UNIFIEDALLOYS®

NICKEL BASED ALLOY – SAFETY DATA SHEET

Alloys 200, 400,600, 800 Series

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1. PRODUCT IDENTIFICATION

Importer / Supplier / Distributor:

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UnifiedAlloys
8835 – 50th Avenue
Edmonton, Alberta CANADA
T6E 5H4
Emergency Phone #: (780) 468-5656 (on-call service)

The conditions or methods of handling, storage, use, and disposal of the product are beyond our control and may be beyond knowledge. For this and other reasons, we do not assume responsibility and disclaim liability for loss, damage, or expense arising out of or in any way connected with the handling, storage, use, or disposal of the product.

Material Use: The information in this MSDS was obtained from source which we believe are reliable; however, the information is provided without any representation or warranty, expressed or implied regarding the accuracy or correctness.

NOTE: Individual coating components are present at values below the reporting requirements of the WHMIS ingredient disclosure list.

2. HAZARD IDENTIFICATION

Classification: Nickel and its alloys are considered as non- hazardous in its soiled form. However, certain process such as cutting, milling, grinding, sawing, brazing, machining and welding could result in some hazardous material being emitted.

SYMBOLS	HAZARD	HAZARD STATEMENTS
	Carcinogenicity Respiratory sensitizer Toxics to reproduction	May cause cancer May cause allergy or asthma symptoms or breathing difficulties if in haled or can cause metal fume fever May cause genetic effects.
	Skin Sensitizer repeated exposer	Amy cause skin allergies prolong exposer may damage internal organs
	Acute toxic to aquatic life Chronic to Aquatic life	Toxic to aquatic life with long lasting effects. Chronic to Aquatic life if exposure is prolonged.

Label Element: No labbeling is applicable
Other hazards: Accodring to OSHA hazard communication, this product is classfified as Non hazardious material.

3. COMPOSITION INFORMATION ON INGREDIENTS

Component (*)	CAS Number	% Weight	OSHA PEL (mg/m3)	ACGIH TLV (mg/m3)
Aluminum (Al)	7429-90-5	See below	10.0 dust / 5.0 respirable	1.0 respirable
Chromium (Cr)	7440-47-3	See below	0.5 metal	0.01 insoluble
Cobalt (Co)	7440-48-4	See below	0.02	0.02
Copper (Cu)	7440-50-8	See below	0.1 fume / 1.0 dust	0.2 fume / 1.0 dust
Iron (Fe)	1309-37-7	See below	5.0 (oxide fume)	5.0 respirable
Manganese (Mn)	7439-96-5	See below	0.2 fume or dust	0.02 respirable
Molybdenum (Mo)	7439-98-7	See below	10.0 dust / 3.0 respirable	3.0 respirable
Nickel (Ni)	7440-02-0	See below	0.05	0.2
Niobium (Nb)	7440-03-1	See below	Not established	Not established
Silicon (Si)	7440-21-3	See below	10.0 dust / 5.0 respirable	Not established
Tantalum (Ta)	7440-25-7	See below	5	Not established
Titanium (Ti)	13463-67-7	See below	See PNOR	10.0 (dioxide)

Tungsten (W)	7440-33-7	See below	Not established	Not established
Yttrium (Y)	7440-65-5	See below	1	1

% Weight by UNS (1)

UNS Numbers	Al	Cr	Co	Cu	Fe	Mn	Mo	Ni	Nb	Si	Ta	Ti	W	Y
N02200 Series (Commercially Pure Ni Alloy)		<2			<5			(95-99)				<5	<5	
N04400-N05500 Series (Ni-Cu Alloy)	<5	<1		(27-68)	<1	<5		(31-67)		<1	<2			
N06600-N07700 Series (Ni-Cr Alloy)	<5	(15-48)	(0-13)		(1-40)	<5	(2-10)	(39-80)	<5		<2	<3	<5	<1
N08800-N09900 Series (Ni-Fe-Cr Alloy)	<5	(1-30)	(0-15)	<2	(30-84)	<1	<5	(1-42)	<5			<3		<1

(1) % of alloying material varies with grade of material.

NOTE: This product contains no other hazardous ingredients requiring disclosure under current regulations.

4. FIRST-AID MEASURES

Skin: Maintain good personal hygiene. Wash with soap and water. Seek medical attention if irritation persists.
Inhalation: Move to fresh air. Seek medical attention if necessary.
Eyes: For irritation from any coating material, flush eyes with plenty of water for a period of no less than 15 minutes.
Note: Respiratory disorders may be aggravated by exposure to metallic and/or organic/inorganic coating dust or fumes. Consult a Physician.
Do not induce vomiting or give liquids to an unconscious person.

5. FIRE AND EXPLOSION HAZARD

1. **Conditions of Flammability:** Nickel products (Metal) does not present fire or explosion hazards under normal conditions. Fine metal particles such as those produced in grinding or sawing can burn. High concentrations of metal filings may present an explosion hazard.
2. **Means of extinction:** For molten metal use dry powder or sand. Do NOT use water on molten metals.
3. **Flashpoint and method of determination:** N/A (under normal conditions)
4/5. **Upper and Lower Flammable Limit:** N/A (under normal conditions)
6. **Auto-ignition temperature:** N/A (under normal conditions)
7. **Hazardous Combustion Products:** N/A (under normal conditions)
8. **Explosion Data: sensitivity to mechanical impact:** N/A (under normal conditions)
9. **Explosion Data: sensitivity to static discharge:** N/A (under normal conditions)

6. ACCIDENTAL RELEASE MEASURES

Leak and Spill Procedures: Not applicable to soiled state, no effect on Environment and Human lives. Solid metal does not pose any problems. Dust spills should be cleaned up avoiding dust generation. Fine turnings and small chips should be swept or vacuumed.

7. HANDLING AND STORAGE

Storage Requirements: Keep stored material dry to prevent corrosion.
Handling Procedures: Trained and experienced personnel utilizing appropriate material handling equipment is recommended.
Special Shipping Information: N/A

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Personal Protective Equipment: All protective equipment is recommended during welding, burning and handling. Depend upon processes being performed on material. Each operator must be addressed for suitable equipment.

Gloves: Protective gloves should be worn during welding, burning or handling operations.
Clothing: As required. Dependent on the operations and local welding codes.
Respiratory: NIOSH / MSHA approved dust and fume respirator should be used to avoid excessive inhalation of particles when exposure exceeds TLV's.
Footwear: CSA Z195.02 Steel Toed, safety shoes.
Eye: safety glasses, goggles or face shield should be worn as required by exposure.
Other: With molten metals, use full body cover clothing, including gloves, eyewear and footwear suitably treated to prevent burns

Engineering Controls: Engineering controls required if incase welding, milling, cutting and grinding work is performed. (e.g. ventilation, enclosures, specify) Depending on type of process performed a specific equipment and PPE's are required to perform the job safely.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical and Chemical Properties

Physical State	Solid
Odor	NA
Evaporation Rate	NA
Boiling Point	NA
PH	NA
Solubility in Water	NA
Vapor Pressure	NA
Density	7
Appearance	Grey Black
Volatility	NA
Odor threshold	NA
Specific gravity	(H2O =1) Approximately:7
Freezing Point	NA
Melting Point	2300 F

10. STABILITY AND REACTIVITY

Chemical Stability: STABLE (under normal conditions of use and storage)
Conditions of Reactivity: N/A
Hazardous Decomposition Products: Metallic dust or fumes may be produced during welding, burning, grinding, and possibly machining. Refer to ANSI Z49.1
Incompatibilities: YES - Contact with Strong Mineral Acids will release Hydrogen Gas
Possibility of hazardous Reactions: Hazardous polymerization cannot occur.
Reactivity: This product is not reactive as supplied.
Sensitivity to Mechanical Impact: N/A
Sensitivity to Static Discharge: N/A

11. TOXICOLOGICAL PROPERTIES

Effects of Acute Exposure to Material:
Short term exposure to fumes / dust may produce irritation of eyes and respiratory system. Inhalation of high concentrations of freshly formed oxide fumes of iron, manganese, and copper may cause metal fume fever characterized by a metallic taste in the mouth, dryness and irritation of the throat and influenza – like symptoms. Dermal contact of filings could cause infection / blood poisoning.

Effects of Chronic Exposure to Material:
Chronic inhalation of high concentrations of iron – oxide fumes or dust may lead to a benign pneumoconiosis (siderosis). Inhalation of high concentrations of ferric oxide may possibly enhance the risk of lung cancer development in the workers exposed to pulmonary carcinogens.

Carcinogenicity of Material:
Chromium and nickel and their compounds are listed in the 3rd Annual Report on Carcinogens as prepared by the National Toxicology Program (NTP). Exposure to high concentrations of dust and fumes can cause sensitization dermatitis, inflammation, and / or ulceration of the upper respiratory tract and possibly cancer of nasal passages and lungs. Recent epidemiological studies of workers melting and working alloys containing nickel / chromium have found no increased risk of cancer.

Irritancy of Material: N/A
Sensitization to Material: N/A
Mutagenicity of Material: N/A
Reproductive Effects: N/A
Teratogenicity of Material: N/A
Carcinogenicity of Material: N/A

12. ECOLOGICAL INFORMATION

Eco-toxicity: No data available for Nickel and its alloys in their natural solid state.
Presence of Degradability: NO data available
Bioaccumulation Potential: NO data available
Mobility in soil: NO data available
Other adverse effects: None known.

13. DISPOSAL CONSIDERATION

Waste Disposal: Recover Nickel for recycling. Follow applicable regulations. Dispose of in compliance with local regulations.
Leak and Spill Procedures: N/A
Special Waste Disposal: N/A

14. TRANSPORT INFORMATION

General Shipping Information: Material not regulated for shipping.
Un Number: NA
Hazard Class: NA
Special Shipping Information: N/A

15. REGULATORY INFORMATION

Domestic Substances List: The components of this material are on the federal DSL inventory.
Other Canadian Regulations: NA
WHMIS: Class D2 / DB2, materials causing other Toxic effects when other processes are performed (Welding, cutting and grinding)

16. OTHER INFORMATION

Prepared By: UnifiedAlloy
Telephone: (780) 468-5656
Note: Contact Supplier (Quality Department) for additional information

Preparation Date: December / 20 / 2018

IMPORTANT! Read this SDS before use or disposal of this product. Pass along the information to employees and any other persons who could be exposed to the product to be sure that they are aware of the information before use or other exposure. This SDS has been prepared in accordance with the Globally Harmonized System of Chemical and Labeling of Chemicals (GHS) Fifth Edition and the OSHA Hazard Communication Standard **[29 CFR 1910.1200].** The SDS information is based on sources believed to be reliable. Available data, safety standards, and government regulations are subject to change and the conditions of handling and use, or misuse are beyond our control, Unified Alloys makes no warranty, either expressed or implied, with respect to the completeness or continuing accuracy of the information contained herein and disclaims all liability for reliance thereon. Additional information may be necessary or helpful for specific conditions and circumstances of use. It is the user's responsibility to determine the suitability of this product and to evaluate risks and exercise appropriate precautions for protection of employees and others prior to use.