



MATERIAL SAFETY DATA SHEET

Form WI04-11A Rev. 1

Part Number(s):
3-xxx-xx

Product Name: Lowland Niti Accu Wire

Release Date: November 27,
2006

1. Product and Company Identification

Trade Name & Synonyms Nitinol, 55% Nickel, balance Titanium.	MSDS Code Number Refer to part number
Chemical Name Nickel-base Alloy-Niti wire. Chemical family: Metal alloy	Manufacture / Distributor GAC International Inc.
C.A.S. Number 7440-02-0	Address 355 Knickerbocker Ave. Bohemia, NY USA 11716
Grades or Minor Variant Identities NA	Information Telephone Number 1-631-419-1700
Product Use (for Canada) NA	Emergency Telephone Number 1-631-419-1700

2. Composition of Ingredients

Hazardous Components	PEL(OSHA) (MG/MM3)	TLV (mg/m3)	C.A.S. Number	Exposure Limits	%
Ni	1.0	1.0	7440-02-0	NA	NA
Ti	15.0	5.0	13463-67-7	NA	NA
<p>The terms "hazardous and hazardous materials" as used within this MSDS should be interpreted as defined by, and in accordance with, the OSHA hazard communication standard (29 CFR Part 2920, 1200) including appendices, lists, references, etc., all of which are hereby incorporated by reference.</p> <p>No permissible exposure limits (PEL) or threshold limit values (TLV) exist for nickel base alloys. Values shown are applicable to component elements.</p>					

3. Hazard Identification

Emergency Overview					
Routes of Exposure	Signs and Symptoms	Single, Repeated, or Lifetime Exposure	Severity (Mild, Moderate, Severe)	Acute and Chronic Health Effect(s)	Target Organ(s)
Eye	Short term exposure: Irritation of eyes.	Long term exposure: There are no adverse effects from the product in its solid form.	NA	NA	NA
Skin	Short term exposure: Irritation of skin.	NA	NA	NA	NA
Inhalation	Short term exposure: Tightness of chest, irritation of nose.	We believe that there are no reliable scientific studies which show that workers exposed to operations upon nitinol alloys suffer increased incidence of lung cancer or other disease because of their exposure to the form of nickel in our products.	NA	NA	NA
Ingestion	Short term exposure: Metallic taste, nausea, fever, irritation of throat. Loss of consciousness/death due to welding gases or lack of oxygen.	NA	NA	NA	NA
Other	NA	NA	NA	NA	NA



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<p>Medical Conditions Aggravated by Exposure Effects of exposure: No toxic effects would be expected from exposure to the solid form of nitinol. Prolonged, repeated exposure to the fumes or dust generated during heating, cutting, abrading or welding may or may not cause adverse health effects associated with the listed constituents in excess of OSHA permissible exposure limits established in 20 CFR subpart Z (See section II). Exposure limits: Section II lists specific ingredients and exposure limits. Important: Determine actual exposure by industrial hygiene monitoring.</p>
<p>Carcinogenicity (IARC, NTP) Nickel is listed in the National Toxicology Program's Annual report on carcinogens and the international agency for research on cancer (IRAC) "monographs" as potentially carcinogenic. However, it should be noted that a recent epidemiological study published by IRAC found no evidence of increased rates among specialty steel workers.</p>
<p>Potential Environmental Effects NA</p>

4. First Aid Measures

Routes of Exposure	First Aid Instructions	Immediate Medical Attention	Delayed Effects
Eye	Flush well with running water to remove particulate.	Get medical attention.	NA
Skin	Brush off excess dust. Wash area well with soap and water.	NA	NA
Inhalation	Remove to fresh air.	If condition continues, consult physician.	NA
Ingestion	Seek medical help if large quantities of material have been ingested.	NA	NA
Other	NA	NA	NA
Note to Physicians (Treatment, Testing, and Monitoring) NA			

5. Fire and Explosion Data

Flashpoint & Method: °C / °F NA	Flammable (Explosive) Limits in Air LEL: NA UEL: NA	Autoignition Temperature NA	Other Nitinol alloys in the form shipped are not considered combustible. During subsequent processing (cutting, welding, grinding, etc.) the generation of dust in high concentration may present fire and explosion hazards.
Flame Propagation or Burning NA	Properties Contributing to Fire Intensity NA	Flammability Classification Health-, Flammability-, Reactivity- NA	
Extinguishing Media NA		Extinguishing Media to Avoid NA	
Protection and Procedures for Firefighters NA			
Unusual Fire and Explosion Hazards NA			



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6. Accidental Release Measures

Containment Techniques NA
Spill/Leak Clean-Up Procedures and Equipment Fine material should be swept or vacuumed. Avoid using compressed air to maneuver spills or leaks of dusty material to avoid eye contamination.
Evacuation Procedures NA
Special Instructions NA
Reporting Requirements NA

7. Handling and Storage

Handling Practices and Warnings NA
Storage Practices and Warnings (°C / °F). NA

8. Exposure Control/Personal Protection

Ventilation Nitinol alloys in the form shipped require no special protection for handling. For specific processing the following should be observed. General: Recommended to keep airborne concentration of dust and fume below ACGIH RLV'S. Local: As required. Use well ventilated areas for abrasive saw operations.		Other Engineering Controls NA
Routes of Entry:	Personal Protective Equipment (PPE) for Normal Use:	PPE for Emergencies:
Eye/Face	Recommend approved safety glasses for machining operations and face shields for all abrasive saw and grinding operations.	NA
Skin	Gloves: Leather, cotton or rubber gloves are commended when gloves are used.	NA
Inhalation	If fumes, misting or dust condition occurs in TLV as indicated in section II is exceeded, provide NIOSH approved respirators.	NA
General Hygiene Considerations and Work Practices NA		
Protective Measures During Repair and Maintenance of Contaminated Equipment NA		
Other Protective Measures and Equipment Use good housekeeping practices to prevent accumulation of dust and to keep airborne dust at a minimum.		



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9. Physical and Chemical Characteristics

Appearance Bar, rod, wire, sheet.		Odor Odorless
Normal Physical State: <input type="checkbox"/> Liquid <input type="checkbox"/> Gas <input checked="" type="checkbox"/> Solid <input type="checkbox"/> ____ (Other)		Boiling Point °C / 5000 °F Melting Point °C / 2390 °F Freezing Point °C / °F NA
Specific Gravity or Density (H₂O=1) .234 lbs / in3	Solubility in Water Insoluble	pH NA
Vapor Pressure (mm Hg @ 20°C) NA	Vapor Density (AIR= 1) N/A	Evaporation Rate (Butyl Acetate = 1) NA
Other NA		

10. Stability and Reactivity Data

Incompatibility (Materials to Avoid) Acids, bases, and oxidizer. Hydrogen and poisonous fumes may develop. Molten metal will react violently with water.		
Hazardous Products Produced During Decomposition NA		
Hazardous Polymerization? <input type="checkbox"/> May Occur <input type="checkbox"/> May Not Occur NA		Conditions to Avoid °C / °F Avoid generation of airborne dust which presents moderate fire and explosion hazard.
Stability? <input checked="" type="checkbox"/> Stable <input type="checkbox"/> Unstable		Conditions to Avoid °C / °F NA

11. Toxicological Information

Toxicity Data, Epidemiology Studies, Carcinogenicity, Neurological Effects, Genetic or Reproductive Effects, or Structure Activity Data NA
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12. Ecological Information

Toxicity, Environmental Fate, Physical/Chemical Data, or Other Data Supporting Environmental Hazard Statements NA

13. Disposal Considerations

Regulations Dispose of in accordance with applicable federal, state, and local regulations.
Properties (Physical/Chemical) Affecting Disposal NA

14. Transport Information

Regulated for shipping? <input type="checkbox"/> Yes <input type="checkbox"/> No NA	Proper Shipping Name Lowland Niti Wire	Packing Group NA
Do changes in quantity, packaging, or shipment method change product classification? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Hazard Class NA	Identification Number NA
Other NA		



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15. Regulatory Information

Federal Regulations

NA

International Regulations

NA

Other

NA

16. Other Information

Supplier Number: 1/3

Supplier Release: NA

N/A = not applicable. NA = not available, N/E = not established. N/D = not determined.