

# Safety Data Sheet

acc. to OSHA HCS

Printing date 06/14/2024

Reviewed on 05/22/2024

## 1 Identification

- **Product identifier**
- **Trade name:** Nickel Sulfate, Reagent ACS, Crystal
- **Article number:** N3565
- **CAS Number:**  
10101-97-0
- **EC number:**  
232-104-9
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**  
Aqua Solutions, Inc.  
6913 Highway 225  
DEER PARK, TX 77536  
USA  
800-256-2586
- **Information department:**  
Technical Coordinator  
Sherman Nelson shermann@aquasolutions.org  
Technical Coordinator  
Sherman Nelson shermann@aquasolutions.org
- **Emergency telephone number:**  
Chemtrec: 800-424-9300  
Canutec: 613-996-6666



## 2 Hazard(s) identification

- **Classification of the substance or mixture**



GHS08 Health hazard

Sensitization - Respiratory 1

H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.

Germ Cell Mutagenicity 2

H341 Suspected of causing genetic defects.

Carcinogenicity 1A

H350 May cause cancer.

Toxic to Reproduction 1B

H360 May damage fertility or the unborn child.

Specific Target Organ Toxicity - Repeated Exposure 1 H372 Causes damage to organs through prolonged or repeated exposure.



GHS07

Acute Toxicity - Oral 4

H302 Harmful if swallowed.

Acute Toxicity - Inhalation 4

H332 Harmful if inhaled.

Skin Irritation 2

H315 Causes skin irritation.

Sensitization - Skin 1

H317 May cause an allergic skin reaction.

- **Label elements**

- **GHS label elements** The substance is classified and labeled according to the Globally Harmonized System (GHS).

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· **Hazard pictograms**



GHS07 GHS08

· **Signal word Danger**

· **Hazard statements**

Harmful if swallowed or if inhaled.

Causes skin irritation.

May cause allergy or asthma symptoms or breathing difficulties if inhaled.

May cause an allergic skin reaction.

Suspected of causing genetic defects.

May cause cancer.

May damage fertility or the unborn child.

Causes damage to organs through prolonged or repeated exposure.

· **Precautionary statements**

Obtain special instructions before use.

Do not handle until all safety precautions have been read and understood.

Do not breathe dust/fume/gas/mist/vapors/spray.

Wash thoroughly after handling.

Do not eat, drink or smoke when using this product.

Use only outdoors or in a well-ventilated area.

Contaminated work clothing must not be allowed out of the workplace.

Wear protective gloves/protective clothing/eye protection/face protection.

[In case of inadequate ventilation] wear respiratory protection.

If swallowed: Call a poison center/doctor if you feel unwell.

Rinse mouth.

If on skin: Wash with plenty of water.

IF INHALED: Remove person to fresh air and keep comfortable for breathing.

IF exposed or concerned: Get medical advice/attention.

Specific treatment (see on this label).

Get medical advice/attention if you feel unwell.

Take off contaminated clothing and wash it before reuse.

If skin irritation or rash occurs: Get medical advice/attention.

If experiencing respiratory symptoms: Call a poison center/doctor.

Wash contaminated clothing before reuse.

Store locked up.

Dispose of contents/container in accordance with local/regional/national/international regulations.

· **Classification system:**

· **NFPA ratings (scale 0 - 4)**



Health = 2

Fire = 0

Reactivity = 0

· **HMIS-ratings (scale 0 - 4)**



HEALTH 2 Health = 2

FIRE 0 Fire = 0

REACTIVITY 0 Reactivity = 0

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- **Other hazards**
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.

### \* 3 Composition/information on ingredients

- **Chemical characterization: Substances**
- **CAS No. Description**  
CAS: 10101-97-0 Nickel Sulfate
- **Identification number(s)**
- **EC number:** 232-104-9

### 4 First-aid measures

- **Description of first aid measures**
- **General information:**  
Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.
- **After inhalation:**  
Supply fresh air and to be sure call for a doctor.  
In case of unconsciousness place patient stably in side position for transportation.
- **After skin contact:** Immediately wash with water and soap and rinse thoroughly.
- **After eye contact:** Rinse opened eye for several minutes under running water.
- **After swallowing:** Immediately call a doctor.
- **Information for doctor:**
- **Most important symptoms and effects, both acute and delayed** No further relevant information available.
- **Indication of any immediate medical attention and special treatment needed**  
No further relevant information available.

### 5 Fire-fighting measures

- **Extinguishing media**
- **Suitable extinguishing agents:** Use fire fighting measures that suit the environment.
- **Special hazards arising from the substance or mixture** No further relevant information available.
- **Advice for firefighters**
- **Protective equipment:** Mouth respiratory protective device.

### 6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures** Not required.
- **Environmental precautions:** Do not allow to enter sewers/ surface or ground water.
- **Methods and material for containment and cleaning up:**  
Dispose contaminated material as waste according to section 13.  
Ensure adequate ventilation.
- **Reference to other sections**  
See Section 7 for information on safe handling.  
See Section 8 for information on personal protection equipment.  
See Section 13 for disposal information.
- **Protective Action Criteria for Chemicals**
- **PAC-1:** 1.3 mg/m<sup>3</sup>

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- PAC-2: 8.7 mg/m<sup>3</sup>
- PAC-3: 52 mg/m<sup>3</sup>

## 7 Handling and storage

- **Handling:**
- **Precautions for safe handling**  
Thorough dedusting.  
Ensure good ventilation/exhaustion at the workplace.
- **Information about protection against explosions and fires:** No special measures required.
- **Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:** No special requirements.
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:** Keep receptacle tightly sealed.
- **Specific end use(s)** No further relevant information available.

## 8 Exposure controls/personal protection

- **Additional information about design of technical systems:** No further data; see section 7.
- **Control parameters**

- **Components with limit values that require monitoring at the workplace:**

CAS: 10101-97-0 Nickel Sulfate

PEL	Long-term value: 1 mg/m <sup>3</sup> as Ni
REL	Long-term value: 0.015 mg/m <sup>3</sup> as Ni; See Pocket Guide App. A
TLV	Long-term value: 0.1 mg/m <sup>3</sup> as Ni; A4; BEI; inhalable fraction

- **Additional information:** The lists that were valid during the creation were used as basis.
- **Exposure controls**
- **Personal protective equipment:**
- **General protective and hygienic measures:**  
Keep away from foodstuffs, beverages and feed.  
Immediately remove all soiled and contaminated clothing.  
Wash hands before breaks and at the end of work.  
Store protective clothing separately.  
Avoid contact with the skin.  
Avoid contact with the eyes and skin.
- **Breathing equipment:**  
In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.
- **Protection of hands:**



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

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Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

· **Material of gloves**

Nitrile rubber, NBR

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.

· **Penetration time of glove material**

480 minutes

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

· **Eye protection:**



Tightly sealed goggles

· **Body protection:** Protective work clothing

## 9 Physical and chemical properties

· **Information on basic physical and chemical properties**

· **General Information**

· **Appearance:**

**Form:** Crystalline

**Color:** Blue

· **Odor:** Odorless

· **Odor threshold:** Not determined.

· **pH-value:** Not applicable.

· **Change in condition**

**Melting point/Melting range:** 1,453 °C (34.653 °F)

**Boiling point/Boiling range:** 2,732 °C (36.932 °F)

· **Flash point:** Not applicable.

· **Flammability (solid, gaseous):** Product is not flammable.

· **Decomposition temperature:** Not determined.

· **Ignition temperature:** Not determined.

· **Danger of explosion:** Product does not present an explosion hazard.

· **Explosion limits:**

**Lower:** Not determined.

**Upper:** Not determined.

· **Vapor pressure:** Not applicable.

· **Density at 20 °C (68 °F):** 2.07 g/cm<sup>3</sup> (17.27415 lbs/gal)

· **Relative density** Not determined.

· **Vapor density** Not applicable.

· **Evaporation rate** Not applicable.

· **Solubility in / Miscibility with**

**Water:** Not determined.

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- **Partition coefficient (n-octanol/water):** Not determined.
- **Viscosity:**
  - Dynamic:** Not applicable.
  - Kinematic:** Not applicable.
- **Other information** No further relevant information available.

## 10 Stability and reactivity

- **Reactivity** No further relevant information available.
- **Chemical stability**
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Possibility of hazardous reactions** No dangerous reactions known.
- **Conditions to avoid** No further relevant information available.
- **Incompatible materials:** No further relevant information available.
- **Hazardous decomposition products:** No dangerous decomposition products known.

## 11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:**

- **LD/LC50 values that are relevant for classification:**

Oral	LD50	500 mg/kg (ATE)
Inhalative	LC50/4h	1.5 mg/l (ATE)

- **Primary irritant effect:**
  - on the skin:** Irritant to skin and mucous membranes.
  - on the eye:** No irritating effect.
- **Sensitization:**
  - Sensitization possible through inhalation.
  - Sensitization possible through skin contact.
- **Additional toxicological information:**
- **Carcinogenic categories**
- **IARC (International Agency for Research on Cancer) 1**
- **NTP (National Toxicology Program) K**
- **OSHA-Ca (Occupational Safety & Health Administration) Substance is not listed.**

## 12 Ecological information

- **Toxicity**
- **Aquatic toxicity:** No further relevant information available.
- **Persistence and degradability** No further relevant information available.
- **Behavior in environmental systems:**
- **Bioaccumulative potential** No further relevant information available.
- **Mobility in soil** No further relevant information available.
- **Additional ecological information:**
- **General notes:**
  - Water hazard class 3 (Self-assessment): extremely hazardous for water
  - Do not allow product to reach ground water, water course or sewage system, even in small quantities.

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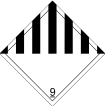

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- *Danger to drinking water if even extremely small quantities leak into the ground.*
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **Other adverse effects** No further relevant information available.

## 13 Disposal considerations

- **Waste treatment methods**
- **Recommendation:**  
*Must not be disposed of together with household garbage. Do not allow product to reach sewage system.*
- **Uncleaned packagings:**
- **Recommendation:** Disposal must be made according to official regulations.

## 14 Transport information

- **UN-Number**
- **DOT, IMDG, IATA** UN3077
- **UN proper shipping name**
- **DOT** *Environmentally hazardous substance, solid, n.o.s. (nickel sulphate)*
- **IMDG** *ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (nickel sulphate)*
- **IATA** *ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Nickel Sulfate)*
- **Transport hazard class(es)**
- **DOT**
- 
- **Class** *9 Miscellaneous dangerous substances and articles*
- **Label** *9*
- **IMDG, IATA**
- 
- **Class** *9 Miscellaneous dangerous substances and articles*
- **Label** *9*
- **Packing group**
- **DOT, IMDG, IATA** *III*
- **Environmental hazards:**
- **Marine pollutant:** *No*
- **Special marking (IATA):** *Symbol (fish and tree)*
- **Special marking (IATA):** *Symbol (fish and tree)*

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<ul style="list-style-type: none"> <li>· <i>Special precautions for user</i></li> <li>· <i>Poison inhalation hazard:</i></li> <li>· <i>Hazard identification number (Kemler code):</i> 9</li> <li>· <i>EMS Number:</i></li> <li>· <i>Stowage Category</i></li> <li>· <i>Stowage Code</i></li> </ul>	<p><i>Warning: Miscellaneous dangerous substances and articles</i></p> <p><i>No</i></p> <p><i>F-A,S-F</i></p> <p><i>A</i></p> <p><i>SW23 When transported in BK3 bulk container, see 7.6.2.12 and 7.7.3.9.</i></p>
<ul style="list-style-type: none"> <li>· <i>Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code</i></li> </ul>	<p><i>Not applicable.</i></p>
<ul style="list-style-type: none"> <li>· <i>Transport/Additional information:</i></li> <li>· <i>DOT</i></li> <li>· <i>Quantity limitations</i></li> <li>· <i>Hazardous substance:</i></li> </ul>	<p><i>On passenger aircraft/rail: No limit</i></p> <p><i>On cargo aircraft only: No limit</i></p> <p><i>100 lbs, 45.4 kg</i></p>
<ul style="list-style-type: none"> <li>· <i>IMDG</i></li> <li>· <i>Limited quantities (LQ)</i></li> <li>· <i>Excepted quantities (EQ)</i></li> </ul>	<p><i>5 kg</i></p> <p><i>Code: E1</i></p> <p><i>Maximum net quantity per inner packaging: 30 g</i></p> <p><i>Maximum net quantity per outer packaging: 1000 g</i></p>
<ul style="list-style-type: none"> <li>· <i>UN "Model Regulation":</i></li> </ul>	<p><i>UN 3077 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (NICKEL SULPHATE), 9, III</i></p>

## 15 Regulatory information

- *Safety, health and environmental regulations/legislation specific for the substance or mixture*
- *Sara*
- *Section 355 (extremely hazardous substances): Substance is not listed.*
- *Section 313 (Specific toxic chemical listings): Substance is listed.*
- *TSCA (Toxic Substances Control Act):*
- *Hazardous Air Pollutants Substance is listed.*
- *Proposition 65*
- *Chemicals known to cause cancer: Substance is listed.*
- *Chemicals known to cause reproductive toxicity for females: Substance is not listed.*
- *Chemicals known to cause reproductive toxicity for males: Substance is listed.*
- *Chemicals known to cause developmental toxicity: Substance is listed.*
- *Carcinogenic categories*
- *EPA (Environmental Protection Agency) Substance is not listed.*
- *TLV (Threshold Limit Value) Substance is not listed.*
- *NIOSH-Ca (National Institute for Occupational Safety and Health) Substance is listed.*
- *GHS label elements The substance is classified and labeled according to the Globally Harmonized System (GHS).*
- *Hazard pictograms*



GHS07 GHS08

- *Signal word Danger*

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· **Hazard statements**

- Harmful if swallowed or if inhaled.
- Causes skin irritation.
- May cause allergy or asthma symptoms or breathing difficulties if inhaled.
- May cause an allergic skin reaction.
- Suspected of causing genetic defects.
- May cause cancer.
- May damage fertility or the unborn child.
- Causes damage to organs through prolonged or repeated exposure.

· **Precautionary statements**

- Obtain special instructions before use.
- Do not handle until all safety precautions have been read and understood.
- Do not breathe dust/fume/gas/mist/vapors/spray.
- Wash thoroughly after handling.
- Do not eat, drink or smoke when using this product.
- Use only outdoors or in a well-ventilated area.
- Contaminated work clothing must not be allowed out of the workplace.
- Wear protective gloves/protective clothing/eye protection/face protection.
- [In case of inadequate ventilation] wear respiratory protection.
- If swallowed: Call a poison center/doctor if you feel unwell.
- Rinse mouth.
- If on skin: Wash with plenty of water.
- IF INHALED: Remove person to fresh air and keep comfortable for breathing.
- IF exposed or concerned: Get medical advice/attention.
- Specific treatment (see on this label).
- Get medical advice/attention if you feel unwell.
- Take off contaminated clothing and wash it before reuse.
- If skin irritation or rash occurs: Get medical advice/attention.
- If experiencing respiratory symptoms: Call a poison center/doctor.
- Wash contaminated clothing before reuse.
- Store locked up.
- Dispose of contents/container in accordance with local/regional/national/international regulations.

· **National regulations:**

· **Additional classification according to Decree on Hazardous Materials:**

- Carcinogenic hazardous material group I (extremely dangerous).
- Carcinogenic hazardous material group II (very dangerous).
- Carcinogenic hazardous material group III (dangerous).

· **Information about limitation of use:**

Workers are not allowed to be exposed to this hazardous material. Exceptions can be made by the authorities in certain cases.

· **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

## 16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· **Department issuing SDS:** Environment protection department.

· **Contact:**

Date of Preparation / Last Revision:

· **Date of preparation / last revision**

Revision 0.1, 06/14/2024: Reviewed SDS for accuracy. MH/STN

Creation Date for SDS 09-09-2014. STN

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**Abbreviations and acronyms:***IMDG: International Maritime Code for Dangerous Goods**DOT: US Department of Transportation**IATA: International Air Transport Association**EINECS: European Inventory of Existing Commercial Chemical Substances**CAS: Chemical Abstracts Service (division of the American Chemical Society)**NFPA: National Fire Protection Association (USA)**HMIS: Hazardous Materials Identification System (USA)**LC50: Lethal concentration, 50 percent**LD50: Lethal dose, 50 percent**PBT: Persistent, Bioaccumulative and Toxic**vPvB: very Persistent and very Bioaccumulative**NIOSH: National Institute for Occupational Safety**OSHA: Occupational Safety & Health**TLV: Threshold Limit Value**PEL: Permissible Exposure Limit**REL: Recommended Exposure Limit**Acute Toxicity - Oral 4: Acute toxicity – Category 4**Skin Irritation 2: Skin corrosion/irritation – Category 2**Sensitization - Respiratory 1: Respiratory sensitisation – Category 1**Sensitization - Skin 1: Skin sensitisation – Category 1**Germ Cell Mutagenicity 2: Germ cell mutagenicity – Category 2**Carcinogenicity 1A: Carcinogenicity – Category 1A**Toxic to Reproduction 1B: Reproductive toxicity – Category 1B**Specific Target Organ Toxicity - Repeated Exposure 1: Specific target organ toxicity (repeated exposure) – Category 1***\* Data compared to the previous version altered.**

US