Material Safety Data Sheet

Nickelous Sulfate, Hexahydrate, GR

1 . Product and company identification

Product name : Nickelous Sulfate, Hexahydrate, GR

Product code : NX0350

Supplier : EMD Millipore Corp.
290 Concord Rd.
Billerica, MA 01821
1-978-715-1335 Technical Service
Monday - Friday: 8:00 - 6:00 PM EST

Synonym : Nickel Sulfate Hexahydrate

Material uses : Other non-specified industry: Analytical reagent.

Validation date : 4/26/2012.

In case of emergency : 800-424-9300 CHEMTREC (USA)
613-996-6666 CANUTEC (Canada)
24 Hours/Day: 7 Days/Week

2 . Hazards identification

Emergency overview : WARNING!

CANCER HAZARD - CAN CAUSE CANCER.
HARMFUL IF INHALED OR SWALLOWED.
CAUSES RESPIRATORY TRACT, EYE AND SKIN IRRITATION.
MAY CAUSE ALLERGIC RESPIRATORY AND SKIN REACTION.
MAY CAUSE DAMAGE TO THE FOLLOWING ORGANS: LUNGS, SKIN, NOSE, SINUSES.
May cause harm to the unborn child.
Toxic to aquatic organisms, may cause long-term adverse effect in the aquatic environment.

WARNING: This product contains a chemical known to the State of California to cause cancer.

Do not ingest. Avoid contact with eyes, skin and clothing. Use only with adequate ventilation. Keep container tightly closed and sealed until ready for use. Wash thoroughly after handling.

Physical state : Solid. [Crystals.]

OSHA/HCS status : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Routes of entry : Dermal contact. Eye contact. Inhalation. Ingestion.

Potential acute health effects

Inhalation : Irritating to respiratory system. May be harmful if inhaled.

Ingestion : Toxic if swallowed.

Skin : Irritating to skin. May cause sensitization by skin contact.

Eyes : Irritating to eyes.

Potential chronic health effects

Carcinogenicity : Can cause cancer. Risk of cancer depends on duration and level of exposure.

Mutagenicity : No known significant effects or critical hazards.

Teratogenicity : No known significant effects or critical hazards.

Developmental effects : No known significant effects or critical hazards.

Fertility effects : No known significant effects or critical hazards.

Target organs : May cause damage to the following organs: lungs, skin, nose/sinuses.

Medical conditions aggravated by over-exposure : Pre-existing respiratory and skin disorders and disorders involving any other target organs mentioned in this MSDS as being at risk may be aggravated by over-exposure to this product.

See toxicological information (section 11)

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3 . Composition/information on ingredients

Name	CAS number	% by weight
Nickelous Sulfate, Hexahydrate	10101-97-0	100

4 . First aid measures

Eye contact : Check for and remove any contact lenses. Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical attention immediately.

Skin contact : In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Clean shoes thoroughly before reuse. Get medical attention immediately.

Inhalation : Move exposed person to fresh air. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately.

Ingestion : Wash out mouth with water. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention immediately.

5 . Fire-fighting measures

Flammability of the product : No specific fire or explosion hazard.

Extinguishing media : Use an extinguishing agent suitable for the surrounding fire.

Not suitable : None known.

Special exposure hazards : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

Hazardous thermal decomposition products : Decomposition products may include the following materials:
sulfur oxides
metal oxide/oxides

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

6 . Accidental release measures

Personal precautions : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment (see Section 8).

Environmental precautions : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods for cleaning up

Spill : Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Vacuum or sweep up material and place in a designated, labeled waste container. Dispose of via a licensed waste disposal contractor. Note: see section 1 for emergency contact information and section 13 for waste disposal.

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7 . Handling and storage

Handling : Persons with a history of skin sensitization problems or asthma, allergies or chronic or recurrent respiratory disease should not be employed in any process in which this product is used. Do not get in eyes or on skin or clothing. Do not ingest. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.

Storage : Store in accordance with local regulations. Store in original container, protected from direct sunlight. Keep container tightly closed and sealed until ready for use.

8 . Exposure controls/personal protection

Ingredient	Exposure limits
Nickelous Sulfate, Hexahydrate	**NIOSH REL (United States, 6/2009).** TWA: 0.015 mg/m³, (as Ni) 10 hour(s). **ACGIH TLV (United States, 2/2010).** TWA: 0.1 mg/m³, (as Ni) 8 hour(s). Form: Inhalable fraction. See Appendix C, paragraph A. Inhalable Particulate Mass TLVs (IPM–TLVs) for those materials that are hazardous when deposited anywhere in the respiratory tract. **OSHA PEL 1989 (United States, 3/1989).** TWA: 0.1 mg/m³, (as Ni) 8 hour(s). Form: Soluble **OSHA PEL (United States, 11/2006).** TWA: 1 mg/m³, (as Ni) 8 hour(s).

Consult local authorities for acceptable exposure limits.

Engineering measures : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal protection

Respiratory : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Hands : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Recommended: nitrile rubber

Eyes : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists or dusts. Recommended: safety glasses with side-shields

Skin : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
Recommended: lab coat

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

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9 . Physical and chemical properties

Physical state	:	Solid. [Crystals.]
Flash point	:	[Product does not sustain combustion.]
Color	:	Green.
Odor	:	Not available.
Molecular weight	:	262.89 g/mole
Molecular formula	:	NiSO4 . 6H2O
pH	:	Not available.
Boiling/condensation point	:	Not available.
Melting/freezing point	:	Not available.
Relative density	:	Not available.
Vapor pressure	:	Not available.
Vapor density	:	Not available.
Odor threshold	:	Not available.
Evaporation rate	:	Not available.
VOC	:	0 % (w/w)
Solubility	:	Soluble in the following materials: water

10 . Stability and reactivity

Chemical stability	:	The product is stable.
Possibility of hazardous reactions	:	Under normal conditions of storage and use, hazardous reactions will not occur.
Hazardous polymerization	:	Under normal conditions of storage and use, hazardous polymerization will not occur.
Conditions to avoid	:	No specific data.
Hazardous decomposition products	:	Under normal conditions of storage and use, hazardous decomposition products should not be produced.

11 . Toxicological information

Acute toxicity

Product/ingredient name	Test	Route	Species	Result
Nickelous Sulfate, Hexahydrate	LD50	Oral	Rat	264 mg/kg
	TDLo	Intratracheal	Rat	2.6 mg/kg

Carcinogenicity

Classification

Product/ingredient name	ACGIH	IARC	EPA	NIOSH	NTP	OSHA
Nickelous Sulfate, Hexahydrate	A4	1	-	+	-	-

Can cause cancer. Risk of cancer depends on duration and level of exposure.

Mutagenicity

No known significant effects or critical hazards.

Teratogenicity

No known significant effects or critical hazards.

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12 . Ecological information

Environmental effects : No known significant effects or critical hazards.

Other adverse effects : No known significant effects or critical hazards.

13 . Disposal considerations

The information presented only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations. Disposal should be in accordance with applicable regional, national and local laws and regulations.

14 . Transport information

Regulatory information	UN number	Proper shipping name	Classes	PG*	Label	Additional information
DOT Classification	UN3288	TOXIC SOLID, INORGANIC, N.O.S. (NICKEL SULFATE)	6.1	III		**Reportable quantity** 100 lbs. (45.4 kg)

PG* : Packing group

15 . Regulatory information

United States

HCS Classification : Toxic material
Irritating material
Sensitizing material
Carcinogen
Target organ effects

U.S. Federal regulations : **TSCA 8(a) IUR**: Partial exemption
United States inventory (TSCA 8b): This material is listed or exempted.

TSCA (Toxic Substance Control Act): This product is listed on the TSCA Inventory.

SARA 302/304/311/312 extremely hazardous substances: No products were found.
SARA 302/304 emergency planning and notification: No products were found.
SARA 302/304/311/312 hazardous chemicals: Nickelous Sulfate, Hexahydrate
SARA 311/312 MSDS distribution - chemical inventory - hazard identification: Nickelous Sulfate, Hexahydrate: Immediate (acute) health hazard, Delayed (chronic) health hazard

Clean Water Act (CWA) 307: Nickelous Sulfate, Hexahydrate

Clean Water Act (CWA) 311: No products were found.

Clean Air Act (CAA) 112 accidental release prevention: No products were found.

Clean Air Act (CAA) 112 regulated flammable substances: No products were found.

Clean Air Act (CAA) 112 regulated toxic substances: No products were found.

DEA List I Chemicals (Precursor Chemicals) : Not listed

DEA List II Chemicals (Essential Chemicals) : Not listed

SARA 313

	Product name	CAS number	Concentration
Form R - Reporting requirements :	Nickelous Sulfate, Hexahydrate	10101-97-0	100
Supplier notification :	Nickelous Sulfate, Hexahydrate	10101-97-0	100

SARA 313 notifications must not be detached from the MSDS and any copying and redistribution of the MSDS shall include copying and redistribution of the notice attached to copies of the MSDS subsequently redistributed.

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15 . Regulatory information

New Jersey Hazardous Substances : This material is listed.

Pennsylvania RTK Hazardous Substances : This material is listed.

California Prop. 65

WARNING: This product contains a chemical known to the State of California to cause cancer.

Ingredient name	Cancer	Reproductive	No significant risk level	Maximum acceptable dosage level
Nickelous Sulfate, Hexahydrate	Yes.	No.	No.	No.

Canada

WHMIS (Canada) : Class D-1B: Material causing immediate and serious toxic effects (Toxic).
Class D-2A: Material causing other toxic effects (Very toxic).
Class D-2B: Material causing other toxic effects (Toxic).

Canadian lists : **CEPA Toxic substances**: This material is not listed.
Canadian ARET: This material is not listed.
Canadian NPRI: This material is listed.
Alberta Designated Substances: This material is not listed.
Ontario Designated Substances: This material is not listed.
Quebec Designated Substances: This material is not listed.

CEPA DSL / CEPA NDSL : This material is listed or exempted.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

EU regulations

Hazard symbol or symbols :

Risk phrases : R49- May cause cancer by inhalation.
R68- Possible risk of irreversible effects.
R61- May cause harm to the unborn child.
R48/23- Also toxic: danger of serious damage to health by prolonged exposure through inhalation.
R20/22- Also harmful by inhalation and if swallowed.
R38- Irritating to skin.
R42/43- May cause sensitization by inhalation and skin contact.
R50/53- Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Safety phrases : S53- Avoid exposure - obtain special instructions before use.
S45- In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
S60- This material and its container must be disposed of as hazardous waste.
S61- Avoid release to the environment. Refer to special instructions/safety data sheet.

International regulations

International lists : **Australia inventory (AICS)**: This material is listed or exempted.
China inventory (IECSC): This material is listed or exempted.
Japan inventory: This material is listed or exempted.
Korea inventory: This material is listed or exempted.
New Zealand Inventory of Chemicals (NZIoC): This material is listed or exempted.
Philippines inventory (PICCS): This material is listed or exempted.

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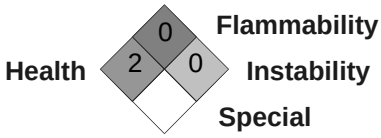
16 . Other information

National Fire Protection Association (U.S.A.) :



Notice to reader

The statements contained herein are based upon technical data that EMD Millipore Corp. believes to be reliable, are offered for information purposes only and as a guide to the appropriate precautionary and emergency handling of the material by a properly trained person having the necessary technical skills. Users should consider these data only as a supplement to other information gathered by them and must make independent determinations of suitability and completeness of information from all sources to assure proper use, storage and disposal of these materials and the safety and health of employees and customers and the protection of the environment. EMD MILLIPORE CORP. MAKES NO REPRESENTATION OR WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING MERCHANTABILITY OR FITNESS FOR A PARTICULAR USE, WITH RESPECT TO THE INFORMATION HEREIN OR THE PRODUCT TO WHICH THE INFORMATION REFERS.