



NICKEL NITRATE

Material Safety Data Sheet

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Emergency Telephone Number
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PRODUCT IDENTIFICATION:

Synonyms: Nickel (II) nitrate, hexahydrate (1:2:6); nickelous nitrate; nitric acid, nickel (2+) salt, hexahydrate

Formula CAS No.: 13478-00-7 (Hydrated)
TSCA CAS No.: 13138-45-9 (Anhydrous)

Molecular Weight: 290.83

Hazardous Ingredients: Chemical Formula: $\text{Ni}(\text{NO}_3)_2 \cdot 6\text{H}_2\text{O}$
Not applicable.

PRECAUTIONARY MEASURES

! DANGER! STRONG OXIDIZER. CONTACT WITH OTHER MATERIAL MAY CAUSE FIRE.
! HARMFUL IF SWALLOWED OR INHALED. MAY CAUSE NASAL OR LUNG DAMAGE.
! CONTACT MAY CAUSE IRRITATION OR RASH.

Do not store near combustible materials.
Do not get in eyes, in open wounds, or on skin or clothing.
Remove and wash contaminated clothing promptly.
Wash thoroughly after handling.
Do not breathe dust.
Keep container closed.
Use only with adequate ventilation.
Nickel and certain nickel compounds may cause cancer.

EMERGENCY/FIRST AID

If swallowed, induce vomiting immediately by giving two glasses of water and sticking finger down throat. Never give anything by mouth to an unconscious person.
If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. In case of contact, immediately flush skin or eyes with plenty of water for at least 15 minutes.
In all cases call a physician.
SEE SECTION 5.

DOT Hazard Class: Oxidizer

Physical Data SECTION 1

Appearance: Green, transparent crystals.

Odor: Odorless.

Solubility: 60g/100g water @ 20°C (68°F)

Boiling Point: 137°C (278.6°F)

Vapor Density (Air=1): No information found.

Melting Point: 56.7°C (134.1°F)

Vapor Pressure (mm Hg): No information found.

Specific Gravity: 2.05

Evaporation Rate: No information found.

Fire and Explosion Information

Fire:

Not combustible, but substance is a strong oxidizer and its heat of reaction with reducing agents or combustibles may cause ignition.
Increases the flammability of any combustible material.

Explosion:

Contact with oxidizable substances may cause extremely violent combustion. Strong oxidants may explode when shocked, or if exposed to heat, flame, or friction. Also may act as initiation source for dust or vapor explosions.

Fire Extinguishing Media:

Water or water spray in early stages of fire. Foam or dry chemical may also be used.

Special Information:

Wear full protective clothing and breathing equipment for high-intensity fire or potential explosion conditions.

Reactivity Data

Stability:

Stable under ordinary conditions of use and storage. Substance has both oxidant and reducing characteristics, and is unstable when heated or shocked.

Hazardous Decomposition Products:

Degradation produces toxic nitric oxides and nickel-containing fumes.

Hazardous Polymerization:

This substance does not polymerize.

Incompatibilities:

Aluminum, boron phosphide, cyanides, esters, combustible material, phospham, phosphorus, sodium hypophosphite, stannous chloride, thiocyanates.

Leak/Spill Disposal Information SECTION 4

Ventilate the area of the leak or spill.

Remove combustibles and sources of heat or ignition. Clean-up personnel require protective clothing and respiratory protection from dust. Carefully sweep up or vacuum spills and place in an appropriate container for reclamation or disposal in a RCRA approved facility. Prevent combustion and explosions from organic contamination by covering with water. Flush residue with water to treatment facility. Recommendations for chemically treating the collected spill are given below:
Treat with soda ash and water to precipitate; filter and dispose insoluble material in a RCRA approved waste facility.

Reportable Quantity (RQ) (CMA/CERCLA) : 5000 lbs.

Ensure compliance with local, state and federal regulations.

SECTION 2

SECTION 3

SECTION 4

Nickel Nitrate

Health Hazard Information

SECTION 5

A. Exposure/Health Effects

Inhalation:

Dust may cause irritation to the upper respiratory tract, symptoms may include coughing, sore throat, and shortness of breath. Sensitive individuals may develop asthma, bronchitis, dyspnea, and wheezing.

Ingestion:

Irritating to the digestive tract. Symptoms may include abdominal pain, diarrhea, nausea, and vomiting. Absorption is poor, but should it occur, symptoms may include giddiness, capillary damage, myocardial weakness, central nervous system depression, and kidney and liver damage.

Skin Contact:

May cause skin irritation. Some individuals may become sensitized to the substance and suffer "nickel itch", a form of dermatitis.

Eye Contact:

May cause irritation to the conjunctiva.

Chronic Exposure:

No information found.

Aggravation of Pre-existing Conditions:

Persons with pre-existing skin disorders, impaired respiratory or pulmonary function, or with a history of asthma, allergies, or sensitization to nickel compounds may be at an increased risk upon exposure to this substance.

B. FIRST AID

Inhalation:

Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician.

Ingestion:

If swallowed, induce vomiting immediately by giving two glasses of water and sticking finger down throat. Never give anything by mouth to an unconscious person. Call physician immediately.

Skin Exposure:

Remove any contaminated clothing. Wipe off excess from skin. Wash skin with plenty of water for at least 15 minutes. Get medical attention promptly.

Eye Exposure:

Wash eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention immediately.

C. TOXICITY DATA (RTECS, 1982)

Oral rat LD50: 1620 mg/kg.

NIOSH has proposed that all "airborne nickel" be considered carcinogenic.

Occupational Control Measures

SECTION 6

Airborne Exposure Limits:

-OSHA Permissible Exposure Limit (PEL):
1mg(Ni)/m³ ppm (TWA)
-ACGIH Threshold Limit Value (TLV):
0.1mg(Ni)/m³ (TWA); 0.3 mg (Ni)/m³ (STEL)

Ventilation System:

A system of local exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the dust or vapor at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, "Industrial Ventilation, A Manual of Recommended Practices", most recent edition, for details.

Personal Respirators:

(NIOSH Approved)
If the TLV is exceeded, a dust/mist respirator with chemical goggles may be worn, in general, up to ten times the TLV. Consult respirator supplier for limitations. Alternatively, a supplied air full facepiece respirator or airlined hood may be worn.

Skin Protection:

Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls to prevent skin contact.

Eye Protection:

Use chemical safety goggles and/or full face shield where dusting or splashing of solutions is possible. Contact lenses should not be worn when working with this material. Maintain eye wash fountain and quick-drench facilities in work area.

Eating, drinking, and smoking should not be permitted in areas where solids or liquids containing soluble nickel compounds are handled, processed, or stored. NIOSH recommends pre-placement and periodic medical exams, with maintaining of records for all employees exposed to nickel in the workplace.

Storage and Special Information

SECTION 7

Keep in a tightly closed container, stored in a cool, dry, ventilated area. Protect against physical damage. Separate from combustible, organic or other readily oxidizable materials. Do not store on wooden floors. Areas in which exposure to nickel metal or soluble nickel compounds may occur should be identified by signs or appropriate means, and access to the area should be limited to authorized persons.

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