

# Safety Data Sheet

## AMI-FAB® WIRE MESH, IWM Series

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### 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

<u>Trade Names/Synonyms:</u>	AMI-FAB® IWM wire mesh/inconel wire mesh.
<u>Product Identification:</u>	AMI-FAB® IWM11. Inconel wire mesh.
<u>Chemical Name/Synonyms:</u>	Inconel alloy.
<u>Manufacturer's Name:</u>	Auburn Manufacturing, Inc P. O. Box 220 Mechanic Falls, ME 04256 1-800-264-6689

### 2. HAZARDS IDENTIFICATION

OSHA HCS Status: Product is not a hazardous chemical as defined by OSHA Standard 29 CFR 1910.1200



#### Precautionary Statements:

- P281: Wear personal protective equipment as required
- P302: If on skin, wash with mild soap and running water
- P304: If inhaled, move individual to fresh air. Seek medical attention if irritation persists
- P305: If in eyes, flush eyes at least 15 minutes; seek medical attention if irritation persists

Hazard Statements: N/A

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### 3. COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Abstracts Service Number: N/A

<u>Hazardous Ingredients</u>	<u>Weight %</u>	<u>OSHA-PEL</u>	<u>ACGIH-TLV(8hr TWA)</u>
Iron (Fe) (as oxide fume)	proprietary	10 mg/m <sup>3</sup>	5 mg/m <sup>3</sup>
Chromium (Cr)	proprietary	1 mg/m <sup>3</sup>	0.5 mg/m <sup>3</sup>
Nickel (Ni)	proprietary	1 mg/m <sup>3</sup>	0.1 mg/m <sup>3</sup>
Cobalt (Co)	proprietary	0.1 mg/m <sup>3</sup>	0.02 mg/m <sup>3</sup>
Aluminum (Al)	proprietary	15 mg/m <sup>3</sup>	10 mg/m <sup>3</sup>
Manganese (Mn) Dust	proprietary	5 mg/m <sup>3</sup> C*	0.2 mg/m <sup>3</sup>
Fume		5 mg/m <sup>3</sup>	0.2 mg/m <sup>3</sup>
Molybdenum (Mo)	proprietary	15 mg/m <sup>3</sup>	10 mg/m <sup>3</sup>
Tantalum (Ta)	proprietary	5 mg/m <sup>3</sup>	5 mg/m <sup>3</sup>
Tungsten (W)	proprietary	none	5 mg/m <sup>3</sup>
Yttrium (Y)	proprietary	1 mg/m <sup>3</sup>	1 mg/m <sup>3</sup>
<u>Nonhazardous Ingredients</u>			
Niobium (Nb)	proprietary	-----none-----	
Iron (Fe) Dust	proprietary	-----none-----	

C\* = Ceiling Limit

### 4. FIRST AID MEASURES

Inhalation: Move individual to fresh air. Seek medical attention if irritation persists. Administer artificial respiration, if breathing has stopped.

Skin Contact: Wash with mild soap and running water. Use a washcloth to help remove fibers. To avoid further irritation do not rub or scratch irritated areas. Rubbing or scratching may force fibers into the skin. Seek medical attention if irritation persists.

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### 4. FIRST AID MEASURES (CON'T)

Eye Contact: Flush eyes with flowing water for at least 15 minutes. Seek medical attention if irritation persists.

Ingestion: N.A (Not Applicable)

### 5. FIRE FIGHTING MEASURES

Extinguishing Equipment: Water, foam, carbon dioxide, dry chemical

Special Fire-Fighting Instructions: In a sustained fire, self contained breathing apparatus with full facepiece and protective clothing should be worn.

Unusual Fire and Explosion Hazards: None known.

### 6. ACCIDENTAL RELEASE MEASURES

ACTION TO TAKE FOR SPILLS ( Use Appropriate Safety Equipment/PPE):

For solid product, not applicable.

For dusts and fibers generated during fabrication, vacuum and containerize.

### 7. HANDLING, STORAGE AND DISPOSAL

Handling: See Section 8.

Storage: No special precautions necessary.

Disposal: Dispose of in accordance with federal, state and local regulations as a solid nonhazardous waste.

### 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Ventilation: General dilution ventilation and/or local exhaust ventilation should be provided, as necessary, to maintain exposures below PEL's or TLV's. **Adequate ventilation must be provided at elevated temperatures. Adequate ventilation must also be provided when welding or grinding the inconel core.**

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### 8. EXPOSURE CONTROLS / PERSONAL PROTECTION (CON'T)

Respiratory Protection: A properly fitted NIOSH/MHSA approved disposable dust respirator should be used when: high dust levels are encountered; the level of Chromium/Nickel/Manganese/Cobalt/Aluminum/Molybdenum/Tantalum/Tungsten/Yttrium dust in the air exceeds the OSHA permissible exposure limits; or if irritation occurs. Use an air supplied respirator in confined spaces. Use industrial hygiene air monitoring to insure that TLV or PEL values are not exceeded. Use respiratory protection in accordance with your company's respiratory protection program and OSHA regulations under 29 CFR 1910.134 .

Eye Protection: Safety glasses, goggles or face shields should be worn.

Protective Clothing: Wear loose fitting, long sleeved shirt that covers to the base of the neck, and long pants. Wear gloves when handling product.

Work/Hygienic Practices: Handle in accordance with good industrial hygiene and safety practices:

- = Avoid unnecessary exposure to dusts and fibers
- = **Do not expose skin when cutting, grinding or welding the inconel mesh cable.**
- = Be careful not to rub or scratch irritated areas. Rubbing or scratching may force the fibers into the skin. The fibers should be washed off. Use of barrier creams can, in some instances, be helpful.
- = Use vacuum equipment to remove fibers and dusts from clothing. **COMPRESSED AIR SHOULD NEVER BE USED.** Always wash work clothes separately and wipe out the washer/sink in order to prevent loose glass fibers from getting on other clothes.
- = Keep the work area clean of any dusts and fibers generated during fabrication. Use vacuum equipment to clean up dusts and fibers. Avoid sweeping or using compressed air as these techniques resuspend dusts and fibers into the air.
- = Have access to safety showers and eye wash fountains.
- = For professional use only. **Keep out of children's reach.**

Exposure Limits (TLVS): N/A

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### 9. PHYSICAL AND CHEMICAL PROPERTIES

Melting Point (Softening): NM (Not Measured)      Boiling Point(°C): N/A (Not Applicable)

Specific Gravity (Bare Glass): NM      Percent Volatile: N/A

Vapor Pressure: (mm Hg): N/A      Vapor Density (Air = 1): N/A

Evaporative Rate (Ethyl Ether = 1): N/A      Solubility in Water: Not soluble

Appearance and Odor: Metallic appearing mesh with no odor.

pH: N/A      Relative Density: N/A

Upper/Lower Flammability or Exposure Limits: N/A

Freezing Point: N/A      Flash Point: N/A

Partition coefficient (n-octanol/water): N/A      Auto Ignition Temperature: N/A

Decomposition Temperature: N/A      Viscosity: N/A

### 10. STABILITY AND REACTIVITY

Stability (Conditions to Avoid): Product is stable.

Stabilizers: N/A

Incompatibility (Materials to Avoid): None known.

Hazardous Decomposition Products: SEE SECTION 11

Hazardous Polymerization: Will not occur.

Flash Point (°F): N/A (Not Applicable)

Auto Ignition Temperature (°F): N/A

Flammability Limits (%):      LEL: N/A      UEL: N/A

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### 11. TOXICOLOGICAL INFORMATION

Primary Routes of Exposure: Inhalation and skin contact.

Health Hazards (Including acute and chronic effects and symptoms of overexposure):

ACUTE: NOTE: Inconel products in their usual physical state do not pose any health hazards. However, when subjected to welding, burning, grinding, cutting, abrasive blasting, heat treatment, pickling, or similar operations, potentially hazardous fumes or dusts may be emitted. Despite the fact that welding, burning, etc. of inconel products in this category may produce fumes containing manganese, chromium, nickel and copper, the air concentrations generated of these components are expected to be extremely low.

Iron (Fe): Subjecting iron and alloys containing iron to high temperatures (such as welding) will cause the formation of iron oxide. Long-term exposure to iron oxide fumes or dusts has been associated with a benign lung condition known as siderosis which is observable as an x-ray change. No physical impairment of lung function has been linked to siderosis.

Manganese (Mn): Mn intoxication is usually due to the oxide or salts of Mn; elemental Mn exhibits very low toxicity. The dusts and fumes can act as minor irritants to the eyes and respiratory tract. Both acute and chronic exposure may adversely affect the central nervous system (CNS), but symptoms are more likely to occur after at least one or two years of prolonged or repeated exposures. Early symptoms may include weakness in the lower extremities, sleepiness, salivation, nervousness and apathy. In more advanced stages, severe muscular incoordination, impaired speech, spastic walking, mask-like facial expressions and uncontrollable coughing may occur. Manganese fumes have also been reported to result in metal fume fever, a flu-like syndrome with symptoms such as dizziness, chills, fever, headache and nausea. An increased incidence of pneumonia, bronchitis and pneumonitis has been reported in some worker populations exposed to manganese. Animal studies indicate exposure may increase susceptibility to bacterial and viral infection.

Chromium (Cr): The toxicity and health hazards of chromium are heavily dependent on its oxidation state. The elemental (as in the metals), divalent and trivalent forms are of very low toxicity. The hexavalent form (such as occurs in chromates and chromic acids) is very toxic and can produce both acute and chronic effects. Adverse effects on the skin may include ulcerations, irritative dermatitis and allergic skin reactions.

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### 11. TOXICOLOGICAL INFORMATION (CON'T)

ACUTE: Adverse effects on the respiratory system may include bronchospasms, edema, hypersecretion, bronchitis, irritation, allergic asthmatic reactions, and, ulceration and perforation of the nasal septum. Respiratory symptoms may include coughing and wheezing, shortness of breath and nasal itch. Eye irritation or inflammation can also be produced. Exposure to some hexavalent chromium compounds have also been shown to be associated with an increased risk of lung cancer.

Nickel (Ni): Ni fumes and dust are respiratory irritants and may cause severe pneumonitis. Skin contact with nickel and its compounds may cause an allergic dermatitis. The resulting skin rash is often referred to as "nickel itch". Ni and its compounds may also produce eye irritation, particularly on the inner surfaces of the eyelids (i.e. the conjunctiva). Animal and/or epidemiology studies have linked nickel and certain nickel compounds to an increased incidence of cancer of the lungs and nasal passages.

Copper (Cu): Inhalation of copper fume may cause irritation of the eyes and throat and a flu-like illness called metal fume fever. Signs and symptoms of metal fume fever include fever, muscle aches, nausea, chills, dry throat, cough and weakness. Cu fume may also produce a metallic or sweet taste. Repeated or prolonged exposure to Cu fume may cause discoloration of the skin or hair.

Aluminum (Al): There are no reported known health effects. Aluminum is generally considered to be in the nuisance dust category.

Silicon (Si): Silicon may produce x-ray changes in the lungs. There has been no known disability reported from the x-ray changes.

Tungsten (W): There has been some reported evidence of pulmonary involvement such as a cough.

Molybdenum (Mo): Molybdenum has caused, in animal studies, irritation of the nose and throat, weight loss and digestive disturbances. There have been no reports of industrial poisoning.

Cobalt (Co): Cobalt has been reported to cause asthma. It may also cause interstitial pneumonitis and sensitization of the respiratory system.

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### 11. TOXICOLOGICAL INFORMATION (CON'T)

#### ACUTE:

Inhalation: Inhalation of dusts and fibers may result in irritation of the upper respiratory tract (mouth, nose and throat).

Inconel - dust or fumes may give a metallic taste; headache; nausea; chills; fever; tightness of chest; irritation of the respiratory tract, eyes, nose; cough.

**Loss of consciousness/death due to welding gases** or lack of oxygen.

Skin Contact: Skin contact with dusts and fibers may produce itching and temporary mechanical irritation.

Eye Contact: Eye contact with fibers and dusts may produce temporary mechanical irritation.

Ingestion: Temporary mechanical irritation of the digestive tract. Observe individual. If symptoms develop, consult a physician.

CHRONIC: See carcinogenicity section below. Chronic exposure to Chromium (Cr)/Nickel (Ni)/Manganese (Mn) fumes or dust may cause skin sensitization, asthma, bronchitis, lung fibrosis or pneumoniosis. It may also cause damage to the kidneys and liver as well as the nervous system.

#### CARCINOGENICITY:

Hazardous Ingredients: Listed as carcinogen by: ACGIH IARC NTP OSHA

Chromium (Cr)/Nickel (Ni)\*\* ----none known----

**\*\*Dusts and fumes containing Chromium (Cr) or Nickel (Ni) should be considered carcinogens.**

**MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE:** Persons with a history of chronic respiratory or skin conditions that are aggravated by mechanical irritants may be at increased risk for worsening their condition from exposure during use of the product.



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### 12. ECOLOGICAL INFORMATION

N/A

### 13. DISPOSAL CONSIDERATIONS

See Section 8 (if applicable).

### 14. TRANSPORT INFORMATION

N/A

### 15. REGULATORY INFORMATION

N/A

### 16. OTHER INFORMATION

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