1. PRODUCT AND COMPANY IDENTIFICATION

Product name : Raney®-Nickel
Product Number : 510033
Brand : Aldrich
Supplier : Sigma-Aldrich
Telephone : +1 800-325-5832
Fax : +1 800-325-5052
Emergency Phone # (For both supplier and manufacturer) : (314) 776-6555
Preparation Information : Sigma-Aldrich Corporation
Product Safety - Americas Region
1-800-521-8956

2. HAZARDS IDENTIFICATION

Emergency Overview

OSHA Hazards
Unstable Reactive, Carcinogen, Target Organ Effect, Skin sensitiser

Target Organs
Lungs

GHS Classification
Pyrophoric liquids (Category 1)
Skin sensitization (Category 1)
Carcinogenicity (Category 2)
Specific target organ toxicity - repeated exposure (Category 1)
Acute aquatic toxicity (Category 3)

GHS Label elements, including precautionary statements

Pictogram

Signal word : Danger

Hazard statement(s)
H250 Catches fire spontaneously if exposed to air.
H317 May cause an allergic skin reaction.
H351 Suspected of causing cancer.
H372 Causes damage to organs through prolonged or repeated exposure.
H402 Harmful to aquatic life.

Precautionary statement(s)
P222 Do not allow contact with air.
P231 Handle under inert gas.
P280 Wear protective gloves.
P314 Get medical advice/attention if you feel unwell.
P422 Store contents under inert gas.
HMIS Classification

Health hazard: 2
Chronic Health Hazard: *
Flammability: 0
Physical hazards: 2

NFPA Rating

Health hazard: 2
Fire: 0
Reactivity Hazard: 2

Potential Health Effects

Inhalation: May be harmful if inhaled. May cause respiratory tract irritation.
Skin: May be harmful if absorbed through skin. May cause skin irritation.
Eyes: May cause eye irritation.
Ingestion: May be harmful if swallowed.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms: Nickel sponge
Molecular Weight: 58.71 g/mol

<table>
<thead>
<tr>
<th>Component</th>
<th>Classification</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nickel</td>
<td>Skin Sens. 1; Carc. 2; STOT RE 1; Aquatic Chronic 3; H317, H351, H372, H412</td>
<td>10 - 30 %</td>
</tr>
<tr>
<td>CAS-No. 7440-02-0</td>
<td>EC-No. 231-111-4</td>
<td>Index-No. 028-002-00-7</td>
</tr>
<tr>
<td>Aluminium</td>
<td>Pyr. Sol. 1; Water-react. 2; Aquatic Acute 1; H250, H261, H400</td>
<td>1 - 5 %</td>
</tr>
<tr>
<td>CAS-No. 7429-90-5</td>
<td>EC-No. 231-072-3</td>
<td>Index-No. 013-001-00-6</td>
</tr>
</tbody>
</table>

For the full text of the H-Statements and R-Phrases mentioned in this Section, see Section 16

4. FIRST AID MEASURES

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

5. FIREFIGHTING MEASURES

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Special protective equipment for firefighters
Wear self contained breathing apparatus for fire fighting if necessary.
Hazardous combustion products
Hazardous decomposition products formed under fire conditions. - Nickel/nickel oxides, Aluminum oxide

Further information
Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions
Use personal protective equipment. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas.

Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

Methods and materials for containment and cleaning up
Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13).

7. HANDLING AND STORAGE

Precautions for safe handling
Avoid contact with skin and eyes. Avoid inhalation of vapour or mist. Keep away from sources of ignition - No smoking.

Conditions for safe storage
Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Value</th>
<th>Control parameters</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nickel</td>
<td>7440-02-0</td>
<td>TWA</td>
<td>1.5 mg/m³</td>
<td>USA. ACGIH Threshold Limit Values (TLV)</td>
</tr>
<tr>
<td>Remarks</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Dermatitis Pneumoconiosis Not suspected as a human carcinogen</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA</td>
<td>1 mg/m³</td>
<td>USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA</td>
<td>1 mg/m³</td>
<td>USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA</td>
<td>0.015 mg/m³</td>
<td>USA. NIOSH Recommended Exposure Limits</td>
</tr>
</tbody>
</table>

Potential Occupational Carcinogen See Appendix A

Aluminium | 7429-90-5 | TWA   | 1 mg/m³          | USA. ACGIH Threshold Limit Values (TLV) |

Remarks | Lower Respiratory Tract irritation Pneumoconiosis Neurotoxicity Not classifiable as a human carcinogen |

|            | TWA   | 15 mg/m³          | USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants |
|            | TWA   | 5 mg/m³           | USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants |
|            | TWA   | 15 mg/m³          | USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000 |
|            | TWA   | 5 mg/m³           | USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000 |
|            | TWA   | 5 mg/m³           | USA. NIOSH Recommended Exposure Limits |
Personal protective equipment

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Hand protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove’s outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands. Protective gloves against thermal risks

Eye protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin and body protection
Complete suit protecting against chemicals, Flame retardant antistatic protective clothing. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Hygiene measures
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance
- Form: suspension
- Colour: grey

Safety data
- pH: no data available
- Melting point/freezing point: 1,455 °C (2,651 °F)
- Boiling point: 2,730 °C (4,946 °F)
- Flash point: not applicable
- Ignition temperature: no data available
- Autoignition temperature: 87 °C (189 °F) - Catches fire spontaneously if exposed to air.
- Lower explosion limit: no data available
- Upper explosion limit: no data available
- Vapour pressure: 1 hPa (1 mmHg) at 1,810 °C (3,290 °F)
- Density: 8.900 g/cm³
- Water solubility: insoluble
- Partition coefficient: n-octanol/water: no data available
- Relative vapour density: no data available
- Odour: no data available
- Odour Threshold: no data available
10. STABILITY AND REACTIVITY

Chemical stability
Stable under recommended storage conditions. Stable under recommended storage conditions.

Possibility of hazardous reactions
Dry active Raney Catalyst is pyrophoric. If allowed to dry in air, it may smolder to red heat and provide a combustion source for exposed combustible materials.

Conditions to avoid
may begin to self-heat and spontaneously ignite at temperatures above: 40°C Do not allow evaporation to dryness.

Materials to avoid
acids, Oxidizing agents, Sulphur compounds, Hydrogen gas, Oxygen, Methanol, organic solvents, Aluminium, Fluorine, Ammonia

Hazardous decomposition products
Hazardous decomposition products formed under fire conditions. - Nickel/nickel oxides, Aluminum oxide
Other decomposition products - no data available

11. TOXICOLOGICAL INFORMATION

Acute toxicity
Oral LD50
no data available

Inhalation LC50
no data available

Dermal LD50
no data available

Other information on acute toxicity
no data available

Skin corrosion/irritation
no data available

Serious eye damage/eye irritation
Eyes: no data available

Respiratory or skin sensitization
no data available

Germ cell mutagenicity
no data available

Carcinogenicity
IARC: 1 - Group 1: Carcinogenic to humans (Aluminium)
IARC: 2B - Group 2B: Possibly carcinogenic to humans (Nickel)
NTP: Reasonably anticipated to be a human carcinogen (Nickel)
OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
no data available

Teratogenicity
Specific target organ toxicity - single exposure (Globally Harmonized System)
no data available

Specific target organ toxicity - repeated exposure (Globally Harmonized System)
no data available

Aspiration hazard
no data available

Potential health effects

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inhalation</td>
<td>May be harmful if inhaled. May cause respiratory tract irritation.</td>
</tr>
<tr>
<td>Ingestion</td>
<td>May be harmful if swallowed.</td>
</tr>
<tr>
<td>Skin</td>
<td>May be harmful if absorbed through skin. May cause skin irritation.</td>
</tr>
<tr>
<td>Eyes</td>
<td>May cause eye irritation.</td>
</tr>
</tbody>
</table>

Signs and Symptoms of Exposure
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Synergistic effects
no data available

Additional Information
RTECS: Not available

---

12. ECOLOGICAL INFORMATION

Toxicity
no data available

Persistence and degradability
no data available

Bioaccumulative potential
no data available

Mobility in soil
no data available

PBT and vPvB assessment
no data available

Other adverse effects
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

Harmful to aquatic life.

---

13. DISPOSAL CONSIDERATIONS

Product
Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging
Dispose of as unused product.

---

14. TRANSPORT INFORMATION

DOT (US)
UN number: 1378   Class: 4.2   Packing group: II
Proper shipping name: Metal catalyst, wetted (Nickel, Aluminium)
Reportable Quantity (RQ): 833 lbs
Marine pollutant: No
Poison Inhalation Hazard: No

IMDG
UN number: 1378  Class: 4.2  Packing group: II  EMS-No: F-H, S-M
Proper shipping name: METAL CATALYST, WETTED (Nickel, Aluminium)
Marine pollutant: No

IATA
UN number: 1378  Class: 4.2  Packing group: II
Proper shipping name: Metal catalyst, wetted (Nickel, Aluminium)
IATA Passenger: Not permitted for transport

15. REGULATORY INFORMATION

OSHA Hazards
Unstable Reactive, Carcinogen, Target Organ Effect, Skin sensitiser

SARA 302 Components
SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
The following components are subject to reporting levels established by SARA Title III, Section 313:

<table>
<thead>
<tr>
<th>CAS-No.</th>
<th>Revision Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nickel</td>
<td>7440-02-0</td>
</tr>
<tr>
<td>Aluminium</td>
<td>7429-90-5</td>
</tr>
</tbody>
</table>

SARA 311/312 Hazards
Reactivity Hazard, Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

<table>
<thead>
<tr>
<th>CAS-No.</th>
<th>Revision Date</th>
</tr>
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<tbody>
<tr>
<td>Nickel</td>
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</tr>
<tr>
<td>Aluminium</td>
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</tr>
</tbody>
</table>

Pennsylvania Right To Know Components

<table>
<thead>
<tr>
<th>CAS-No.</th>
<th>Revision Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>7732-18-5</td>
</tr>
<tr>
<td>Nickel</td>
<td>7440-02-0</td>
</tr>
<tr>
<td>Aluminium</td>
<td>7429-90-5</td>
</tr>
</tbody>
</table>

New Jersey Right To Know Components

<table>
<thead>
<tr>
<th>CAS-No.</th>
<th>Revision Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
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<tr>
<td>Nickel</td>
<td>7440-02-0</td>
</tr>
<tr>
<td>Aluminium</td>
<td>7429-90-5</td>
</tr>
</tbody>
</table>

California Prop. 65 Components
WARNING! This product contains a chemical known to the State of California to cause cancer.

<table>
<thead>
<tr>
<th>CAS-No.</th>
<th>Revision Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nickel</td>
<td>7440-02-0</td>
</tr>
</tbody>
</table>

16. OTHER INFORMATION

Text of H-code(s) and R-phrase(s) mentioned in Section 3

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aquatic Acute</td>
<td>Acute aquatic toxicity</td>
</tr>
<tr>
<td>Aquatic Chronic</td>
<td>Chronic aquatic toxicity</td>
</tr>
<tr>
<td>Carc.</td>
<td>Carcinogenicity</td>
</tr>
<tr>
<td>H250</td>
<td>Catches fire spontaneously if exposed to air.</td>
</tr>
<tr>
<td>H261</td>
<td>In contact with water releases flammable gases.</td>
</tr>
<tr>
<td>H317</td>
<td>May cause an allergic skin reaction.</td>
</tr>
<tr>
<td>H351</td>
<td>Suspected of causing cancer.</td>
</tr>
<tr>
<td>H372</td>
<td>Causes damage to organs through prolonged or repeated exposure.</td>
</tr>
<tr>
<td>Code</td>
<td>Description</td>
</tr>
<tr>
<td>--------</td>
<td>--------------------------------------------------</td>
</tr>
<tr>
<td>H400</td>
<td>Very toxic to aquatic life.</td>
</tr>
<tr>
<td>H412</td>
<td>Harmful to aquatic life with long lasting effects.</td>
</tr>
<tr>
<td>Pyr. Sol.</td>
<td>Pyrophoric solids</td>
</tr>
<tr>
<td>Skin Sens.</td>
<td>Skin sensitization</td>
</tr>
<tr>
<td>STOT RE</td>
<td>Specific target organ toxicity - repeated exposure</td>
</tr>
<tr>
<td>Water-react.</td>
<td>Substances, which in contact with water, emit flammable gases</td>
</tr>
</tbody>
</table>

**Further information**

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