

## MATERIAL SAFETY DATA SHEET

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Version 1.7

## Section 1 - Product and Company Information

Product Name	NICKEL(II) CHLORIDE HEXAHYDRATE, REAGENTPLUS
Product Number	223387
Brand	SIAL
Company	Sigma-Aldrich
Address	3050 Spruce Street SAINT LOUIS MO 63103 US
Technical Phone:	800-325-5832
Fax:	800-325-5052
Emergency Phone:	314-776-6555

## Section 2 - Composition/Information on Ingredient

Substance Name	CAS #	SARA 313
NICKEL CHLORIDE HEXAHYDRATE	7791-20-0	Yes
Formula	NiCl <sub>2</sub> ·6H <sub>2</sub> O	
RTECS Number:	QR6480000	

## Section 3 - Hazards Identification

## EMERGENCY OVERVIEW

Toxic. Dangerous for the environment.

May cause cancer. Toxic if swallowed. Irritating to eyes and skin.

May cause sensitization by skin contact. Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Target organ(s): Lungs.

## HMIS RATING

HEALTH: 3\*

FLAMMABILITY: 0

REACTIVITY: 1

## NFPA RATING

HEALTH: 3

FLAMMABILITY: 0

REACTIVITY: 1

\*additional chronic hazards present.

For additional information on toxicity, please refer to Section 11.

## Section 4 - First Aid Measures

## ORAL EXPOSURE

If swallowed, wash out mouth with water provided person is conscious. Call a physician immediately.

## INHALATION EXPOSURE

If inhaled, remove to fresh air. If not breathing give artificial respiration. If breathing is difficult, give oxygen.

#### DERMAL EXPOSURE

In case of skin contact, flush with copious amounts of water for at least 15 minutes. Remove contaminated clothing and shoes. Call a physician.

#### EYE EXPOSURE

In case of contact with eyes, flush with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Call a physician.

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### Section 5 - Fire Fighting Measures

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#### FLASH POINT

N/A

#### AUTOIGNITION TEMP

N/A

#### FLAMMABILITY

N/A

#### EXTINGUISHING MEDIA

Suitable: Noncombustible. Use extinguishing media appropriate to surrounding fire conditions.

#### FIREFIGHTING

Protective Equipment: Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes. Specific Hazard(s): Emits toxic fumes under fire conditions.

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### Section 6 - Accidental Release Measures

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#### PROCEDURE TO BE FOLLOWED IN CASE OF LEAK OR SPILL

Evacuate area.

#### PROCEDURE(S) OF PERSONAL PRECAUTION(S)

Wear self-contained breathing apparatus, rubber boots, and heavy rubber gloves.

#### METHODS FOR CLEANING UP

Sweep up, place in a bag and hold for waste disposal. Avoid raising dust. Ventilate area and wash spill site after material pickup is complete.

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### Section 7 - Handling and Storage

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#### HANDLING

User Exposure: Do not breathe dust. Do not get in eyes, on skin, on clothing. Avoid prolonged or repeated exposure.

#### STORAGE

Suitable: Keep tightly closed.

#### SPECIAL REQUIREMENTS

Hygroscopic.

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### Section 8 - Exposure Controls / PPE

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#### ENGINEERING CONTROLS

Use only in a chemical fume hood. Safety shower and eye bath.

#### PERSONAL PROTECTIVE EQUIPMENT

Respiratory: Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU). Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N99 (US) or type P2 (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.

Hand: Compatible chemical-resistant gloves.

Eye: Chemical safety goggles.

#### GENERAL HYGIENE MEASURES

Wash contaminated clothing before reuse. Wash thoroughly after handling.

#### EXPOSURE LIMITS, RTECS

Country	Source	Type	Value
USA	ACGIH	TWA	0.1 MG(NI)/M3
USA	MSHA Standard-air	TWA	1 MG(NI)/M3
USA	OSHA.	PEL	8H TWA 1 MG(NI)/M3
New Zealand OEL			
Remarks: check ACGIH TLV			
USA	NIOSH	TWA	0.015 MG(NI)/M3

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#### Section 9 - Physical/Chemical Properties

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Appearance	Physical State: Solid Color: Green Form: Fine crystals	
Property	Value	At Temperature or Pressure
Molecular Weight	237.71 AMU	
pH	N/A	
BP/BP Range	N/A	
MP/MP Range	N/A	
Freezing Point	N/A	
Vapor Pressure	N/A	
Vapor Density	N/A	
Saturated Vapor Conc.	N/A	
SG/Density	N/A	
Bulk Density	N/A	
Odor Threshold	N/A	
Volatile%	N/A	
VOC Content	N/A	
Water Content	N/A	
Solvent Content	N/A	
Evaporation Rate	N/A	
Viscosity	N/A	
Surface Tension	N/A	
Partition Coefficient	N/A	
Decomposition Temp.	N/A	
Flash Point	N/A	
Explosion Limits	N/A	
Flammability	N/A	
Autoignition Temp	N/A	
Refractive Index	N/A	
Optical Rotation	N/A	
Miscellaneous Data	N/A	
Solubility	N/A	

N/A = not available

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## Section 10 - Stability and Reactivity

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### STABILITY

Stable: Stable.

Conditions to Avoid: Moisture.

Materials to Avoid: Strong oxidizing agents, Peroxides.

### HAZARDOUS DECOMPOSITION PRODUCTS

Hazardous Decomposition Products: Hydrogen chloride gas,  
Nickel/nickel oxides.

### HAZARDOUS POLYMERIZATION

Hazardous Polymerization: Will not occur

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## Section 11 - Toxicological Information

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### ROUTE OF EXPOSURE

Skin Contact: Causes skin irritation.

Skin Absorption: May be harmful if absorbed through the skin.

Eye Contact: Causes eye irritation.

Inhalation: May be harmful if inhaled. Material may be  
irritating to mucous membranes and upper respiratory tract.

Ingestion: Toxic if swallowed.

### SENSITIZATION

Sensitization: Causes dermatitis.

### TARGET ORGAN(S) OR SYSTEM(S)

Lungs.

### SIGNS AND SYMPTOMS OF EXPOSURE

Gastrointestinal disturbances. Exposure can cause: To the best  
of our knowledge, the chemical, physical, and toxicological  
properties have not been thoroughly investigated.

### TOXICITY DATA

Oral

Rat

186 mg/kg

LD50

Oral

Rat

105 mg/kg

LD50

Remarks: Sense Organs and Special Senses (Nose, Eye, Ear, and  
Taste):Olfaction:Other changes. Behavioral:Somnolence (general  
depressed activity). Gastrointestinal:Hypermotility, diarrhea.

Intraperitoneal

Mouse

48 MG/KG

LD50

Intravenous

Dog

40 MG/KG

LD50

#### CHRONIC EXPOSURE - CARCINOGEN

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

#### IARC CARCINOGEN LIST

Rating: Group 1 Group 1

#### CHRONIC EXPOSURE - MUTAGEN

Species: Human  
Dose: 250 UMOL/L  
Cell Type: HeLa cell  
Mutation test: DNA damage

Species: Rat  
Route: Subcutaneous  
Dose: 44400 UG/KG  
Mutation test: DNA damage

Species: Mouse  
Dose: 800 UMOL/L  
Cell Type: mammary gland  
Mutation test: Cytogenetic analysis

Species: Mouse  
Dose: 400 UMOL/L  
Cell Type: mammary gland  
Mutation test: Mutation in mammalian somatic cells.

Species: Hamster  
Dose: 32 MG/L  
Cell Type: fibroblast  
Mutation test: Sister chromatid exchange

#### CHRONIC EXPOSURE - REPRODUCTIVE HAZARD

Species: Rat  
Dose: 1670 MG/KG  
Route of Application: Oral  
Exposure Time: (11D PREG-1D POST)  
Result: Effects on Newborn: Viability index (e.g., # alive at day 4 per # born alive).

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#### Section 12 - Ecological Information

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#### ACUTE ECOTOXICITY TESTS

Test Type: LC50 Fish  
Species: Pimephales promelas (Fathead minnow)  
Time: 96 h  
Value: 4.9 mg/l

Test Type: LC50 Fish  
Species: Lepomis macrochirus (Bluegill)  
Time: 96 h  
Value: 5.3 mg/l

Test Type: EC50 Daphnia  
Species: Daphnia magna  
Time: 48 h  
Value: 0.51 mg/l

Test Type: LC50 Bacteria  
Time: 15 min  
Value: 23 mg/l

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## Section 13 - Disposal Considerations

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### APPROPRIATE METHOD OF DISPOSAL OF SUBSTANCE OR PREPARATION

Contact a licensed professional waste disposal service to dispose of this material. Catalysts and expensive metals should be recovered for reuse or recycling. Observe all federal, state, and local environmental regulations.

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## Section 14 - Transport Information

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### DOT

Proper Shipping Name: Toxic solid, inorganic, n.o.s.  
UN#: 3288  
Class: 6.1  
Packing Group: Packing Group III  
Hazard Label: Toxic Substance  
PIH: Not PIH

### IATA

Proper Shipping Name: Toxic solid, inorganic, n.o.s.  
IATA UN Number: 3288  
Hazard Class: 6.1  
Packing Group: III

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## Section 15 - Regulatory Information

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### EU ADDITIONAL CLASSIFICATION

Symbol of Danger: T-N  
Indication of Danger: Toxic. Dangerous for the environment.  
R: 45-25-36/38-43-50/53  
Risk Statements: May cause cancer. Toxic if swallowed.  
Irritating to eyes and skin. May cause sensitization by skin contact. Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.  
S: 53-36/37-45-60-61  
Safety Statements: Avoid exposure - obtain special instructions before use. Wear suitable protective clothing and gloves. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). This material and its container must be disposed of as hazardous waste. Avoid release to the environment. Refer to special instructions/safety data sheets.

### US CLASSIFICATION AND LABEL TEXT

Indication of Danger: Toxic. Dangerous for the environment.  
Risk Statements: May cause cancer. Toxic if swallowed.  
Irritating to eyes and skin. May cause sensitization by skin contact. Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.  
Safety Statements: Avoid exposure - obtain special instructions before use. Wear suitable protective clothing and gloves. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). This material and its container must be disposed of as hazardous waste. Avoid release to the environment. Refer to special instructions/safety data sheets.  
US Statements: Target organ(s): Lungs.

UNITED STATES REGULATORY INFORMATION

SARA LISTED: Yes

DEMINIMIS: 0.1 %

NOTES: This product is subject to SARA section 313 reporting requirements - nickel compounds.

CANADA REGULATORY INFORMATION

WHMIS Classification: This product has been classified in accordance with the hazard criteria of the CPR, and the MSDS contains all the information required by the CPR.

DSL: No

NDSL: No

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Section 16 - Other Information

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DISCLAIMER

For R&D use only. Not for drug, household or other uses.

WARRANTY

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Inc., shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale. Copyright 2007 Sigma-Aldrich Co. License granted to make unlimited paper copies for internal use only.