MATERIAL SAFETY DATA SHEET

Form WI04-11A Rev. 1

Part Number(s):
03-018-98, 03-018-99

Product Name: Neet Niti Springs .018sm/lg (Retranol)

Release Date: November 28, 2006

1. Product and Company Identification

Trade Name & Synonyms Nitinol	**MSDS Code Number** Refer to part number
Chemical Name Nickel base alloy	**Manufacture / Distributor** GAC International Inc.
C.A.S. Number 7440020	**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	TLV* (Units)	C.A.S. Number	Exposure Limits	%
Nickel (Ni)	1.0mg/m3	7440020	NA	55.0
Titanium (Ti) **	10.0mg/m3	7440326	NA	45.0

*TLV's in accordance with ACGIH levels. ** is considered a nuisance and covered under ACGIH nuisance dust standard level of 10.0 mg/m3, total dust 8 HR TWA.

3. Hazard Identification

Emergency Overview

NA

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	NA	NA	NA	NA	NA
Skin	Prolonged or repeated contact may cause skin irritation or other allergic reactions to sensitive individuals.	NA	NA	NA	NA
Inhalation Of dusts or fumes.	Inhalation is most serious. Prolonged excessive exposure to dust, mist and fumes of this alloy may contribute to chronic respiratory ailments.	NA	NA	NA	NA
Ingestion	NA	NA	NA	NA	NA
Other	NA	NA	NA	NA	NA

Medical Conditions Aggravated by Exposure

NA

Carcinogenicity (IARC, NTP)

According to OSHA, nickel is treated as a potential carcinogen for hazard communication purposes because it is included in the NTP and IARC lists on potential human carcinogens. Some scientific studies have found an excess incidence of cancer of the respiratory tract among workers involved in certain steps of certain nickel refining processes, However several reliable studies of workers exposed to various forms of nickel and its compounds have not shown any increased risk of cancer.

Potential Environmental Effects

NA

4. First Aid Measures

Routes of Exposure	First Aid Instructions	Immediate Medical Attention	Delayed Effects
Eye	Flush eyes with water.	NA	NA
Skin	NA	NA	NA
Inhalation	NA	NA	NA
Ingestion	NA	NA	NA
Other	NA	NA	NA

Note to Physicians (Treatment, Testing, and Monitoring)
NA

5. Fire and Explosion Data

Flashpoint & Method:	Flammable (Explosive) Limits in Air	Autoignition Temperature	Other
°C / °F N/A	LEL: N/A UEL: N/A	NA	NA
Flame Propagation or Burning	**Properties Contributing to Fire Intensity**	**Flammability Classification**	
NA	NA	Health- , Flammability- , Reactivity- NA	

Extinguishing Media
Use dry powder extinguishing agent.

Extinguishing Media to Avoid

Protection and Procedures for Firefighters
NA

Unusual Fire and Explosion Hazards
Metal powder dispersed in air may cause fire and explosion hazard. Good house keeping must be maintained. Molten metal can ignite combustibles.

6. Accidental Release Measures

Containment Techniques
NA

Spill/Leak Clean-Up Procedures and Equipment
Pick up powder or dust spills by methods such as vacuuming or wet mopping- preventing dusty conditions,

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	**Other Engineering Controls**
If solid forms of nickel are converted to dusts or fumes, working environment should be maintained below the recommended exposure limits (section II) by use of appropriate ventilation.	NA

Routes of Entry:	**Personal Protective Equipment (PPE) for Normal Use:**	**PPE for Emergencies:**
Eye/Face	Use safety glasses.	NA
Skin	Use of protective gloves (leather or rubber) is recommended.	NA
Inhalation	If solid nickel forms are converted in manufacturing process to dust of fumes and ventilation is not adequate to maintain nickel concentrations below recommended exposure limits (Section II), then respiratory protection should be used. NIOSH approved respirators according to OSHA CFR 1919. 134 are recommended.	NA

General Hygiene Considerations and Work Practices

NA

Protective Measures During Repair and Maintenance of Contaminated Equipment

NA

Other Protective Measures and Equipment

NA

9. Physical and Chemical Characteristics

Appearance	**Odor**
Metallic gray in color.	No odor

Normal Physical State:

☐ Liquid ☐ Gas

☐ Solid ☐ NA (Other)

Boiling Point °C / °F N/A

Melting Point °C / 2500-2700 °F

Freezing Point °C / °F NA

Specific Gravity or Density (H_20=1)	**Solubility in Water**	**pH**
6.9	Insoluble	NA
Vapor Pressure (mm Hg @ 20°C)	**Vapor Density (AIR= 1)**	**Evaporation Rate (Butyl Acetate = 1)**
N/A	N/A	N/A

Other

Percent volatile by volume: N/A.

10. Stability and Reactivity Data

Incompatibility (Materials to Avoid)

N/A

Hazardous Products Produced During Decomposition

None. **Cautions**: Contact with mineral acids will release hydrogen- a dangerous gas. Under certain specific conditions, exposure to carbon monoxide may produce nickel carbonyl, a highly toxic gas.

Hazardous Polymerization?	**Conditions to Avoid**
☐ May Occur ☒ May Not Occur	°C / °F None
Stability?	**Conditions to Avoid**
☒ Stable ☐ Unstable	°C / °F None

11. Toxicological Information

Toxicity Data, Epidemiology Studies, Carcinogenicity, Neurological Effects, Genetic or Reproductive Effects, or Structure Activity Data

NA

12. Ecological Information

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

NA

13. Disposal Considerations

Regulations

Dispose of waste in accordance with local, state or federal regulations.

Properties (Physical/Chemical) Affecting Disposal

NA

14. Transport Information

Regulated for shipping?	Proper Shipping Name	Packing Group
☐ Yes ☐ No NA	Neet niti springs	NA

Do changes in quantity, packaging, or shipment method change product classification?	Hazard Class	Identification Number
☐ Yes ☐ No NA	NA	NA

Other

NA

15. Regulatory Information

Federal Regulations

NA

International Regulations

NA

Other

NA

16. Other Information

Supplier Number: 22/3 **Supplier Release:** NA

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