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MATERIAL SAFETY DATA SHEET

NICKEL ALUMINIUM ALLOY POWDER 50% (Raney Nickel Alloy) MSDS CAS: 12635-27-7

Section 1: Chemical Product and Company Identification

Section 1: Chemical Product

Product Name: NICKEL ALUMINIUM ALLOY POWDER 50%

CAS#: 12635-27-7

Synonym: Raney Nickel Alloy

Chemical Name: Not available.

Chemical Formula: Not available.

Brand: OXFORD

Details Of The Supplier Of The Safety Data Sheet :

Company identification: OXFORD LAB FINE CHEM LLP
Unit. No. 12, 1st Floor, Neminath Industrial Estate No. 6,
Navghar, Vasai (East). Palghar - 401 210.
Mumbai, Maharashtra, INDIA.
Tel: 91-250-2390989
Tel/Fax: 91-250-2390032

Section 2: Composition and Information on Ingredients

Composition:

| Name | CAS # | % by Weight |
|--------------|-----------|-------------|
| Aluminum | 7429-90-5 | 45-50 |
| Nickel metal | 7440-02-0 | 45-50 |

Toxicological Data on Ingredients:

Aluminum LD50: Not available. LC50: Not available. Nickel metal LD50: Not available. LC50: Not available.

Section 3: Hazards Identification

Potential Acute Health Effects:

Hazardous in case of skin contact (sensitizer), of inhalation. Slightly hazardous in case of skin contact (irritant), of eye contact (irritant), of ingestion.

Potential Chronic Health Effects:

Slightly hazardous in case of skin contact (sensitizer), of ingestion, of inhalation (lung sensitizer).
CARCINOGENIC EFFECTS: Classified 2B (Possible for human.) by IARC [Nickel metal]. Classified 2 (Some evidence.) by NTP [Nickel metal].
MUTAGENIC EFFECTS: Not available.
TERATOGENIC EFFECTS: Not available.
DEVELOPMENTAL TOXICITY: Not available. The substance is toxic to lungs, skin. The substance may be toxic to kidneys, liver. Repeated or prolonged exposure to the substance can produce target organs damage.

Section 4: First Aid Measures

Eye Contact: Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention if irritation occurs.

Skin Contact: In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Cover the irritated skin with an emollient. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.

Serious Skin Contact:

Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek medical attention.

Inhalation: If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

Serious Inhalation:

Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek medical attention.

Ingestion: Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If large quantities of this material are swallowed, call a physician immediately. Loosen tight clothing such as a collar, tie, belt or waistband.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: Flammable.

Auto-Ignition Temperature: Not applicable.

Flash Points: Not applicable.

Flammable Limits: Not applicable.

Products of Combustion: Some metallic oxides.

Fire Hazards in Presence of Various Substances: Highly flammable in presence of open flames and sparks, of heat. Non-flammable in presence of shocks, of oxidizing materials, of reducing materials, of combustible materials, of organic materials, of metals, of acids, of alkalis, of moisture.

Explosion Hazards in Presence of Various Substances:

Risks of explosion of the product in presence of mechanical impact: Not available.

Risks of explosion of the product in presence of static discharge: Not available.

Fire Fighting Media and Instructions:

Flammable solid. **SMALL FIRE:** Use DRY chemical powder. **LARGE FIRE:** Use water spray or fog. Cool containing vessels with water jet in order to prevent pressure build-up, autoignition or explosion.

Special Remarks on Fire Hazards: MAY CATCH FIRE IF EXPOSED TO AIR.

Special Remarks on Explosion Hazards: Material in powder form, capable of creating a dust explosion. Mixtures containing Potassium Perchlorate with Nickel & Titanium powders & infusorial earth can explode. Adding 2 or 3 drops of approximately 90% peroxyformic acid to powdered nickel will result in explosion. Powdered nickel reacts explosively upon contact with fused ammonium nitrate at temperatures below 200 deg. C. (Nickel metal)

Section 6: Accidental Release Measures

Small Spill: Use appropriate tools to put the spilled solid in a convenient waste disposal container.

Large Spill: Flammable solid that, in contact with water, emits flammable gases. Stop leak if without risk. Do not get water inside container. Do not touch spilled material. Cover with dry earth, sand or other non-combustible material. Prevent entry into sewers, basements or confined areas; dike if needed. Eliminate all ignition sources. Call for assistance on disposal. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7: Handling and Storage

Precautions:

Keep locked up.. Keep away from heat. Keep away from sources of ignition. Ground all equipment containing material. Do not breathe dust. Wear suitable protective clothing. In case of insufficient ventilation, wear suitable respiratory equipment. If you feel unwell, seek medical attention and show the label when possible. Keep away from incompatibles such as oxidizing agents, combustible materials, metals, acids, alkalis.

Storage:

Keep container tightly closed. Keep container in a cool, well-ventilated area. Keep from any possible contact with water. Do not allow water to get into container because of violent reaction. Air Sensitive

Section 8: Exposure Controls/Personal Protection

Engineering Controls: Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

Personal Protection: Safety glasses. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Personal Protection in Case of a Large Spill: Splash goggles. Full suit. Dust respirator. Boots. Gloves. A self-contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits: TWA: 10 (mg/m³) from ACGIH (TLV) [United States] Inhalation TWA: 15 (mg/m³) from OSHA (PEL) [United States] Inhalation Total. TWA: 10 (mg/m³) from NIOSH [United States] Inhalation Total. TWA: 5 (mg/m³) from NIOSH [United States] Inhalation Respirable. TWA: 5 from OSHA (PEL) [United States] Inhalation Respirable.³ Consult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Solid.

| | |
|--------------------|-------------------|
| Odor | : Odorless. |
| Taste | : Not available. |
| Molecular Weight | : 85.68 g/mole |
| Color | : Grey |
| pH (1% soln/water) | : Not applicable. |
| Boiling Point | : Not available. |

Section 9: Physical and Chemical Properties (Continued)

| | |
|------------------------|---|
| Melting Point | : 1350°C (2462°F) |
| Critical Temperature | : Not available. |
| Specific Gravity | : 3.46 (Water = 1) |
| Vapor Pressure | : Not applicable. |
| Vapor Density | : Not available. |
| Volatility | : Not available. |
| Odor Threshold | : Not available. |
| Water/Oil Dist. Coeff. | : Not available. |
| Ionicity (in Water) | : Not available. |
| Dispersion Properties | : Is not dispersed in cold water, hot water. |
| Solubility | : Insoluble in cold water, hot water. Reacts slowly with water forming Hydrogen gas |

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Incompatible materials, contact with water, exposure to air

Incompatibility with various substances:

Reactive with oxidizing agents, combustible materials, metals, acids, alkalis. Slightly reactive to reactive with moisture. The product reacts violently with water to emit flammable but nontoxic gases.

Corrosivity: Non-corrosive in presence of glass.

Special Remarks on Reactivity: Aluminum: Moisture sensitive. Aluminum reacts vigorously with Sodium Hydroxide. Aluminum is also incompatible with strong oxidizers, acids, chromic anhydride, iodine, carbon disulfide, methyl chloride, and halogenated hydrocarbons, acid chlorides, ammonium nitrate, ammonium persulfate, antimony, arsenic oxides, barium bromate, barium chlorate, barium iodate, metal salts
Nickel: Incompatible with strong acids, selenium, sulfur, wood and other combustibles, nickel nitrate, aluminum, aluminum trichloride, ethylene, p-dioxan, hydrogen, methanol, non-metals, oxidants, sulfur compounds, aniline, hydrogen sulfide, flammable solvents, hydrazine, and metal powders (especially zinc, aluminum, and magnesium), ammonium nitrate, nitryl fluoride, bromine pentafluoride, potassium perchlorate + titanium powder + industrial earth, phosphorus, fluorine, dioxane + hydrogen, hydrazoic acid. Air sensitive.

Section 10: Stability and Reactivity Data (Continued)

Special Remarks on Corrosivity: Not available.

Polymerization: Will not occur.

Section 11: Toxicological Information

Routes of Entry: Inhalation. Ingestion.

Toxicity to Animals: LD50: Not available. LC50: Not available.

Chronic Effects on Humans:

CARCINOGENIC EFFECTS: Classified 2B (Possible for human.) by IARC [Nickel metal]. Classified 2 (Some evidence.) by NTP [Nickel metal]. Contains material which may cause damage to the following organs: kidneys, liver.

Other Toxic Effects on Humans:

Hazardous in case of skin contact (sensitizer), of inhalation. Slightly hazardous in case of skin contact (irritant), of ingestion.

Special Remarks on Toxicity to Animals:

Lowest Published Lethal Dose/Conc: LDL [Rat] - Route: Oral; Dose: 5000 mg/kg LDL [Guinea Pig] - Route: Oral; Dose: 5000 mg/kg (Nickel metal)

Special Remarks on Chronic Effects on Humans: May cause cancer based on animal test data

Special Remarks on other Toxic Effects on Humans:

Acute Potential Health Effects: **Skin:** It can cause skin irritation **Eyes:** It can cause eye irritation. Aluminum particles deposited in the eye are generally innocuous. **Inhalation:** Inhalation of dust or fume may cause respiratory tract irritation with non-productive cough, hoarseness, sore throat. Other symptoms may include headache, vertigo, weakness, chest pain, followed by delayed effects, including tachypnea, dyspnea, and ARDS. Death due to ARDS has been reported following inhalation of high concentrations of respirable metallic nickel dust. Later effects may include pulmonary edema and fibrosis. Heating Aluminum can release Aluminum Oxide fumes and cause fume metal fever when inhaled. This is a flu-like illness with symptoms of metallic taste, fever, chills, aches, chest tightness, and cough. **Ingestion:** Aluminum or Nickel are generally considered not to be acutely toxic if ingested. Ingestion of Nickel

Section 12: Ecological Information

Ecotoxicity: Not available.

BOD5 and COD: Not available.

Products of Biodegradation: Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation:
The product itself and its products of degradation are not toxic.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:
Waste must be disposed of in accordance with federal, state and local environmental control regulations.

Section 14: Transport Information

Land transport (ADR-RID)

Proper shipping name: METAL POWDER, FLAMMABLE, N.O.S.

UN N°: 3089

H.I. nr: 40

ADR - Class: 4.1

Labelling - Transport: 4.1 : Flammable solids, self-reactive substances and desensitized explosives.

ADR - Group: II

Sea transport (IMDG) [English only]

Proper shipping name: METAL POWDER, FLAMMABLE, N.O.S.

UN N°: 3089

IMO-IMDG - Class or division: 4.1 : Flammable solids, self-reactive substances and desensitized explosives.

IMO-IMDG - Packing group: II

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Section 14: Transport Information (Continued)

Air transport (ICAO-IATA) [English only]

Proper shipping name: METAL POWDER, FLAMMABLE, N.O.S.

UN N°: 3089

IATA - Class or division: 4.1 : Flammable solids, self-reactive substances and desensitized explosives.

IATA - Packing group: II

Section 15: Other Regulatory Information

Federal and State Regulations:

California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer, birth defects or other reproductive harm, which would require a warning under the statute: Nickel metal California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer which would require a warning under the statute: Nickel metal Connecticut hazardous material survey.: Aluminum; Nickel metal Illinois toxic substances disclosure to employee act: Aluminum; Nickel metal Illinois chemical safety act: Nickel metal New York release reporting list: Nickel metal Rhode Island RTK hazardous substances: Aluminum; Nickel metal Pennsylvania RTK: Aluminum; Nickel metal Minnesota: Aluminum Michigan critical material: Nickel metal Massachusetts RTK: Aluminum; Nickel metal Massachusetts spill list: Nickel metal New Jersey: Aluminum; Nickel metal New Jersey spill list: Aluminum; Nickel metal Louisiana spill reporting: Nickel metal TSCA 8(b) inventory: Aluminum; Nickel metal SARA 313 toxic chemical notification and release reporting: Aluminum 47.5%; Nickel metal 47.5% CERCLA: Hazardous substances.: Nickel metal: 100 lbs. (45.36 kg)

Other Regulations:

OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).

Other Classifications:

WHMIS (Canada): CLASS B-6: Reactive and very flammable material. CLASS D-2A: Material causing other toxic effects (VERY TOXIC).

DSCL (EEC): R15- Contact with water liberates extremely flammable gases. R40- Possible risks of irreversible effects. R43- May cause sensitization by skin contact. S22- Do not breathe dust. S36/37- Wear suitable protective clothing and gloves.

Other Classifications:

Health Hazard: 2

Fire Hazard: 3

Reactivity: 1

Personal Protection: E

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Section 15: Other Regulatory Information (Continued)

National Fire Protection Association (U.S.A.):

Health: 2

Flammability: 0

Reactivity: 1

Specific hazard:

Protective Equipment:

Gloves. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Safety glasses.

Section 16 - Additional Information

References: Not available.

Other Special Considerations: Not available.

Disclaimer:

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