SAFETY DATA SHEET
99.9%
NICKEL SULPHATE HEXAHYDRATE

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1. PRODUCT IDENTIFIER

Product name:	Nickel Sulphate Hexahydrate
Product No.:	NIS
CAS-No.:	10101-97-0
EC No.:	232-104-9
REACH:	01-2119439361-44
Synonym:	Nickel (II) sulfate hexahydrate, Nickelous sulfate hexahydrate, Nickel sulfate hexahydrate
Chemical Formula:	$NiSO_4 * 6H_2O$

1.2. RELEVANT IDENTIFIED USES OF THE SUBSTANCE OR MIXTURE AND USES ADVISED AGAINST

Recommended use: In the chemical industry for the production of catalysts for hydrogenation of fats,

As an electrolyte for nickel plating and in electrolytic refining,

In the preparation of galvanic baths,

Blackening of zinc and brass,

Dyeing mortar.

1.3. DETAILS OF THE SUPPLIER OF THE SAFETY DATA SHEET

HD Chemicals LTD
UNIT 9 Scott Business Park
PL2 2PB Plymouth UK

Contact Person responsible for SDS: Mr Peter Konefal, e-mail: contact@hdchemicals.co.uk

SECTION 2: HAZARDS IDENTIFICATION

2.1. CLASSIFICATION OF THE SUBSTANCE OR MIXTURE

Classification 67/548/EEC: Xi; R38, T; R49, R61, N; R50, R53, Xn; R68; R20/22, R42/43, R48/23

Classification – EC 1272/2008: Acute toxicity, oral; Category 4 (H302)

Skin corrosion/irritation; Category 2 (H315)

Sensitization, skin; Category 1 (H317)

Acute toxicity, inhalation; Category 4 (H332)

Sensitization, respiratory; Category 1 (H334)

Germ cell mutagenicity; Category 2 (H341)

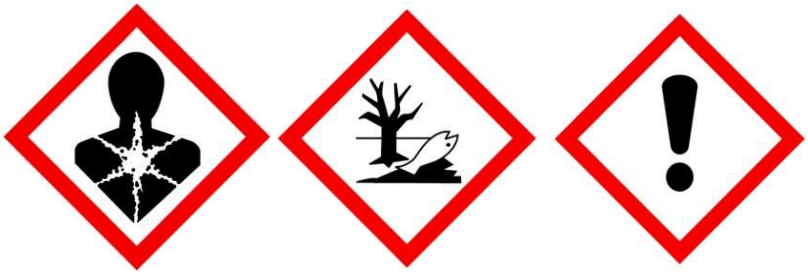
Carcinogenicity; Category 1A (H350i)

Reproductive toxicity; Category 1B (H360D)

Specific target organ toxicity, repeated exposure; Category 1 (H372)

Hazardous to the aquatic environment, chronic toxicity; Category 1 (H410)

2.2. LABEL ELEMENTS



SIGNAL WORDS

Danger

RISK PHRASES

R38	Irritating to skin
R49	May cause cancer by inhalation
R50	Very toxic to aquatic organisms
R53	May cause long-term adverse effects in the aquatic environment
R61	May cause harm to the unborn child
R68	Possible risk of irreversible effects
R20/22	Harmful by inhalation and if swallowed
R42/43	May cause sensitization by inhalation and skin contact
R48/23	Toxic: danger of serious damage to health by prolonged exposure through inhalation

HAZARD PHRASES

H302	Harmful if swallowed
H315	Causes skin irritation
H317	May cause an allergic skin reaction
H332	Harmful if inhaled
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled
H341	Suspected of causing genetic defects
H350i	May cause cancer
H360D	May damage fertility or the unborn child
H372	Causes damage to organs
H410	Very toxic to aquatic life with long lasting effects

PROTECTION PHRASES

P201	Obtain special instructions before use
P273	Avoid release to the environment
P280	Wear protective gloves/protective clothing/eye protection/face protection
P301+P312	IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell
P304+P340	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P405	Store locked up
P501	Dispose of contents / container according the regulation

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 sheets

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

67/548/EEC/1999/45/EC

Composition information – main constituents						
Substance name	**Mol. Formula**	**REACH**	**Typical conc. (%w/w)**	**EINECS No.**	**CAS-No.**	**Classification**
Nickel Sulphate Hexahydrate	$NiSO_4 * 6H_2O$	01-2119439361-44	99.9%	232-104-9	10101-97-0	Xi; R38, T; R49, R61, N; R50, R53, Xn; R68, R20/22, R42/43, R48/23

EC 1272/2008

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SECTION 4: FIRST AID MEASURES

4.1. DESCRIPTION OF FIRST AID MEASURES

First-aid measures general: Consult a physician when you fell unwell. Show this safety data sheet to the doctor in attendance.

Inhalation: Remove victim to fresh air immediately and keep at rest in a position comfortable for breathing. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

Ingestion: Never give anything by mouth to an unconscious person. Clean mouth with water and drink afterwards plenty of water. Do not induce vomiting. Get medical attention if any discomfort continues.

Skin contact: Wash off immediately with plenty of water for at least 15 minutes. Remove contaminated clothing and shoes. If skin irritation persists, call a physician.

Eye contact: Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. If symptoms persist, call a physician.

4.2. Most important symptoms and effects, both acute and delayed

Inhalation: May cause allergy or asthma symptoms or breathing difficulties.

Ingestion: Harmful if swallowed.

Skin contact: May cause skin irritation.

Eye contact: May cause eye irritation.

May cause allergic skin reaction. Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain or flushing.

Other the most important known symptoms and effects are described in the labelling (see section 2.2).

4.3. Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

SECTION 5: FIREFIGHTING MEASURES

5.1. Extinguishing media

Suitable extinguishing media: The product is non-combustible. Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Adjust extinguishing media to the surrounding fire. Use alcohol resistant foam, dry powder, carbon dioxide (CO_2) or water spray.

Unsuitable extinguishing media: No data available.

5.2. Special hazards arising from the substance or mixture

Non-combustible, substance itself does not burn but may decompose upon heating to produce corrosive and/or toxic fumes: Sulphur oxides, Nickel/nickel oxides.

5.3. Advice for fire-fighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective clothing.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

Wear suitable protective equipment (splash goggles, protective suit, boots, gloves and self-contained breathing apparatus) to prevent any contamination of skin, eyes and personal clothing. Do not touch damaged containers or spilled material unless wearing appropriate protective gear. Ensure adequate

ventilation of the working area. Avoid contact with skin and eyes. Avoid breathing vapours, mist or gas. Avoid formation of dust. Keep unprotected persons away. Evacuate personnel to a safe area.

For personal protection see section 8.1.

6.2. ENVIRONMENTAL PRECAUTIONS

Avoid release to the environment. Do not allow to enter sewers/ surface or ground water. Do not allow to enter into soil/subsoil. Prevent further leakage or spillage if safe to do so. Use appropriate container to avoid environmental contamination. Local authorities should be advised if significant spillages cannot be contained.

6.3. METHODS AND MATERIAL FOR CONTAINMENT AND CLEANING UP

Sweep up and shovel into suitable containers for disposal. Clean contaminated surface thoroughly. Avoid generation of dusts.

SECTION 7: HANDLING AND STORAGE

7.1. PRECAUTIONS FOR SAFE HANDLING

Handle in accordance with good industrial hygiene and safety practice. Avoid formation of dust and spilling. Do not inhale dust/smoke/mist. Ensure adequate ventilation of the working area. Wear personal protective equipment. Avoid contact with eyes and skin. Do not eat or drink during the process, washing hands afterwards with suitable cleaning products. Remove contaminated clothing and shoes. Wash clothing before re-using. Avoid the formation or spread of mists in the air.

7.2. CONDITIONS FOR SAFE STORAGE, INCLUDING ANY INCOMPATIBILITIES

Keep in a cool, dry, well ventilated area. Keep in original tightly closed containers. Store at room temperature. Keep away from food, drink and animal feeding stuffs. Protect from heat. Keep away from incompatible materials such as strong oxidizing agents, acids, aniline, hydrogen sulphide, hydrazine, zinc, aluminium, magnesium.

7.3. SPECIFIC END USE(S)

See section 1.2.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. CONTROL PARAMETERS/EXPOSURE GUIDELINES

Occupational Exposure Limit Values (Nickel Sulphate Hexahydrate):

CAS NO	Exposure limit	Value
$NiSO_4 * 6H_2O$	TWA – 8 Hrs	0.1 mg/m^3
$NiSO_4 * 6H_2O$	STEL – 15 Min	0.3 mg/m^3

Engineering controls: Use only under a chemical fume hood. Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation location. Wash hands before breaks and at the end of the working day.


EYE PROTECTION


FACE SHIELD


RESPIRATOR


PROTECTION WEAR


HAND PROTECTION

Protective equipment: Use protective chemical safety goggles (European standard - EN 166), face shield, gloves (European standard - EN 374), long sleeved clothing to prevent skin, body and eyes exposure.

Respiratory equipment: Respiratory protection not required in normal conditions, but when vapours or aerosols are generated must use appropriate certified respirators, which are NIOSH/MSHA or European Standard EN 149 approved respirator.

Skin and body protection: Wear appropriate protective gloves and clothing to prevent skin exposure. Wear impervious protective clothing (long sleeved clothing, chemical resistant apron, anti static boots). Wear appropriate protective work gloves when handling material to prevent skin contact. The glove material has to be impermeable and resistant to the product: recommended are neoprene, PVC, natural rubber, nitrile rubber gloves. Protective gloves should be replaced at first signs of wear. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact. Wash and dry hands.

Eye/Face protection: Approved chemical safety goggles or face protection.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. INFORMATION ON BASIC PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Crystalline Solid
Colour:	Blue-green
Odour:	Odourless
Initial boiling point (°C):	100 °C
Melting point (°C):	53 °C
Freezing point:	No data available
Relative density:	2.07 g/cm^3
Specific gravity / density:	Not available
Vapour density:	Not available
Vapour pressure:	Not available
Flash point (°C):	Not available
Molecular mass:	262.85 g/mol
Auto-ignition temperature:	Not applicable
Oxidizing properties:	Not available
Decomposition temperature:	Not available
Molecular formula:	$NiSO_4 * 6H_2O$

SECTION 10: STABILITY AND REACTIVITY

10.1. REACTIVITY

Nickel Sulphate Hexahydrate is stable under normal conditions of use, storage and transport.

10.2. CHEMICAL STABILITY

This product is stable under normal conditions and under recommended usage and storage.

10.3. POSSIBILITY OF HAZARDOUS REACTIONS

When heated can decompose. May liberate toxic gases.

10.4. CONDITIONS TO AVOID

Store at room temperature. Keep away from food, drink and animal feeding stuffs. Protect from heat and incompatible materials.

10.5. INCOMPATIBLE MATERIALS

May liberate toxic gases. Keep away from incompatible materials such as strong oxidizing agents, acids, aniline, hydrogen sulphide, hydrazine, zinc, aluminium, magnesium.

10.6. HAZARDOUS DECOMPOSITION

Non-combustible, substance itself does not burn but may decompose upon heating to produce corrosive and/or toxic fumes: Sulphur oxides, Nickel/nickel oxides.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1. INFORMATION ON TOXICOLOGICAL EFFECTS

TOXIC DOSE	**LD50 Oral – Rat – 264 mg/kg**
Inhalation:	May cause allergy or asthma symptoms or breathing difficulties.
Ingestion:	Harmful if swallowed.
Skin contact:	May cause skin irritation.
Eye contact:	May cause eye irritation.

May cause allergic skin reaction. Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain or flushing.

SECTION 12: ECOLOGICAL INFORMATION

12.1. TOXICITY

Aquatic Toxicity:

Toxicity to freshwater fish:	No information available
Toxicity to water flea:	No information available
Toxicity to algae:	No information available

12.2. PERSISTENCE AND DEGRADABILITY

Not relevant for inorganic substances.

12.3. BIOACCUMULATIVE POTENTIAL

May have some potential to bioaccumulate.

12.4. MOBILITY

Insoluble in ethanol, ammonia.

12.5. RESULTS OF PBT AND VPVB ASSESSMENT

This substance is not a PBT or vPvB.

12.6. OTHER ADVERSE EFFECTS

Very toxic to aquatic organisms. May cause long-term adverse effects in the aquatic environment. Discharge into the environment must be avoided.

SECTION 13: DISPOSAL CONSIDERATIONS

Waste disposal recommendations: Disposal of Nickel Sulphate Hexahydrate should be in accordance with local and national legislation. Processing, use or contamination of this product may change the waste management options. Should not be released into the environment. Do not discharge into waterways or sewer systems. Mixing with other materials or other alterations to pure product may significantly change the characteristics of the material. Empty packaging can have residues and are subject to proper waste disposal. Do not re-use empty containers. Waste is classified as hazardous. Dispose of in accordance with the European Directives on waste and hazardous waste. Dispose of in accordance with local regulations.

Uncleaned packaging: Disposal must be made according to official regulations.

SECTION 14: TRANSPORT INFORMATION

IMDG

UN number	3077
UN proper shipping name	Environmentally hazardous substances, solid, n.o.s
Technical shipping name	Nickel sulphate, hexahydrate
Transport hazard class(es)	9
Packing group	III

ADR/RID

UN number	3077
UN proper shipping name	Environmentally hazardous substances, solid, n.o.s
Technical shipping name	Nickel sulphate, hexahydrate
Transport hazard class(es)	9
Packing group	III

IATA

UN number	3077
UN proper shipping name	Environmentally hazardous substances, solid, n.o.s
Technical shipping name	Nickel sulphate, hexahydrate
Transport hazard class(es)	9
Packing group	III

SECTION 15: REGULATORY INFORMATION

15.1. SAFETY, HEALTH AND ENVIRONMENTAL REGULATIONS/LEGISLATION SPECIFIC FOR THE SUBSTANCE OR MIXTURE

Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH).

Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures.

15.2 CHEMICAL SAFETY ASSESSMENT

A Chemical Safety Assessment has not been carried out.

SECTION 16: OTHER INFORMATION

General information

The information contained in this safety data sheet is provided in accordance with the requirements of the regulations. The product should not be used for purposes other than those shown in section 1 without first referring to the supplier and obtaining written handling instruction. As the specific conditions of use of the product are outside the suppliers control, the user is responsible for ensuring that the requirements of relevant legislation are complied with.

Revision Comments

This information is provided in a revised format to that previously produced.

Revision Date: 01/10/2018

Revision: 01

Safety Data Sheet Status Approved.

Date printed 01/10/2018

Signature Initials P.K.

DISCLAIMER:

If this product is re-distributed and re-formulated for sale, details of its hazards and recommended methods for safe handling must be passed to customers. Customers are urged to ensure that the product is entirely suitable for their own purpose. It is the customer's responsibility to ensure that a suitable and sufficient assessment of the risks created by a work activity using this product is undertaken before this product is used.

NOTE:

The information contained in this Safety Data Sheet does not constitute the users own assessment of workplace risk as required by other Health & Safety Legislation (e.g. the Health and Safety at Work Act,1974;the control of Substances Hazardous to Health Regulations,1988). The data given here is based on current knowledge and experience. The purpose of this data sheet is to describe the products in terms of their safety requirements. The data does not signify any warranty with regard to the product's properties.