

Material Safety Data Sheet

According to OSHA and ANSI

Printing date 06/01/2011

Reviewed on 05/05/2010

1 Identification of the substance/mixture and of the company/undertaking**Product identifier****Product name:** Nickel(II) chloride hexahydrate**Stock number:** A14366, L14466**CAS Number:**

7791-20-0

EINECS Number:

231-743-0

Index number:

028-011-00-6

Relevant identified uses of the substance or mixture and uses advised against.**Sector of Use** SU24 Scientific research and development**Details of the supplier of the safety data sheet****Manufacturer/Supplier:**

Alfa Aesar, A Johnson Matthey Company

Johnson Matthey Catalog Company, Inc.

30 Bond Street

Ward Hill, MA 01835-8099

Tel: 800-343-0660

Fax: 800-322-4757

Email: tech@alfa.com

www.alfa.com

Information Department: Health, Safety and Environmental Department**Emergency telephone number:**

During normal hours the Health, Safety and Environmental Department at (800) 343-0660. After normal hours call Carechem 24 at (866) 928-0789.

2 Hazards identification**Classification of the substance or mixture**

GHS06 Skull and crossbones

H301 Toxic if swallowed.

H331 Toxic if inhaled.



GHS08 Health hazard

H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.

H341 Suspected of causing genetic defects.

H350 May cause cancer.

H360 May damage fertility or the unborn child.

H372 Causes damage to organs through prolonged or repeated exposure.



GHS09 Environment

H400 Very toxic to aquatic life.

H410 Very toxic to aquatic life with long lasting effects.



GHS07

H315 Causes skin irritation.

H317 May cause an allergic skin reaction.

Classification according to Directive 67/548/EEC or Directive 1999/45/EC

T; Toxic

R49-61-23/25-48/23: May cause cancer by inhalation. May cause harm to the unborn child. Toxic by inhalation and if swallowed. Toxic: danger of serious damage to health by prolonged exposure through inhalation.



Xn; Harmful

R68: Possible risk of irreversible effects.

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**Xi; Irritant**

R38-42/43: Irritating to skin. May cause sensitization by inhalation and skin contact.

**N; Dangerous for the environment**

R50/53: Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Label elements**Labelling according to EU guidelines:****Code letter and hazard designation of product:**

T Toxic

N Dangerous for the environment

Risk phrases:

49 May cause cancer by inhalation.

61 May cause harm to the unborn child

23/25 Also toxic by inhalation and if swallowed.

38 Irritating to skin.

42/43 May cause sensitization by inhalation and skin contact.

48/23 Also toxic: danger of serious damage to health by prolonged exposure through inhalation.

68 Possible risk of irreversible effects.

50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment

Safety phrases:

53 Avoid exposure - obtain special instructions before use.

45 In case of accident or if you feel unwell, seek medical advice immediately.

60 This material and its container must be disposed of as hazardous waste.

61 Avoid release to the environment. Refer to special instructions/Safety data sheets

Hazard description:**WHMIS classification****Classification system****HMIS ratings (scale 0-4)**

(Hazardous Materials Identification System)

HEALTH	2	Health (acute effects) = 2
FIRE	0	Flammability = 0
REACTIVITY	1	Reactivity = 1

Other hazards**Results of PBT and vPvB assessment**

PBT: Not applicable.

vPvB: Not applicable.

3 Composition/information on ingredients**Chemical characterization: Substances****(CAS#) Description:**

Nickel(II) chloride hexahydrate (CAS# 7791-20-0)

Identification number(s):

EINECS Number: 231-743-0

Index number: 028-011-00-6

4 First aid measures**Description of first aid measures****General information**

Immediately remove any clothing soiled by the product.

In case of irregular breathing or respiratory arrest provide artificial respiration.

After inhalation

Supply fresh air and to be sure call for a doctor.

Supply fresh air. If required, provide artificial respiration. Keep patient warm.

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Seek immediate medical advice.

After skin contact

Immediately wash with water and soap and rinse thoroughly.

Seek immediate medical advice.

After eye contact

Rinse opened eye for several minutes under running water. Then consult a doctor.

After swallowing

Do not induce vomiting; immediately call for medical help.

Seek immediate medical advice.

5 Firefighting measures**Extinguishing media****Suitable extinguishing agents**

Product is not flammable. Use fire fighting measures that suit the surrounding fire.

Special hazards arising from the substance or mixture

In case of fire, the following can be released:

Hydrogen chloride (HCl)

Toxic metal oxide fume

Advice for firefighters**Protective equipment:**

Wear self-contained respirator.

Wear fully protective impervious suit.

6 Accidental release measures**Personal precautions, protective equipment and emergency procedures**

Wear protective equipment. Keep unprotected persons away.

Ensure adequate ventilation

Environmental precautions:

Do not allow material to be released to the environment without proper governmental permits.

Methods and material for containment and cleaning up:

Dispose contaminated material as waste according to item 13.

Ensure adequate ventilation.

Reference to other sections

See Section 7 for information on safe handling

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

7 Handling and storage**Handling****Precautions for safe handling**

Keep container tightly sealed.

Store in cool, dry place in tightly closed containers.

Ensure good ventilation at the workplace.

Open and handle container with care.

Information about protection against explosions and fires: The product is not flammable**Conditions for safe storage, including any incompatibilities****Storage****Requirements to be met by storerooms and receptacles:** No special requirements.**Information about storage in one common storage facility:**

Store away from oxidizing agents.

Store away from strong bases.

Further information about storage conditions:

Keep container tightly sealed.

Store in cool, dry conditions in well sealed containers.

8 Exposure controls/personal protection**Additional information about design of technical systems:**

Properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute.

Control parameters**Components with limit values that require monitoring at the workplace:**

Nickel and inorganic compounds, as Ni

	mg/m ³
ACGIH TLV	1.5, A5-inhalable particulate (metal)
	0.2, A1-inhalable particulate (insoluble compounds)
	0.1, A4-inhalable particulate (soluble compounds)

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Austria	Carcinogen
Denmark TWA	0.5
Finland TWA	0.1 (skin) Carcinogen
France VME	1; C3-Carcinogen
Germany	Carcinogen
Hungary	0.005-STEL; Carcinogen (insoluble compounds)
Japan	1; 2B-Carcinogen
Korea TLV	1.5
Netherlands MAC-TGG	1; Carcinogen
	1 (insoluble compounds)
Norway TWA	0.05
Poland TWA	0.25
Russia	0.05-STEL
Sweden NGV	0.5 (dust)
Switzerland MAK-W	0.5; Carcinogen
United Kingdom TWA	0.1
USA PEL	1

Additional information: No data**Exposure controls****Personal protective equipment****General protective and hygienic measures**

The usual precautionary measures for handling chemicals should be followed.

Keep away from foodstuffs, beverages and feed.

Remove all soiled and contaminated clothing immediately.

Wash hands before breaks and at the end of work.

Breathing equipment: Use suitable respirator when high concentrations are present.**Protection of hands:** Impervious gloves**Eye protection:** Safety glasses**Body protection:** Protective work clothing.**9 Physical and chemical properties****Information on basic physical and chemical properties****General Information****Appearance:**

Form:	Crystalline
Color:	Green
Odor:	Odorless
Odour threshold:	Not determined.

pH-value (100 g/l) at 20°C (68 °F): 4.9**Change in condition**

Melting point/Melting range:	140°C (284 °F) (-H ₂ O)
Boiling point/Boiling range:	Not determined
Sublimation temperature / start:	Not determined

Flash point: Not applicable**Flammability (solid, gaseous)** Not determined.**Ignition temperature:** Not determined**Decomposition temperature:** Not determined**Auto igniting:** Not determined.**Danger of explosion:** Product does not present an explosion hazard.**Explosion limits:**

Lower:	Not determined
Upper:	Not determined

Vapor pressure: Not applicable.**Density at 20°C (68 °F):** 1.92 g/cm³ (16.022 lbs/gal)**Relative density** Not determined.**Vapour density** Not applicable.**Evaporation rate** Not applicable.**Solubility in / Miscibility with****Water at 20°C (68 °F):** 2540 g/l**Segregation coefficient (n-octanol/water):** Not determined.**Viscosity:****dynamic:** Not applicable.

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kinematic:	Not applicable.
Other information	No further relevant information available.

10 Stability and reactivity**Reactivity****Chemical stability****Thermal decomposition / conditions to be avoided:**

Decomposition will not occur if used and stored according to specifications.

Possibility of hazardous reactions No dangerous reactions known**Incompatible materials:**

Bases

Oxidizing agents

Hazardous decomposition products:

Hydrogen chloride (HCl)

Toxic metal oxide fume

11 Toxicological information**Information on toxicological effects****Acute toxicity:****LD/LC50 values that are relevant for classification:**

Oral	LD50	186 mg/kg (rat) (IUCLID datasheet)
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Primary irritant effect:**on the skin:** Irritant to skin and mucous membranes.**on the eye:** Irritating effect.**Sensitization:** Sensitization possible through skin contact.**Other information (about experimental toxicology):**

Reproductive effects have been observed on tests with laboratory animals.

Mutagenic effects have been observed on tests with laboratory animals.

Mutagenic effects have been observed on tests with human and/or animal DNA cells.

Subacute to chronic toxicity:

Nickel and nickel compounds may cause a form of dermatitis known as nickel itch. They may also cause intestinal disorders, convulsions and asphyxia. Airborne nickel contaminated dusts are regarded as carcinogenic to the respiratory tract.

Subacute to chronic toxicity:

The Registry of Toxic Effects of Chemical Substances (RTECS) reports the following effects in laboratory animals:

Sense Organs and Special Senses (Olfaction) - effect, not otherwise specified.

Endocrine - hyperglycemia.

Endocrine - other changes.

Liver - other changes.

Behavioral - somnolence (general depressed activity).

Gastrointestinal - hypermotility, diarrhea.

Gastrointestinal - alteration in gastric secretion.

Nutritional and Gross Metabolic - weight loss or decreased weight gain.

Nutritional and Gross Metabolic - changes in metals, not otherwise specified.

Brain and Coverings - other degenerative changes.

Blood - changes in serum composition (e.g. TP, bilirubin, cholesterol).

Reproductive - Effects on Newborn - viability index (e.g., # alive at day 4 per # born live).

Biochemical - Metabolism (Intermediary) - amino acids (including renal excretion).

Additional toxicological information:

To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.

IARC-1: Carcinogenic to humans: sufficient evidence of carcinogenicity.

NTP-1: Known to be carcinogenic: sufficient evidence from human studies.

ACGIH A1: Confirmed human carcinogen: Agent is carcinogenic to humans based on epidemiologic studies of, or convincing clinical evidence in, exposed humans.

12 Ecological information**Toxicity****Aquatic toxicity:** No further relevant information available.**Persistence and degradability** No further relevant information available.**Behavior in environmental systems:****Bioaccumulative potential** No further relevant information available.**Mobility in soil** No further relevant information available.**Ecotoxicological effects:****Remark:** Very toxic for aquatic organisms

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Additional ecological information:**General notes:**

Do not allow product to reach ground water, water course or sewage system.

Danger to drinking water if even small quantities leak into the ground.

Also poisonous for fish and plankton in water bodies.

Do not allow material to be released to the environment without proper governmental permits.

Very toxic for aquatic organisms

Results of PBT and vPvB assessment**PBT:** Not applicable.**vPvB:** Not applicable.**Other adverse effects** No further relevant information available.**13 Disposal considerations****Waste treatment methods****Recommendation** Consult state, local or national regulations to ensure proper disposal.**Uncleaned packagings:****Recommendation:** Disposal must be made according to official regulations.**Recommended cleansing agent:** Water, if necessary with cleansing agents.**14 Transport information****DOT regulations:**

Hazard class: 6.1
Identification number: UN3288
Packing group: III
Hazardous substance: 100 lbs, 45.4 kg
Proper shipping name (technical name): TOXIC SOLID, INORGANIC, N.O.S. (Nickel(II) chloride hexahydrate)
Label: 6.1
Remarks: Special marking with the symbol (fish and tree).

Land transport ADR/RID (cross-border)

ADR/RID class: 6.1 (T5) Toxic substances
Danger code (Kemler): 60
UN-Number: 3288
Packaging group: III
Special marking: Symbol (fish and tree)
UN proper shipping name: 3288 TOXIC SOLID, INORGANIC, N.O.S. (Nickel(II) chloride hexahydrate)

Maritime transport IMDG:

IMDG Class: 6.1
UN Number: 3288
Label: 6.1
Packaging group: III
Marine pollutant: Yes (P)
 Symbol (fish and tree)

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Proper shipping name: TOXIC SOLID, INORGANIC, N.O.S. (Nickel(II) chloride hexahydrate)

Air transport ICAO-TI and IATA-DGR:



ICAO/IATA Class: 6.1
UN/ID Number: 3288
Label: 6.1
Packaging group: III
Proper shipping name: TOXIC SOLID, INORGANIC, N.O.S. (Nickel(II) chloride hexahydrate)

UN "Model Regulation": UN3288, TOXIC SOLID, INORGANIC, N.O.S., 6.1, III

Environmental hazards: Environmentally hazardous substance, solid; Marine Pollutant

Special precautions for user Warning: Toxic substances

Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code Not applicable.

15 Regulatory information

Safety, health and environmental regulations/legislation specific for the substance or mixture

Product related hazard informations:

Hazard symbols:

T Toxic

N Dangerous for the environment

Risk phrases:

49 May cause cancer by inhalation.

61 May cause harm to the unborn child

23/25 Also toxic by inhalation and if swallowed.

38 Irritating to skin.

42/43 May cause sensitization by inhalation and skin contact.

48/23 Also toxic: danger of serious damage to health by prolonged exposure through inhalation.

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National regulations

All components of this product are listed in the U.S. Environmental Protection Agency Toxic Substances Control Act Chemical substance Inventory.

This product contains a chemical known to the state of California to cause cancer or reproductive toxicity.

Some or all of the components of this product are not listed on the Canadian Domestic Substances List (DSL) or the Canadian Non-Domestic Substances List (NDSL).

Information about limitation of use:

For use only by technically qualified individuals.

This product contains nickel and is subject to the reporting requirements of section 313 of the Emergency Planning and Community Right to Know act of 1986 and 40CFR372.

Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

16 Other information

Employers should use this information only as a supplement to other information gathered by them, and should make independent judgement of suitability of this information to ensure proper use and protect the health and safety of employees. This information is furnished without warranty, and any use of the product not in conformance with this Material Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.

Department issuing MSDS: Health, Safety and Environmental Department.

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Contact:

Zachariah C. Holt
Global EHS Manager

Abbreviations and acronyms:

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA)

ICAO: International Civil Aviation Organization

ICAO-TI: Technical Instructions by the "International Civil Aviation Organization" (ICAO)

P: Marine Pollutant

EINECS: European Inventory of Existing Commercial Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

HMIS: Hazardous Materials Identification System (USA)

WHMIS: Workplace Hazardous Materials Information System (Canada)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

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