



Safety Data Sheet

Nickel Sulfate Crystal

Version Date: February 27, 2019
Version 2.0
USA

Section 1. Identification

Product Name: Nickel Sulfate Crystal
Other Names: Nickel Sulfate Hexahydrate, Nickel (II) Sulfate, Nickel Sulphate, Nickelic Sulfate
Recommended use and restrictions on use: Electroplating applications. For industrial use only.
Manufacturer Name: Univertical LLC
Address: 203 Weatherhead Street
Angola, Indiana 46703, USA
Telephone: 1-260-665-1500
Fax: 1-260-665-1400
Internet: www.univertical.com
Transportation Emergency Number: CHEMTREC 1-800-424-9300

Section 2. Hazard identification

GHS classification:

Acute Toxicity (Oral)	Category 4
Acute Toxicity (Inhaled)	Category 4
Respiratory Sensitization	Category 1
Skin Sensitization	Category 1
Carcinogenicity	Category 1A
Reproductive Toxicity	Category 2
STOT Single Exposure	Category 1
STOT Repeat Exposure	Category 2

Supplemental:

Acute Aquatic Toxicity	Category 1
Chronic Aquatic Toxicity	Category 1

Hazards Not Otherwise Classified (HNOC)	Not classified
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Labeling:



Pictograms:

Signal Word

Danger

Hazard statements:

Harmful if swallowed.
Harmful if inhaled.
May cause allergic, asthmatic symptoms or breathing difficulties if inhaled.
May cause allergic skin reaction.
Suspected of damaging fertility or the unborn child.
May cause damage to organs.
May cause damage to organs through prolonged or repeated exposure.
May cause cancer.
Very toxic to aquatic life with long lasting effects.



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Precautionary statements:

Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
If exposed or concerned: Get medical advice.
Wear protective gloves, protective clothing, and eye protection and face protection.
Wash thoroughly after handling.
Do not eat, drink or smoke when using this product.
Avoid breathing dust, fumes, gas, mist, vapors or spray.
Use only outdoors or in a well-ventilated area.
In case of inadequate ventilation wear respiratory protection.
Contaminated work clothing should not be allowed out of the workplace.
Wash contaminated clothing before reuse.
IF SWALLOWED: Call a POISON CENTER or physician if you feel unwell.
Rinse mouth.
IF INHALED: Remove person to fresh air and keep comfortable for breathing.
If experiencing respiratory symptoms: Call a poison center or physician.
IF ON SKIN: Wash with plenty of soap and water. If skin irritation occurs: Get medical advice or attention.
Avoid release to the environment.
Collect spillage.
Store locked up.
Dispose of contents/container to a facility as required by local, state and federal regulations.

Section 3.	<i>Composition/information on ingredients</i>
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Component	CAS Number	% Content
Nickel Sulfate Hexahydrate	10101-97-0	>99%

Section 4.	<i>First aid measures</i>
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Inhalation: If affected, remove individual to fresh air. If breathing is difficult, administer oxygen. Avoid mouth-to-mouth resuscitation.

Skin: Wash affected area with soap and water for at least 15 minutes, especially under fingernails and around cuticles. Remove clothing and shoes that came in contact. Wash contaminated clothing before reuse. Thoroughly clean shoes before reuse.

Eye: Eye irritation. Flush immediately with large amounts of water for at least 15 minutes. Eyelids should be held away from the eyeball to ensure thorough rinsing.

Ingestion: Induce vomiting only if direction to do so by medical personnel. Get medical attention.

In all cases be prepared to treat for shock.



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Section 5. *Fire-fighting measures*

Suitable extinguishing media: In all cases this material does not support combustion. Water, water fog, and/or carbon dioxide (CO₂) may be used to cool fire-exposed storage containers, structures and to protect personnel.

Specific hazards may be encountered during fire-fighting: Extremely high temperatures may lead to thermal decomposition releasing nickel oxide and sulfur dioxide.

Fire-fighting methods: Do not flush down sewers or other drainage systems. Material is harmful to aquatic life.

Unusual fire and explosion hazards: None

Section 6. *Accidental release measures*

Personal precautions: Avoid breathing dust

Environmental precautions: Do not wash residue to drain or sewer.

Method for cleaning up: Keep unnecessary and/or untrained people away. Isolate spill area. Sweep up majority of spill and recycle if clean or store in polyethylene container for later disposal. Use vacuum cleaner with good filtration to pick up dust. Refer to Section 15 for spill/release reporting information.

Section 7. *Handling and storage*

Handling Do not get in eyes, on skin, or on clothing. Do not breathe dust. Use only with adequate ventilation. Use good personal hygiene practices. After handling wash hands before eating, drinking, or smoking. Remove contaminated clothing and protective equipment before entering eating areas. Remove contaminated clothing and clean before reuse.

Storage Store in a well-ventilated area. Protect from physical damage. Empty containers may contain hazardous residue.

Section 8. *Exposure controls/personal protection*

Engineering controls: Local exhaust ventilation may be necessary to control air contaminants to their exposure limits. The use of local ventilation is recommended to control emissions near the source. Provide mechanical ventilation for confined spaces

Control parameters:

Exposure limits

Nickel Sulfate – Inhalation as soluble Nickel
OSHA^c PEL: 1.0 mg/m³
ACGIH TLV: 0.1 mg/m³ ACGIH 2003^d



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Personal Protective Equipment (PPE):

- Respiratory protection:** Under dust free conditions no respiratory protection should be worn. Should TWA limits be exceeded a NIOSH approved respirator for dust is generally acceptable for concentrations up to 100 times the PEL. Respiratory protection must be provided in accordance with OSHA 29 CFR 1910.134.
- Hand protection:** Wear rubber or neoprene gloves that are impervious to conditions of use.
- Eye protection:** Wear chemical safety goggles or face shield. Have eye-wash stations available where eye contact can occur.
- Skin and body protection:** Avoid skin contact.
- Hygiene measures:** Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reuse.

Section 9.	<i>Physical and chemical properties</i>
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Room Temperature Appearance:	Green crystals
Odor:	None
Odor Threshold:	No data available
pH:	5-6 at 1% solution
Flashpoint:	Does not burn
Autoignition Temperature:	Does not burn
Upper/lower Flammability Limits:	Does not burn
Flammability:	Not applicable
Danger of explosion:	None
Boiling Point:	Decomposes at 848°C
Melting Point:	Loses 6 H ₂ O at 103°C
Vapor Pressure:	Not applicable
Evaporation rate:	Not applicable
Vapor Density:	Not applicable
Solubility:	625 grams/liter at 20°C
Specific Gravity:	2.07 g/cc
Partition coefficient: n-octanol/water:	No data available
Decomposition temperature:	No data available
Viscosity:	No data available
Molecular Formula:	NiSO ₄ • 6H ₂ O
Molecular Weight:	262.86



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Section 10. *Stability and reactivity*

Stability: Under typical storage conditions this material is stable indefinitely.

Possible hazardous reactions under specific conditions: When heated above 103°C the crystals will lose their waters of hydration and become anhydrous nickel sulfate.

Conditions to avoid: Heating anhydrous nickel sulfate to high temperatures may generate nickel oxide and sulfur oxides.

Section 11. *Toxicological information*

Test	Results	Basis
Oral Toxicity (Rat)	Category 4	No data available
Dermal Toxicity	Not classified	No data available
Inhalation Toxicity (Rat)	Category 4	No data available
Aspiration Hazard	Not classified	No data available
Skin Corrosion/Irritation	Not classified	No data available
Eye Corrosion/Irritation	Not classified	No data available
Sensitization - Skin	Category 1	No data available
Sensitization - Respiration	Category 1	No data available
Germ Cell Mutagenicity	Not classified	No data available
Carcinogenicity	Category 1A	IARC Group 1
Reproductive Toxicity	Category 2	No data available
Specific Target Organ Toxicity – Single Dose	Category 2	No data available
Specific Target Organ Toxicity – Repeated Dose	Category 2	No data available

Symptoms: Eye and nasal irritation, dermatitis with itching

Acute effects:

Eye contact: Cause irritation

Skin contact: Not absorbed through skin. May cause dermatitis or allergic skin reactions.

Inhalation: Inhalation of dust can cause upper respiratory tract irritation.

Ingestion: Can cause gastrointestinal disorders.

Carcinogenicity: Nickel compounds are listed by IARC^a as Group 1: carcinogenic to humans. Nickel compounds are listed by NTP^b as known human carcinogens. Not listed as a carcinogen by OSHA or ACGIH.



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Section 12. Ecological Information

Test	Results	Basis
Acute Aquatic Toxicity	Category 1	GHS classification review
Chronic Aquatic Toxicity	Category 1	GHS classification review

Persistence and degradability: When released into the soil, this material is not expected to biodegrade. When released into water, this material is not expected to biodegrade. When released into water, this material is not expected to evaporate significantly.

Bioaccumulative potential: This material does not significantly bioaccumulate.

Mobility in soil: When released into the soil, this material may leach into groundwater

Section 13. Disposal considerations

Method of waste disposal: In case of a spill the crystals can be scooped or swept up. Dust should be vacuum cleaned with good air filtering to avoid blowing dust into the air. The resulting solid material can be stored for recovery in a polyethylene drum. Do not wash spilled material to a drain or sewer. Do not breathe dust.

Section 14. Transport information

U.S. Department of Transportation (DOT)
Proper Shipping Name: UN3077, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, n.o.s., (Nickel Sulfate), 9, PGIII, Marine Pollutant, RQ
Hazard Class: 9
UN/NA Number: UN3077
Packing Group: III

Section 15. Regulatory information

U.S. Federal Regulations

Comprehensive Environmental Response and Liability Act of 1980 (CERCLA): 100 lb final RQ; 45.4 kg final RQ

Toxic Substances Control Act (TSCA):
Anhydrous Nickel Sulfate (CAS # 7786-81-4) is listed on the TSCA Inventory List.



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Clean Water Act (CWA):

This material (Nickel Sulfate Hexahydrate) is listed under the CWA with a reportable quantity (RQ) of 100 pounds, 45.4 kg.

Clean Air Act (CAA):

This material does not contain any hazardous air pollutants.
This material does not contain any Class 1 Ozone depletors.
This material does not contain any Class 2 Ozone depletors.

Superfund Amendments and Reauthorization Act (SARA) Title III Information:

This material is listed only under Section 313 for Nickel Compounds.

State Regulations

California: California has listed all Nickel compounds as chemicals known to the State of California as causing cancer.

International Regulations

Canadian Environmental Protection Act:

CAS # 10101-97-0 is grouped into the category "Nickel, water-soluble inorganic compounds, n.o.s." at a concentration of greater than 1% wt/wt.

Canadian Workplace Hazardous Materials Information System (WHMIS):

Anhydrous Nickel Sulfate (CAS # 7786-81-4) is listed.

European Inventory of Existing Chemicals (EINECS):

Anhydrous Nickel Sulfate is included in the ECICS as EC # 232-104-9.

Section 16.	Other information
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- ^a IARC. 1990. IARC monographs on the evaluation of carcinogenic risks to humans. Volume 49: Chromium, nickel and welding. Lyon, France: International Agency for Research on Cancer, World Health Organization, 257-445.
- ^b NTP. 2002. Report on carcinogens. Bethesda, MD: U.S. Department of Health and Human Services, Public Health Service, National Toxicology Program. <http://ehp.niehs.nih.gov/roc/toc10/html>. June 06, 2003.
- ^c OSHA 29 CFR 1910.1000, Table Z-1
- ^d ACGIH [2003] Nickel Threshold limit values for chemical substances and physical agents and biological exposure indices. Cincinnati, OH: American Conference of Governmental Industrial Hygienists.
- ^e Contact Dermatitis. 24(1):35-39.
- ^f PCTEC database 3E Company

Key/Legend

TSCA = Toxic Substance Control Act;
ACGIH = American Conference of Governmental Industrial Hygienists;
IARC = International Agency for Research on Cancer;



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NIOSH = National Institute for Occupational Safety and Health;
NTP = National Toxicology Program;
OSHA = Occupational Safety and Health Administration
FDRL = Food and Drug Research Laboratories
NFPA = National Fire Protection Association
STOT = Specific Target Organ Toxicity

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