts may cause sensitization and conjunctivitis.

Chronic (Delayed)
- Repeated and prolonged exposure to dust and fumes may cause irritation. Repeated and prolonged exposure to dusts and fumes may cause sensitization and conjunctivitis.

Ingestion

Acute (Immediate)
- Low hazard for usual industrial or commercial handling. Gastrointestinal disturbances including nausea and vomiting may result from ingestion of dusts.

Chronic (Delayed)
- Low hazard for usual industrial or commercial handling. Repeated and prolonged exposure may cause gastrointestinal disturbances including nausea and vomiting.

Carcinogenic Effects

- No carcinogenic effects resulting from exposure to stainless steels have been reported, either in epidemiological studies or in tests with animals. Stainless steel does contain carcinogenic components above the cut-off threshold amount of 0.1% (nickel and cobalt) and therefore stainless steel (as dusts and fumes) must be classified as a carcinogen.

Carcinogenic Effects			
	CAS	IARC	NTP
Chromium	7440-47-3	Group 3-Not Classifiable	Not Listed
Chromium as hexavalent chromium	18540-29-9	Group 1 - Carcinogenic	Known Human Carcinogen
Cobalt	7440-48-4	Group 2B-Possible Carcinogen	Not Listed
Nickel	7440-02-0	Group 2B-Possible Carcinogen	Reasonably Anticipated to be Human Carcinogen
Nickel as Nickel Compounds	NDA	Group 1-Carcinogenic	Known Human Carcinogen

Section 12 - Ecological Information

Toxicity

- No information available at this time. As with all foreign substances do not allow to enter the storm drainage systems.

Persistence and degradability

- No data available

Bioaccumulative potential

- No data available

Mobility in Soil

- No data available

Section 13 - Disposal Considerations

Waste treatment methods

Product waste

- Product as shipped is not considered hazardous and should be recycled. Product dusts from processing may be classified as hazardous waste, as defined in 40 CFR 261 as well as state and/or local regulation. Solid waste generated from product processing should be classified by a competent environmental professional and disposed, processed or recycled in accordance with federal, state and local regulation.

Packaging waste

- Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

Section 14 - Transport Information

	UN number	UN proper shipping name	Transport hazard class(es)	Packing group	Environmental hazards
DOT	NDA	NDA	NDA	NDA	NDA
TDG	NDA	NDA	NDA	NDA	NDA
IMO/IMDG	NDA	NDA	NDA	NDA	NDA

Special precautions for user

- No special precautions.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

- Not Applicable.

Other information

DOT • Not regulated as a hazardous material.

TDG • Not regulated as a dangerous good.

Section 15 - Regulatory Information

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

SARA Hazard Classifications • Acute, Chronic. SARA Hazard Classifications pertain to product as dust and fume.

Inventory			
Component	**CAS**	**Canada DSL**	**TSCA**
Aluminum	7429-90-5	Yes	Yes
Chromium	7440-47-3	Yes	Yes
Cobalt	7440-48-4	Yes	Yes
Copper	7440-50-8	Yes	Yes
Iron	7439-89-6	Yes	Yes
Manganese	7439-96-5	Yes	Yes
Molybdenum	7439-98-7	Yes	Yes
Nickel	7440-02-0	Yes	Yes
Silicon	7440-21-3	Yes	Yes
Niobium	7440-33-7	Yes	Yes
Tantalum	7440-25-7	Yes	Yes
Tungsten	7440-33-7	Yes	Yes
Vanadium	7440-62-2	Yes	Yes

Canada

Labor

Canada - WHMIS - Classifications of Substances

•Nickel Alloys Bare Welding Wire and ingredients (unless listed below)		Not Listed
•Copper	7440-50-8	Uncontrolled product according to WHMIS classification criteria
•Chromium	7440-47-3	Uncontrolled product according to WHMIS classification criteria
•Manganese	7439-96-5	D2A (including powder)
•Tantalum	7440-25-7	Uncontrolled product according to WHMIS classification criteria
•Cobalt	7440-48-4	D2A, D2B
•Aluminum	7429-90-5	B6 (powder); Uncontrolled product according to WHMIS classification criteria
•Molybdenum	7439-98-7	Uncontrolled product according to WHMIS classification criteria
•Nickel	7440-02-0	D2A, D2B; B6, D2A (Raney)
•Silicon	7440-21-3	B4
•Tungsten	7440-33-7	Uncontrolled product according to WHMIS classification criteria
•Vanadium	7440-62-2	Not Listed
•Iron	7439-89-6	Uncontrolled product according to WHMIS classification criteria

Canada - WHMIS - Ingredient Disclosure List

•Nickel Alloys Bare Welding Wire and ingredients (unless listed below)		Not Listed
•Copper	7440-50-8	1 %
•Chromium	7440-47-3	0.1 %
•Manganese	7439-96-5	1 %
•Tantalum	7440-25-7	1 %
•Cobalt	7440-48-4	0.1 %
•Aluminum	7429-90-5	1 %

•Molybdenum	7439-98-7	1 %
•Nickel	7440-02-0	0.1 %
•Tungsten	7440-33-7	1 %
•Vanadium	7440-62-2	1 %

United States

Environment

U.S. - CERCLA/SARA - Hazardous Substances and their Reportable Quantities

•Nickel Alloys Bare Welding Wire and ingredients (unless listed below)		Not Listed
•Copper	7440-50-8	5000 lb final RQ (no reporting of releases of this hazardous substance is required if the diameter of the pieces of the solid metal released is >100 µm); 2270 kg final RQ (no reporting of releases of this hazardous substance is required if the diameter of the pieces of the solid metal released is >100 µm)
•Chromium	7440-47-3	5000 lb final RQ (no reporting of releases of this hazardous substance is required if the diameter of the pieces of the solid metal released is >100 µm); 2270 kg final RQ (no reporting of releases of this hazardous substance is required if the diameter of the pieces of the solid metal released is >100 µm)
•Nickel	7440-02-0	100 lb final RQ (no reporting of releases of this hazardous substance is required if the diameter of the pieces of the solid metal released is >100 µm); 45.4 kg final RQ (no reporting of releases of this hazardous substance is required if the diameter of the pieces of the solid metal released is >100 µm)

U.S. - CERCLA/SARA - Section 302 Extremely Hazardous Substances EPCRA RQs

•Nickel Alloys Bare Welding Wire and ingredients (unless listed below)		Not Listed

U.S. - CERCLA/SARA - Section 302 Extremely Hazardous Substances TPQs

•Nickel Alloys Bare Welding Wire and ingredients (unless listed below)		Not Listed

U.S. - CERCLA/SARA - Section 313 - Emission Reporting

•Nickel Alloys Bare Welding Wire and ingredients (unless listed below)		Not Listed
•Copper	7440-50-8	1.0 % de minimis concentration
•Chromium	7440-47-3	1.0 % de minimis concentration
•Manganese	7439-96-5	1.0 % de minimis concentration
•Cobalt	7440-48-4	0.1 % de minimis concentration
•Aluminum	7429-90-5	1.0 % de minimis concentration (dust or fume only)
•Nickel	7440-02-0	0.1 % de minimis concentration
•Vanadium	7440-62-2	1.0 % de minimis concentration (except when contained in an alloy)

United States - California

Environment

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

•Nickel Alloys Bare Welding Wire and ingredients (unless listed below)		Not Listed
•Cobalt	7440-48-4	carcinogen, initial date 7/1/92 (powder)

•Nickel	7440-02-0	carcinogen, initial date 10/1/89 (metallic)

Section 16 - Other Information

For additional information, please refer to the following sources:

USA : American National Standard Z49.1 “Safety in Welding and Cutting”, ANSI/AWS F1.5 “Methods for Sampling and Analyzing Gases from Welding ad Allied Processes”, ANSI/AWS F1.1 “Method for Sampling Airborne Particles Generated by Welding and Allied Processes”, AWS F3.2M/F3.2 “Ventilation Guide for Weld Fume”, American Welding Society, 550 North Le Jeune Road, Miami, Florida, 33135. Safety and Health Fact Sheets available from AWS at www.aws.org.

OSHA Publication 2206 (29 CFR 1910), US Government Printing Office, Superintendent of Documents, P.O. Box 371954, Pittsburgh, PA 15250-7954.

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