

MATERIAL SAFETY DATA SHEET

Hazardous according to criteria of Worksafe

1. IDENTIFICATION

General

Product Name : ENVIRONMENTALLY HAZARDOUS SUBSTRANCE, SOLID N.O.S (NICKEL

Other Names : SULPHATE) NICKEL SALTS, SINGLE

UN No. : 3077

Dangerous Goods Class : 9

Subsidiary Risk : None Allocated

Hazchem Code : 2X

Pack Group : 0

EPG : 47

Poisons Schedule : 6

Uses :

Manufacture of Nickel Ammonium Sulphate, Nickel catalysts, Nickel plating, mordant in dyeing and printing textiles, coatings, ceramics

1.1 Physical Description / Properties

Appearance : Blue-green crystals, odourless.

Formula : $\text{NiSO}_4 \cdot 6\text{H}_2\text{O}$

Boiling Point : 103 deg C

Melting Point : 100 deg C

Vapour Pressure : N/A

Specific Gravity : 2.03 (water = 1)

Flash Point : N/A

pH : 3.5 - 5.0 ()

Solubility in water : Solub g/l (25 deg C)

Flammability Limits (as percentage volume in air)

Lower Explosion Limit : N/A

Upper Explosion Limit : N/A

1.2 Other Properties

Solubility in water = 75.6 g/100 cc @ 15.5 deg C % Volatiles by volume @ 21 deg C = 0

1.3 Ingredients

Chemical Entity	CAS No.	Proportions (%)
NICKEL SULPHATE	[7786-81-4]	> 99

2. HEALTH HAZARD INFORMATION

2.1 Health Effects - Acute

Swallowed

Toxic. Symptoms may include abdominal pain, diarrhoea, 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.

Eye

Causes irritation, redness and pain.

Skin

Causes irritation. May cause skin allergy with itching, redness or rash. Some individuals may become sensitised to the substance and suffer "nickel itch", a form of dermatitis.

Inhaled

Causes irritation to the respiratory tract. Symptoms may include coughing, sore throat and shortness of breath. Lung damage may result from a single high exposure or lower repeated exposures. Lung allergy occasionally occurs with asthma type symptoms.

2.2 Health Effects - Chronic

Prolonged or repeated exposure to excessive concentrations may affect lungs, liver and kidneys. Chronic exposure to nickel and nickel compounds is associated with cancer. Persons with pre-existing skin disorders, impaired respiratory or pulmonary function, or with a history of asthma, allergies or sensitisation to nickel compounds may be at an increased risk upon exposure to this substance.

2.3 First Aid

Swallowed

Induce vomiting immediately as directed by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention.

Eye

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

Skin

Wipe off excess material from skin then immediately flush skin with plenty of water for at least 15 minutes. Remove contaminated clothing and shoes. Get medical attention. Wash clothing before reuse. Thoroughly clean shoes before reuse.

Inhaled

Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

First Aid Facilities

Ensure an eye bath and safety shower are available and ready for use.

2.5 Advice to Doctor

Treat symptomatically based on judgement of doctor and individual reactions of patient.

2.6 Toxicity Data

No LD50/LC50 information found relating to normal routes of occupational exposure. Investigated as a tumorigen and mutagen. Cancer Lists NTP Carcinogen Ingredient Known Anticipated IARC Category Nickel sulphate (7786-81-4) No Yes 1

3. PRECAUTIONS FOR USE

3.1 Exposure Standards

The following exposure standard has been established by Worksafe : Nickel, soluble compounds (as Ni) : TWA = 0.1 mg/m³ - Sensitiser

3.2 Engineering Controls

A system of local/general exhaust ventilation 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 contaminant at its sources, preventing dispersion of it into the general work area.

3.3 Personal Protection

Respiratory protection - if the exposure limit is exceeded and engineering controls are not feasible, a half facepiece particulate respirator (NIOSH type N95 or better filters) may be worn for up to ten times the exposure limit or the maximum use concentration specified by the appropriate regulatory agency or respirator supplier, whichever is lowest. A full-face piece particulate respirator (NIOSH type N100 filters) may be worn up to 50 times the exposure limit or the maximum use concentration specified by the appropriate regulatory agency, or respirator supplier, whichever is lowest. Skin protection - use rubber or neoprene gloves and additional protection including boots, apron, or coveralls as needed in areas of unusual exposure. Eye protection - use chemical safety goggles and/or full face shield where dusting or splashing of solutions is possible. 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.

3.4 Flammability

Product stable under normal conditions of use and storage. At 53.3 deg C the substance undergoes transition to transparent green crystals. Solutions are acidic.

SAFE HANDLING INFORMATION

4.1 Storage / Transport

Keep in a tightly closed container, stored in a cool, dry, ventilated area. Protect against physical damage. Avoid contact with incompatibles such as strong acids. 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 authorised persons. Wear special protective equipment for maintenance break-in or where exposures may exceed established exposure levels. Wash hands, face, forearms and neck when exiting restricted areas. Shower, dispose of outer clothing, change to clean garments at the end of the day. Avoid cross-contamination of street clothes. Wash hands before eating and do not eat, drink or smoke in workplace. Containers of this material may be hazardous when empty since they retain product residues (dusts, solids); observe all warnings and precautions listed for the product.

4.2 Packaging / Labelling

UN No. 3077

Class 9

Sub Risk None Allocated

Hazchem Code 2X

Pack Group 0

EPG No. 47

Shipping Name ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID N.O.S (NICKEL

Hazard HARMFUL

Risk Phrases

R22 Harmful if swallowed.

R40:NISULP Possible risks of irreversible effects.

R42/43 May cause sensitisation by inhalation and skin contact.

Safety Phrases

S22 Do not breathe dust.

S36/37 Wear suitable protective clothing and gloves.

4.3 Spills and Disposal

Spills

Clean-up personnel should wear full protective clothing including breathing apparatus. Avoid raising dusts.

Sweep up and containerise for reclamation or disposal. Vacuuming or wet sweeping may be used to avoid dust dispersal.

Disposal

Whatever cannot be saved for recovery or recycling should be managed in an approved waste disposal facility. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of containers and unused contents in accordance with federal, state and local requirements.

4.4 FIRE AND EXPLOSION HAZARD

Fire / Explosion

Will not burn or explode. Material is stable under normal conditions. Incompatible with strong acids. Product may decompose emitting sulphur oxides. Hazardous polymerisation will not occur.

Extinguishing Media

Fire-fighter should wear full protective clothing including self-contained breathing apparatus. Use water, sand, carbon dioxide or dry chemical type extinguishers. Use equipment/media appropriate to surrounding fire conditions.

