

Safety Data Sheet

AMI-SIL® ASIC and AS/ARIC SERIES

1 | Page

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

<u>Trade Names/Synonyms:</u>	AMI-SIL® tadpole tape with inconel mesh core/amorphous silica tadpole tape with inconel mesh cable.
<u>Product Identification:</u>	ASIC, and AS/ARIC series.
<u>Chemical Name/Synonyms:</u>	Continuous filament silicon dioxide (SiO ₂) - inconel mesh/fibrous silica, amorphous silica chemical family - inconel mesh cable.
<u>Manufacturer's Name:</u>	Auburn Manufacturing, Inc P. O. Box 220 Mechanic Falls, ME 04256 207/345-8271

2. HAZARDS IDENTIFICATION



WARNING

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

3. COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Abstracts Service Number: N/A

Safety Data Sheet

AMI-SIL® ASIC and AS/ARIC SERIES

3. COMPOSITION / INFORMATION ON INGREDIENTS (CON'T)

<u>Hazardous Ingredients</u>	<u>Weight %</u>	<u>OSHA-PEL</u>	<u>ACGIH-TLV</u>	<u>OTHER</u>
Silicone dioxide, continuous filament	see note a.	b.	10 mg/ m3 8-hr TWA	none known
Inconel mesh cable	see note a.			
Iron (Fe) (as oxide fume)	see note a.	10 mg/m3	5 mg/m3	-----
Chromium (Cr)	see note a.	1 mg/m3	0.5 mg/m3	-----
Nickel (Ni)	see note a.	1 mg/m3	1 mg/m3	-----
Cobalt (Co)	see note a.	0.1 mg/m3	0.1 mg/m3	-----
Aluminum (Al)	see note a.	none	10 mg/m3	-----
Manganese (Mn)	see note a.			
Dust		5 mg/m3 C*	5 mg/m3 C*	-----
Fume		3 mg/m3	-----	-----
Molybdenum (Mo)	see note a.	15 mg/m3	10 mg/m3	-----
Tantalum (Ta)	see note a.	5 mg/m3	5 mg/m3	-----
Tungsten (W)	see note a.	none	mg/m3	-----
Yttrium (Y)	see note a.	1 mg/m3	1 mg/m3	-----
 <u>Nonhazardous Ingredients</u>				
Sizing/bound water	see note a.	-----none established-----		
Inconel mesh	see note a.			
Niobium (Nb)	see note a.	-----none-----		
Iron (Fe) Dust	see note a.	-----none-----		

C* = Ceiling Limit

a. Percentages will vary depending on the diameter of the inconel mesh core and the width of the tail.

Safety Data Sheet

AMI-SIL® ASIC and AS/ARIC SERIES

3 | Page

3. COMPOSITION / INFORMATION ON INGREDIENTS (CON'T)

b. OSHA has not established a specific PEL for fibrous silicone dioxide (amorphous silica). It is considered to be a "particulate not otherwise regulated" (PNOR) and is covered under the OSHA nuisance dust PEL's of 5 mg/m³ for the respirable dust fraction and 15 mg/m³ for the total dust fraction for an 8-hr TWA (Time Weighted Average). Chemically, AMI-SIL® is amorphous silica which has an OSHA limit of 20 mppcf or 80 mg/m³.

4. FIRST AID MEASURES

Inhalation: Move individual to fresh air. Seek medical attention if irritation persists.

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.

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 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.

Safety Data Sheet

AMI-SIL® ASIC and AS/ARIC SERIES

4 | Page

7. HANDLING, STORAGE AND DISPOSAL

Handling: See Section 8.

The toxicologic data indicate that these materials should be handled with caution. The handling practices described in Section 8 of this MSDS must be strictly followed. Product which has been in service at elevated temperature (> 1800° F) may undergo partial conversion to cristobalite, a form of crystalline silica. This reaction occurs at the lining hot face. As a consequence, this material becomes more friable (brittle); special caution must be taken to minimize generation of airborne dust. The amount of cristobalite present will depend on the temperature and length in service.

IARC has recently reviewed the animal, human and other relevant experimental data on silica in order to critically evaluate and classify the cancer causing potential. Based on its review, IARC has now classified crystalline silica/cristobalite as a Group 1 carcinogen. Crystalline silica inhaled in the form of quartz or cristobalite from industrial sources was classified as *carcinogenic to humans* on the basis of a relatively large number of epidemiological studies that together provided *sufficient evidence* in humans for the carcinogenicity of inhaled crystalline silica under the conditions specified. Crystalline silica is also listed by the NTP as a substance reasonably anticipated to be a carcinogen. Special care should be taken when working with "used" material to minimize the generation of dust. The OSHA permissible exposure limit (PEL) for cristobalite is 0.05 mg/m³ (resp.). The ACGIH threshold limit value (TLV) for cristobalite is 0.05 mg/m³ (resp.). (ACGIH 1989 - 90). If exposure limits are exceeded or if irritation is experienced, NIOSH approved respiratory protection should be worn. NIOSH approved respirator for particulates with a TLV of less than 0.05 mg/m³ is generally acceptable, except that supplied air respirators are required for high airborne dust concentrations.

Storage: Store in a clean, dry area. Keep containers closed.

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.** The base silica material is noncombustible; however, at temperatures above 250°F, the coating may generate some light steam and/or smoke for a brief period which may require local ventilation and/or exhaust.

Safety Data Sheet

AMI-SIL® ASIC and AS/ARIC SERIES

5 | Page

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

Respiratory Protection: A properly fitted NIOSH/MHSA approved disposable dust respirator such as the 3M model 8210 or model 9900 (in high humidity environments) or equivalent should be used when: high dust levels are encountered; the level of Chromium/Nickel/Manganese/Cobalt/Aluminum/Molybdenum/Tantalum/Tungsten/Yttrium dust or fibers in the air exceeds the OSHA or ACGIH permissible exposure limits; or if irritation occurs. Use an air supplied respirator in confined spaces or when welding or grinding the inconel mesh cable. 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: Wear safety glasses or chemical goggles to prevent eye contact. Contact lenses should not be worn unless chemical goggles are also used and care is taken not to touch the eyes with contaminated body parts or materials. Have eye washing facilities readily available where eye contact can occur.

Protective Clothing: Wear loose fitting, long sleeved shirt that covers to the base of the neck, and long pants. Skin irritation from exposure to fiberglass is known to occur chiefly at pressure points such as around the neck, wrist and waist. 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.**
- = Remove fibers from skin after exposure
- = 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 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.

Safety Data Sheet

AMI-SIL® ASIC and AS/ARIC SERIES

6 | Page

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

= For professional use only. **Keep out of children's reach.**

Exposure Limits (TLVS): N/A

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: White/off-white/tan colored solid with no odor; AR series has an orange color. The inconel mesh cable has a characteristic gray color and 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): Basic phosphates, hydrofluoric acid, some oxides and hydroxides.

Hazardous Decomposition Products: Sizings or binders may decompose in a fire. Primary decomposition products include carbon monoxide, carbon dioxide, other hydrocarbons and water.

Hazardous Polymerization: Will not occur.

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

Auto Ignition Temperature (°F): N/A

Safety Data Sheet

AMI-SIL® ASIC and AS/ARIC SERIES

10. STABILITY AND REACTIVITY (CON'T)

Flammability Limits (%):

LEL: N/A

UEL: N/A

11. TOXICOLOGICAL INFORMATION

Primary Routes of Exposure: Inhalation and skin contact.

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

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

Silicone dioxide,
continuous filament

NA NA NA NA

Chromium (Cr)/Nickel (Ni)**

----none known----

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

Safety Data Sheet

AMI-SIL® ASIC and AS/ARIC SERIES

8 | Page

11. TOXICOLOGICAL INFORMATION (CON'T)

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.

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

SDS Date prepared:

September 10, 2014

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