1. PRODUCT AND COMPANY IDENTIFICATION

Product name : Nickel(II) chloride
Product Number : 339350
Brand : Aldrich
Supplier : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO  63103
USA
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
Carcinogen, Target Organ Effect, Toxic by inhalation., Toxic by ingestion, Skin and respiratory sensitizer, Irritant, Teratogen, Mutagen

Target Organs
Lungs

GHS Classification
Acute toxicity, Oral (Category 3)
Acute toxicity, Inhalation (Category 3)
Skin irritation (Category 2)
Eye irritation (Category 2B)
Respiratory sensitization (Category 1)
Skin sensitization (Category 1)
Germ cell mutagenicity (Category 2)
Carcinogenicity (Category 1A)
Reproductive toxicity (Category 1B)
Specific target organ toxicity - repeated exposure (Category 1)
Acute aquatic toxicity (Category 1)
Chronic aquatic toxicity (Category 1)

GHS Label elements, including precautionary statements
Pictogram

Signal word : Danger

Hazard statement(s)
H301 + H331  Toxic if swallowed or if inhaled
H315 + H320  Causes skin and eye irritation.
H317  May cause an allergic skin reaction.
H334  May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H341 Suspected of causing genetic defects.
H350 May cause cancer.
H360 May damage fertility or the unborn child.
H372 Causes damage to organs through prolonged or repeated exposure.
H410 Very toxic to aquatic life with long lasting effects.

Precautionary statement(s)
P201 Obtain special instructions before use.
P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P273 Avoid release to the environment.
P280 Wear protective gloves.
P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P311 Call a POISON CENTER or doctor/ physician.
P501 Dispose of contents/ container to an approved waste disposal plant.

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

NFPA Rating
Health hazard: 2
Fire: 0
Reactivity Hazard: 0

Potential Health Effects
Inhalation Toxic if inhaled. Causes respiratory tract irritation.
Skin May be harmful if absorbed through skin. Causes skin irritation.
Eyes Causes eye irritation.
Ingestion Toxic if swallowed.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Formula: \( \text{Cl}_2\text{Ni} \)
Molecular Weight: 129.60 g/mol

<table>
<thead>
<tr>
<th>Component</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nickel(II) chloride</td>
<td></td>
</tr>
<tr>
<td>CAS-No.</td>
<td>7718-54-9</td>
</tr>
<tr>
<td>EC-No.</td>
<td>231-743-0</td>
</tr>
<tr>
<td>Index-No.</td>
<td>028-011-00-6</td>
</tr>
</tbody>
</table>

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
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

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

**Conditions of flammability**
Not flammable or combustible.

**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. - Hydrogen chloride gas, Nickel/nickel oxides

6. ACCIDENTAL RELEASE MEASURES

**Personal precautions**
Wear respiratory protection. Avoid dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.

**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**
Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

7. HANDLING AND STORAGE

**Precautions for safe handling**
Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Provide appropriate exhaust ventilation at places where dust is formed.

**Conditions for safe storage**
Keep container tightly closed in a dry and well-ventilated place. Keep in a dry place.

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(II) chloride</td>
<td>7718-54-9</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>0.1 mg/m3</td>
<td>USA. ACGIH Threshold Limit Values (TLV)</td>
</tr>
<tr>
<td>Remarks</td>
<td></td>
<td></td>
<td></td>
<td>Lungs damage Nasal cancer Not classifiable as a human carcinogen varies</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA</td>
<td>0.015 mg/m3</td>
<td>USA. NIOSH Recommended Exposure Limits</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Potential Occupational Carcinogen See Appendix A</td>
</tr>
</tbody>
</table>

**Personal protective equipment**

**Respiratory protection**
Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) 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.

**Full contact**
- Material: Nitrile rubber
- Minimum layer thickness: 0.11 mm
- Break through time: > 480 min
- Material tested: Dermatril® (Aldrich Z677272, Size M)

**Splash protection**
- Material: Nitrile rubber
- Minimum layer thickness: 0.11 mm
- Break through time: > 30 min
- Material tested: Dermatril® (Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an Industrial Hygienist familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

**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, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

**Hygiene measures**
Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

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9. PHYSICAL AND CHEMICAL PROPERTIES

**Appearance**
- Form: powder
- Colour: no data available

**Safety data**
- pH: no data available
- Melting point/freezing point: Melting point/range: 1,001 °C (1,834 °F)
- Boiling point: no data available
- Flash point: not applicable
- Ignition temperature: no data available
- Autoignition temperature: no data available
- Lower explosion limit: no data available
- Upper explosion limit: no data available
- Vapour pressure: no data available
- Density: 3.55 g/mL at 25 °C (77 °F)
- Water solubility: no data available
- Partition coefficient: n-octanol/water: no data available
- Relative vapour: no data available
10. STABILITY AND REACTIVITY

Chemical stability
Stable under recommended storage conditions.

Possibility of hazardous reactions
no data available

Conditions to avoid
no data available

Materials to avoid
Peroxides

Hazardous decomposition products
Hazardous decomposition products formed under fire conditions. - Hydrogen chloride gas, Nickel/nickel oxides
Other decomposition products - no data available

11. TOXICOLOGICAL INFORMATION

Acute toxicity

Oral LD50
LD50 Oral - rat - 186 mg/kg

Inhalation LC50

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 - rabbit - Mild eye irritation - OECD Test Guideline 405

Respiratory or skin sensitization
May cause allergic respiratory and skin reactions

Germ cell mutagenicity

In vitro tests showed mutagenic effects

Carcinogenicity
This is or contains a component that has been reported to be carcinogenic based on its IARC, OSHA, ACGIH, NTP, or EPA classification.

Human carcinogen.

IARC: 1 - Group 1: Carcinogenic to humans (Nickel(II) chloride)
NTP: Known to be human carcinogen (Nickel(II) chloride)
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
Teratogenicity

Presumed human reproductive toxicant

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

**Specific target organ toxicity - repeated exposure (Globally Harmonized System)**
Causes damage to organs through prolonged or repeated exposure.

**Aspiration hazard**
no data available

**Potential health effects**

<table>
<thead>
<tr>
<th>Route</th>
<th>Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inhalation</td>
<td>Toxic if inhaled. Causes respiratory tract irritation.</td>
</tr>
<tr>
<td>Ingestion</td>
<td>Toxic if swallowed.</td>
</tr>
<tr>
<td>Skin</td>
<td>May be harmful if absorbed through skin. Causes skin irritation.</td>
</tr>
<tr>
<td>Eyes</td>
<td>Causes 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: QR6475000

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**12. ECOLOGICAL INFORMATION**

**Toxicity**

<table>
<thead>
<tr>
<th>Category</th>
<th>Endpoint</th>
</tr>
</thead>
<tbody>
<tr>
<td>Toxicity to fish</td>
<td>mortality NOEC - Oncorhynchus mykiss (rainbow trout) - 4.9 mg/l - 96.0 h</td>
</tr>
<tr>
<td>Toxicity to daphnia</td>
<td>EC50 - Daphnia magna (Water flea) - 6.0 - 9.3 mg/l - 48 h</td>
</tr>
<tr>
<td>and other aquatic</td>
<td></td>
</tr>
<tr>
<td>invertebrates</td>
<td></td>
</tr>
<tr>
<td>Toxicity to algae</td>
<td>EC50 - Pseudokirchneriella subcapitata (green algae) - 0.006 - 0.012 mg/l - 96 h</td>
</tr>
</tbody>
</table>

**Persistence and degradability**
no data available

**Bioaccumulative potential**

<table>
<thead>
<tr>
<th>Bioaccumulation</th>
<th>Oncorhynchus mykiss (rainbow trout) - 180 d</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bioconcentration factor (BCF):</td>
<td>4</td>
</tr>
</tbody>
</table>

**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.

Very toxic to aquatic life with long lasting effects.

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**13. DISPOSAL CONSIDERATIONS**
Product
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: 3288  Class: 6.1  Packing group: III
Proper shipping name: Toxic solid, inorganic, n.o.s. (Nickel(II) chloride)
Reportable Quantity (RQ): 100 lbs
Marine pollutant: No
Poison Inhalation Hazard: No

IMDG
UN number: 3288  Class: 6.1  Packing group: III  EMS-No: F-A, S-A
Proper shipping name: TOXIC SOLID, INORGANIC, N.O.S. (Nickel(II) chloride)
Marine pollutant: No

IATA
UN number: 3288  Class: 6.1  Packing group: III
Proper shipping name: Toxic solid, inorganic, n.o.s. (Nickel(II) chloride)

15. REGULATORY INFORMATION

OSHA Hazards
Carcinogen, Target Organ Effect, Toxic by inhalation., Toxic by ingestion, Skin and respiratory sensitizer, Irritant, Teratogen, Mutagen

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>
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<tr>
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<td>1993-04-24</td>
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SARA 311/312 Hazards
Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

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Pennsylvania Right To Know Components

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New Jersey Right To Know Components

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California Prop. 65 Components

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<td>Nickel(II) chloride</td>
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<td>2007-09-28</td>
</tr>
</tbody>
</table>

16. OTHER INFORMATION

Further information
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