Nickel (II) sulfate hexahydrate
MSDS# 16410

Section 1 - Chemical Product and Company Identification

MSDS Name: Nickel (II) sulfate hexahydrate
Synonyms: Nickeous Sulfate Crystal; Single Nickel Salt; Sulfuric Acid Nickel (II) Salt.
Company Identification: Fisher Scientific UK
Bishop Meadow Road, Loughborough
Leics. LE11 5RG
For information in Europe, call:(01509) 231166
Emergency Number, Europe:01509 231166

Section 2 - Composition, Information on Ingredients

CAS#: 10101-97-0
Chemical Name: Nickel (II) sulfate hexahydrate
%: >98%
EINECS#: unlisted

Section 3 - Hazards Identification

EMERGENCY OVERVIEW
Harmful if swallowed. Limited evidence of a carcinogenic effect. May cause sensitization by inhalation and skin contact. Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
Potential Health Effects
Eye:
May cause eye irritation.

Skin:
Causes skin irritation. May cause dermatitis. May be harmful if absorbed through the skin. May cause sensitization by skin contact.

Ingestion:
Harmful if swallowed. May cause gastrointestinal irritation with nausea, vomiting and diarrhea.

Inhalation:
Dust is irritating to the respiratory tract. Inhalation of vapor may cause respiratory tract irritation. May cause lung damage. May be harmful if inhaled. May cause respiratory sensitization.

Chronic:
Prolonged or repeated skin contact may cause sensitization dermatitis and possible destruction and/or ulceration. May cause respiratory tract cancer. Laboratory experiments have resulted in mutagenic effects.

Section 4 - First Aid Measures

Eyes:
Flush eyes with plenty of water for at least 15 minutes,
occasionally lifting the upper and lower eyelids. Get medical aid.

Do

NOT allow victim to rub eyes or keep eyes closed.

Skin:
Flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical aid if irritation develops or persists. Wash clothing before reuse.

Ingestion:
Do not induce vomiting. If victim is conscious and alert, give 2-4 cupfuls of milk or water. Never give anything by mouth to an unconscious person. Get medical aid immediately.

Inhalation:
Remove from exposure and move to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid. Do NOT use mouth-to-mouth resuscitation.

Notes to Physician:

Section 5 - Fire Fighting Measures

General Information:
As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. Water runoff can cause environmental damage. Dike and collect water used to fight fire. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion.

Extinguishing Media:
Substance is noncombustible; use agent most appropriate to extinguish surrounding fire.

Section 6 - Accidental Release Measures

General Information:
Use proper personal protective equipment as indicated in Section 8.

Spills/Leaks:
Wash area with soap and water. Wear a self contained breathing apparatus and appropriate personal protection. (See Exposure Controls, Personal Protection section). Avoid generating dusty conditions. Carefully scoop up and place into appropriate disposal container. Provide ventilation.

Section 7 - Handling and Storage

Handling:
Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Use with adequate ventilation. Minimize dust generation and accumulation. Avoid contact with skin and eyes.

Avoid

ingestion and inhalation.

Storage:
Store in a tightly closed container. Store in a cool, dry, well-ventilated area away from incompatible substances. Keep away from strong acids.

Section 8 - Exposure Controls, Personal Protection

Engineering Controls:
Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate ventilation to keep airborne concentrations low.

Exposure Limits
CAS# 10101-97-0:
United Kingdom, WEL - TWA: (nickel, inorganic compounds, soluble):
0.1 mg/m3 TWA (as Ni)
United Kingdom, WEL - STEL: (nickel, inorganic compounds, soluble):
0.3 mg/m³ STEL (as Ni)
United States OSHA: 1 mg/m³ TWA (as Ni) (Nickel soluble compounds).
Belgium - TWA: (nickel soluble compounds): 0.1 mg/m³ VLE (as Ni)
Malaysia: (nickel soluble compounds): 0.1 mg/m³ TWA (inhalable fraction, as Ni)
Netherlands: (nickel soluble compounds): 0.1 mg/m³ MAC (as Ni)
Spain: (nickel soluble compounds): 0.1 mg/m³ VLA-ED (as Ni)

Personal Protective Equipment

Eyes:
Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin:
Wear appropriate protective gloves to prevent skin exposure.

Clothing:
Wear appropriate protective clothing to prevent skin exposure.

Respirators:
Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Section 9 - Physical and Chemical Properties

Physical State: Crystals
Color: blue-green
Odor: none reported
pH: 4.5 in solution.
Vapor Pressure: Negligible
Viscosity: Not available
Boiling Point: 103 deg C (217.40 F)
Freezing/Melting Point: 53 deg C (127.40 F)
Autoignition Temperature: Noncombustible
Flash Point: Noncombustible

Explosion Limits: Lower: Not available
Explosion Limits: Upper: Not available

Decomposition Temperature:

Solubility in water: 625g/L @20C in water.
Specific Gravity/Density: 2.07 (water=1)
Molecular Formula: NiSO₄.6H₂O
Molecular Weight: 262.828

Section 10 - Stability and Reactivity

Chemical Stability:
Stable at room temperature in closed containers under normal storage and handling conditions.

Conditions to Avoid:
Dust generation.

Incompatibilities with Other Materials
Not available

Hazardous Decomposition Products
Oxides of sulfur, nickel oxide.

Hazardous Polymerization
Has not been reported.
Section 11 - Toxicological Information

RTECS#: 
CAS# 10101-97-0: QR9600000
LD50/LC50:
RTECS: CAS# 10101-97-0: Oral, rat: LD50 = 264 mg/kg.
Carcinogenicity:
   Nickel (II) sulfate hexahydrate -
   California: carcinogen, initial date 5/7/04 (Nickel compounds).
   NTP: Known carcinogen (Nickel compounds).
   IARC: Group 1 carcinogen
Other:
   See actual entry in RTECS for complete information.

Section 12 - Ecological Information

Ecotoxicity:
Not available

Section 13 - Disposal Considerations

Dispose of in a manner consistent with federal, state, and local regulations.

Section 14 - Transport Information

IATA
   Shipping Name: Y HAZARDOUS SUBSTANCE, SOLID, N.O.S.
   Hazard Class: 9
   UN Number: 3077
   Packing Group: III
IMO
   Shipping Name: Y HAZARDOUS SUBSTANCE, SOLID, N.O.S.
   Hazard Class: 9
   UN Number: 3077
   Packing Group: III
RID/ADR
   Shipping Name: Y HAZARDOUS SUBSTANCE, SOLID, N.O.S.
   Hazard Class: 9
   UN Number: 3077
   Packing Group: III

Section 15 - Regulatory Information

European/International Regulations
   European Labeling in Accordance with EC Directives
Hazard Symbols: XN N
Risk Phrases:
   R 22  Harmful if swallowed.
   R 40  Limited evidence of a carcinogenic effect.
   R 42/43 May cause sensitization by inhalation and skin contact.
   R 50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
Safety Phrases:
   S 22  Do not breathe dust.
   S 36/37 Wear suitable protective clothing and gloves.
   S 60  This material and its container must be disposed of as hazardous waste.
   S 61  Avoid release to the environment. Refer to special instructions/safety data sheets.
WGK (Water Danger/Protection)
   CAS# 10101-97-0: 2
   Canada
   US Federal
TSCA
CAS# 10101-97-0 is not on the TSCA Inventory because it is a hydrate. It is considered to be listed if the CAS number for the anhydrous form is on the Section 16 - Other Information

MSDS Creation Date:
8/07/1998
Revision #6 Date
3/16/2007

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