



# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Version 7.4  
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GENERIC EU MSDS - NO COUNTRY SPECIFIC DATA - NO OEL DATA

## SECTION 1: Identification of the substance/mixture and of the company/undertaking

### 1.1 Product identifiers

Product name : HIS-Select<sup>®</sup> HF Nickel Affinity Gel

Product Number : H0537

Brand : Sigma

REACH No. :

### 1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Manufacture of substances

Uses advised against : For R&D use only. Not for pharmaceutical, household or other uses.

### 1.3

### 1.4 Emergency telephone

Emergency Phone # : 000 800 1007 141 (CHEMTREC)

## SECTION 2: Hazards identification

### 2.1 Classification of the substance or mixture

Flammable liquids, (Category 3) H226: Flammable liquid and vapor.

Acute toxicity, (Category 4) H302: Harmful if swallowed.

Skin irritation, (Category 2) H315: Causes skin irritation.

Respiratory sensitization,  
(Category 1) H334: May cause allergy or asthma  
symptoms or breathing difficulties if  
inhaled.

Skin sensitization, (Category 1) H317: May cause an allergic skin reaction.

Germ cell mutagenicity,  
(Category 2) H341: Suspected of causing genetic  
defects.

Carcinogenicity, (Category 1A)	H350i: May cause cancer by inhalation.
Reproductive toxicity, (Category 1B)	H360D: May damage the unborn child.
Specific target organ toxicity - single exposure, (Category 2), Eyes, Central nervous system	H371: May cause damage to organs.
Specific target organ toxicity - repeated exposure, (Category 1), Respiratory Tract	H372: Causes damage to organs through prolonged or repeated exposure.
Long-term (chronic) aquatic hazard, (Category 2)	H411: Toxic to aquatic life with long lasting effects.

## 2.2 Label elements

### Labelling according Regulation (EC) No 1272/2008

#### Pictogram

Signal Word	Danger
Hazard Statements	
H226	Flammable liquid and vapor.
H302	Harmful if swallowed.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H341	Suspected of causing genetic defects.
H350i	May cause cancer by inhalation.
H360D	May damage the unborn child.
H371	May cause damage to organs (Eyes, Central nervous system).
H372	Causes damage to organs (Respiratory Tract) through prolonged or repeated exposure.
H411	Toxic to aquatic life with long lasting effects.
Precautionary Statements	
P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P301 + P312	IF SWALLOWED: Call a POISON CENTER/ doctor if you feel unwell.
P303 + P361 + P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water.
P308 + P311	IF exposed or concerned: Call a POISON CENTER/ doctor.
Supplemental Hazard Statements	none
	Restricted to professional users.

**Reduced Labeling (<= 125 ml)**

Pictogram

Signal Word

Danger

Hazard Statements

H334

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

H317

May cause an allergic skin reaction.

H341

Suspected of causing genetic defects.

H350i

May cause cancer by inhalation.

H372

Causes damage to organs through prolonged or repeated exposure.

H360D

May damage the unborn child.

Precautionary Statements

P280

Wear protective gloves/ protective clothing/ eye protection/ face protection.

Supplemental Hazard

none

Statements

**2.3 Other hazards**

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

Ecological information:

The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Toxicological information:

The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

**SECTION 3: Composition/information on ingredients****3.2 Mixtures**

Component		Classification	Concentration
ethanol			
CAS-No.	64-17-5	Flam. Liq. 2; Eye Irrit. 2; H225, H319 Concentration limits: >= 50 %: Eye Irrit. 2A, H319;	>= 20 - < 30 %
EC-No.	200-578-6		
Index-No.	603-002-00-5		
Registration number	01-2119457610-43-XXXX		
Nickel sulphate hexahydrate			
CAS-No.	10101-97-0	Acute Tox. 4; Skin Irrit. 2; Resp. Sens. 1; Skin Sens. 1; Muta. 2; Carc. 1A; Repr. 1B; STOT RE 1; Aquatic Acute 1; Aquatic Chronic 1; H302, H332,	>= 20 - < 25 %
EC-No.	232-104-9		
Index-No.	028-009-00-5*		

		H315, H334, H317, H341, H350i, H360D, H372, H400, H410 Concentration limits: >= 1 %: STOT RE 1, H372; 0,1 - < 1 %: STOT RE 2, H373; >= 20 %: Skin Irrit. 2, H315; >= 0,01 %: Skin Sens. 1, H317; M-Factor - Aquatic Acute: 1 - Aquatic Chronic: 1	
<b>Methanol</b>			
CAS-No.	67-56-1	Flam. Liq. 2; Acute Tox. 3; STOT SE 1; H225, H301, H331, H311, H370 Concentration limits: >= 10 %: STOT SE 1, H370; 3 - < 10 %: STOT SE 2, H371;	>= 3 - < 10 %
EC-No.	200-659-6		
Index-No.	603-001-00-X		
Registration number	01-2119433307-44-XXXX		
<b>4-methylpentan-2-one</b>			
CAS-No.	108-10-1	Flam. Liq. 2; Acute Tox. 4; Eye Irrit. 2; Carc. 2; STOT SE 3; H225, H332, H319, H351, H336 Concentration limits: 20 %: STOT SE 3, H335;	>= 0,1 - < 1 %
EC-No.	203-550-1		
Index-No.	606-004-00-4		
Registration number	01-2119473980-30-XXXX	Acute inhalation toxicity(vapor): 11 mg/l	

\*A registration number is not available for this substance as the substance or its use are exempted from registration according to Article 2 REACH Regulation (EC) No 1907/2006, or the annual tonnage does not require a registration.

For the full text of the H-Statements mentioned in this Section, see Section 16.

## SECTION 4: First aid measures

### 4.1 Description of first-aid measures

#### General advice

First aiders need to protect themselves. Show this material safety data sheet to the doctor in attendance.

#### If inhaled

After inhalation: fresh air. Immediately call in physician. If breathing stops: immediately apply artificial respiration, if necessary also oxygen.

#### In case of skin contact

In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. Call a physician immediately.

**In case of eye contact**

After eye contact: rinse out with plenty of water. Call in ophthalmologist. Remove contact lenses.

**If swallowed**

After swallowing: immediately make victim drink water (two glasses at most). Consult a physician.

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

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

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

No data available

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**SECTION 5: Firefighting measures****5.1 Extinguishing media****Suitable extinguishing media**

Foam Carbon dioxide (CO<sub>2</sub>) Dry powder

**Unsuitable extinguishing media**

For this substance/mixture no limitations of extinguishing agents are given.

**5.2 Special hazards arising from the substance or mixture**

Carbon oxides

Sulfur oxides

Nickel/nickel oxides

Mixture with combustible ingredients.

Vapors are heavier than air and may spread along floors.

Forms explosive mixtures with air at elevated temperatures.

Development of hazardous combustion gases or vapours possible in the event of fire.

**5.3 Advice for firefighters**

Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

**5.4 Further information**

Remove container from danger zone and cool with water. Suppress (knock down) gases/vapors/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

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**SECTION 6: Accidental release measures****6.1 Personal precautions, protective equipment and emergency procedures**

Advice for non-emergency personnel: Do not breathe vapors, aerosols. Avoid substance contact. Ensure adequate ventilation. Keep away from heat and sources of ignition. Evacuate the danger area, observe emergency procedures, consult an expert. For personal protection see section 8.

**6.2 Environmental precautions**

Do not let product enter drains. Risk of explosion.

**6.3 Methods and materials for containment and cleaning up**

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up carefully with liquid-absorbent material (e.g. Chemizorb®). Dispose of properly. Clean up affected area.

## 6.4 Reference to other sections

For disposal see section 13.

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## SECTION 7: Handling and storage

### 7.1 Precautions for safe handling

#### Advice on safe handling

Work under hood. Do not inhale substance/mixture. Avoid generation of vapours/aerosols.

#### Advice on protection against fire and explosion

Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static discharge.

#### Hygiene measures

Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

For precautions see section 2.2.

### 7.2 Conditions for safe storage, including any incompatibilities

#### Storage conditions

Keep container tightly closed in a dry and well-ventilated place. Keep away from heat and sources of ignition. Keep locked up or in an area accessible only to qualified or authorized persons.

**Storage stability** Recommended storage temperature

2 - 8 °C

Hygroscopic.

#### Storage class

Storage class (TRGS 510): 3: Flammable liquids

### 7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

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## SECTION 8: Exposure controls/personal protection

### 8.1 Control parameters

#### Ingredients with workplace control parameters

### 8.2 Exposure controls

#### Personal protective equipment

##### Eye/face protection

Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Safety glasses

##### Skin protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

The selected protective gloves have to satisfy the specifications of Regulation (EU) 2016/425 and the standard EN 374 derived from it.

Full contact

Material: butyl-rubber  
Minimum layer thickness: 0,3 mm  
Break through time: 480 min  
Material tested: Butoject® (KCL 897 / Aldrich Z677647, Size M)

Splash contact  
Material: Nitrile rubber  
Minimum layer thickness: 0,2 mm  
Break through time: 30 min  
Material tested: Dermatril® P (KCL 743 / Aldrich Z677388, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374

If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the EC approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

### **Body Protection**

Flame retardant antistatic protective clothing.

### **Respiratory protection**

required when vapours/aerosols are generated.

Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

Recommended Filter type: Filter type ABEK

The entrepreneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.

### **Control of environmental exposure**

Do not let product enter drains. Risk of explosion.

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## **SECTION 9: Physical and chemical properties**

### **9.1 Information on basic physical and chemical properties**

- |   |                   |
|---|-------------------|
| a) Physical state                               | Slurry            |
| b) Color  | No data available |
| c) Odor   | No data available |
| d) Melting point/freezing point                 | No data available |
| e) Initial boiling point and boiling range      | No data available |
| f) Flammability (solid, gas)                    | No data available |
| g) Upper/lower flammability or explosive limits | No data available |
| h) Flash point                                  | 31,1 °C           |

- |   |  |
|---|--|
| i) Autoignition temperature               | No data available  |
| j) Decomposition temperature              | No data available  |
| k) pH                                     | No data available  |
| l) Viscosity                              | Viscosity, kinematic: No data available<br>Viscosity, dynamic: No data available |
| m) Water solubility                       | No data available  |
| n) Partition coefficient: n-octanol/water | No data available  |
| o) Vapor pressure                         | No data available  |
| p) Density                                | No data available  |
| Relative density                          | No data available  |
| q) Relative vapor density                 | No data available  |
| r) Particle characteristics               | No data available  |
|   |  |
| s) Explosive properties                   | Not classified as explosive.   |
| t) Oxidizing properties                   | none   |

## 9.2 Other safety information

No data available

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## SECTION 10: Stability and reactivity

### 10.1 Reactivity

Vapor/air-mixtures are explosive at intense warming.

### 10.2 Chemical stability

The product is chemically stable under standard ambient conditions (room temperature) .

### 10.3 Possibility of hazardous reactions

No data available

### 10.4 Conditions to avoid

Heating.

### 10.5 Incompatible materials

Strong bases, Acids, Oxidizing agents, Alkali metals, Strong oxidizing agents, Ammonia, Acid chlorides, Acid anhydrides, Reducing agents, Peroxides

### 10.6 Hazardous decomposition products

In the event of fire: see section 5



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## SECTION 11: Toxicological information

### 11.1 Information on toxicological effects

#### Mixture

##### Acute toxicity

Oral: No data available

Acute toxicity estimate Oral - 1.052 mg/kg  
(Calculation method)

Acute toxicity estimate Inhalation - 4 h - > 20 mg/l - vapor (Calculation method)

Acute toxicity estimate Dermal - > 2.000 mg/kg  
(Calculation method)

##### Skin corrosion/irritation

Remarks: Mixture causes skin irritation.

##### Serious eye damage/eye irritation

No data available

##### Respiratory or skin sensitization

Mixture may cause allergy or asthma symptoms or breathing difficulties if inhaled. Mixture may cause an allergic skin reaction.

##### Germ cell mutagenicity

Evidence of genetic defects.

##### Carcinogenicity

Possible human carcinogen by inhalation.

##### Reproductive toxicity

May harm the unborn child.

##### Specific target organ toxicity - single exposure

Mixture may cause damage to organs. - Eyes, Central nervous system

##### Specific target organ toxicity - repeated exposure

Mixture causes damage to organs through prolonged or repeated exposure.  
- Respiratory Tract

##### Aspiration hazard

No data available

### 11.2 Additional Information

#### Endocrine disrupting properties

##### Product:

Assessment

The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

narcosis, Nausea, Dizziness, May cause convulsions., Gastrointestinal disturbance, Central nervous system depression, To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.  
Other dangerous properties can not be excluded.

This substance should be handled with particular care.

Handle in accordance with good industrial hygiene and safety practice.

## **Components**

### **ethanol**

#### **Acute toxicity**

LD50 Oral - Rat - male and female - 10.470 mg/kg

(OECD Test Guideline 401)

LC50 Inhalation - Rat - male and female - 4 h - 124,7 mg/l - vapor

(OECD Test Guideline 403)

Dermal: No data available

#### **Skin corrosion/irritation**

Skin - Rabbit

Result: No skin irritation - 24 h

(OECD Test Guideline 404)

#### **Serious eye damage/eye irritation**

Eyes - Rabbit

Result: Causes serious eye irritation.

(OECD Test Guideline 405)

#### **Respiratory or skin sensitization**

Maximization Test - Guinea pig

Result: negative

(OECD Test Guideline 406)

Remarks: (in analogy to similar products)

The value is given in analogy to the following substances: Methanol

#### **Germ cell mutagenicity**

Test Type: Ames test

Test system: Salmonella typhimurium

Result: negative

Test Type: In vitro mammalian cell gene mutation test

Test system: mouse lymphoma cells

Result: negative

Method: OECD Test Guideline 478

Species: Mouse - male

Result: Positive results were obtained in some in vivo tests.

#### **Carcinogenicity**

No data available

#### **Reproductive toxicity**

No data available

#### **Specific target organ toxicity - single exposure**

No data available

#### **Specific target organ toxicity - repeated exposure**

#### **Aspiration hazard**

No data available

## **Nickel sulphate hexahydrate**

### **Acute toxicity**

LD50 Oral - Rat - 361,9 mg/kg

(OECD Test Guideline 425)

Remarks: anhydrous substance

Acute toxicity estimate Inhalation - 4 h - 1,6 mg/l - dust/mist

(Expert judgment)

Dermal: No data available

### **Skin corrosion/irritation**

Remarks: No data available

### **Serious eye damage/eye irritation**

Remarks: No data available

### **Respiratory or skin sensitization**

Maximization Test - Guinea pig

May cause allergic skin reaction.

### **Germ cell mutagenicity**

In vitro tests showed mutagenic effects Suspected of causing genetic defects.

Test Type: Mutagenicity (mammal cell test):

Result: positive

Remarks: (National Toxicology Program)

Test Type: Ames test

Test system: Salmonella typhimurium

Result: negative

Remarks: (National Toxicology Program)

Species: Rat - male

Result: positive

Remarks: (ECHA)

### **Carcinogenicity**

Positive evidence from human epidemiological studies (inhalation)

### **Reproductive toxicity**

Presumed human reproductive toxicant May damage the unborn child.

### **Specific target organ toxicity - single exposure**

No data available

### **Specific target organ toxicity - repeated exposure**

Inhalation - Causes damage to organs through prolonged or repeated exposure.

- Respiratory Tract

### **Aspiration hazard**

No data available

## **Methanol**

### **Acute toxicity**

Acute toxicity estimate Oral - 100,1 mg/kg

(Expert judgment)

Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

Symptoms: Nausea, Vomiting

Acute toxicity estimate Inhalation - 4 h - 3,1 mg/l - vapor  
(Expert judgment)

Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

Symptoms: Irritation symptoms in the respiratory tract.

Acute toxicity estimate Dermal - 300,1 mg/kg  
(Expert judgment)

Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

#### **Skin corrosion/irritation**

Skin - Rabbit

Result: No skin irritation

Remarks: (ECHA)

Remarks: Drying-out effect resulting in rough and chapped skin.

#### **Serious eye damage/eye irritation**

Eyes - Rabbit

Result: No eye irritation

Remarks: (ECHA)

#### **Respiratory or skin sensitization**

Sensitisation test: - Guinea pig

Result: negative

(OECD Test Guideline 406)

#### **Germ cell mutagenicity**

Based on available data the classification criteria are not met.

Test Type: Ames test

Test system: Salmonella typhimurium

Result: negative

Test Type: In vitro mammalian cell gene mutation test

Test system: Chinese hamster lung cells

Result: negative

Method: OECD Test Guideline 474

Species: Mouse - male and female - Bone marrow

Result: negative

#### **Carcinogenicity**

Did not show carcinogenic effects in animal experiments.

#### **Reproductive toxicity**

Based on available data the classification criteria are not met.

#### **Specific target organ toxicity - single exposure**

Causes damage to organs. - Eyes, Central nervous system

Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

Acute oral toxicity - Nausea, Vomiting

Acute inhalation toxicity - Irritation symptoms in the respiratory tract.

#### **Specific target organ toxicity - repeated exposure**

No data available

#### **Aspiration hazard**

No data available

#### **4-methylpentan-2-one**

##### **Acute toxicity**

LD50 Oral - Rat - 2.080 mg/kg

(OECD Test Guideline 401)

LC50 Inhalation - Rat - male - 4 h - 11,6 mg/l - vapor

(OECD Test Guideline 403)

Acute toxicity estimate Inhalation - 11 mg/l - vapor

(Acute toxicity estimate according to Regulation (EC) No. 1272/2008)

Dermal: No data available

##### **Skin corrosion/irritation**

Skin - Rabbit

Result: No skin irritation - 4 h

(OECD Test Guideline 404)

##### **Serious eye damage/eye irritation**

Eyes - Rabbit

Result: slight irritation - 72 h

(OECD Test Guideline 405)

Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

##### **Respiratory or skin sensitization**

Maximization Test - Guinea pig

Result: negative

(OECD Test Guideline 406)

##### **Germ cell mutagenicity**

Test Type: Ames test

Test system: Salmonella typhimurium

Result: negative

Test Type: Mutagenicity (mammal cell test): chromosome aberration.

Test system: rat hepatocytes

Result: negative

Test Type: In vitro mammalian cell gene mutation test

Test system: mouse lymphoma cells

Result: negative

Method: OECD Test Guideline 474

Species: Mouse - male and female - Bone marrow

Result: negative

##### **Carcinogenicity**

Suspected of causing cancer if inhaled.

##### **Reproductive toxicity**

No data available

##### **Specific target organ toxicity - single exposure**

May cause drowsiness or dizziness. - Respiratory Tract

Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

##### **Specific target organ toxicity - repeated exposure**

##### **Aspiration hazard**

No data available

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## SECTION 12: Ecological information

### 12.1 Toxicity

#### Mixture

No data available

### 12.2 Persistence and degradability

No data available

### 12.3 Bioaccumulative potential

No data available

### 12.4 Mobility in soil

No data available

### 12.5 Results of PBT and vPvB assessment

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

### 12.6 Endocrine disrupting properties

#### Product:

Assessment : The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

### 12.7 Other adverse effects

No data available

#### Components

##### ethanol

Toxicity to fish	flow-through test LC50 - Pimephales promelas (fathead minnow) - 15.300 mg/l - 96 h (US-EPA)
Toxicity to daphnia and other aquatic invertebrates	static test LC50 - Ceriodaphnia dubia (water flea) - 5.012 mg/l - 48 h Remarks: (ECHA)
Toxicity to algae	static test ErC50 - Chlorella vulgaris (Fresh water algae) - 275 mg/l - 72 h (OECD Test Guideline 201)
Toxicity to bacteria	static test IC50 - activated sludge - > 1.000 mg/l - 3 h (OECD Test Guideline 209)
Toxicity to fish(Chronic toxicity)	semi-static test NOEC - Danio rerio (zebra fish) - 250 mg/l - 120 h Remarks: (ECHA)
Toxicity to daphnia and other aquatic invertebrates(Chronic toxicity)	semi-static test NOEC - Daphnia magna (Water flea) - 9,6 mg/l - 9 d Remarks: (ECHA)

**Nickel sulphate hexahydrate**

No data available

**Methanol**

Toxicity to fish	flow-through test LC50 - <i>Lepomis macrochirus</i> (Bluegill) - 15.400,0 mg/l - 96 h (US-EPA)
Toxicity to daphnia and other aquatic invertebrates	semi-static test EC50 - <i>Daphnia magna</i> (Water flea) - 18.260 mg/l - 96 h (OECD Test Guideline 202)
Toxicity to algae	static test ErC50 - <i>Pseudokirchneriella subcapitata</i> (green algae) - ca. 22.000,0 mg/l - 96 h (OECD Test Guideline 201)
Toxicity to bacteria	static test IC50 - activated sludge - > 1.000 mg/l - 3 h (OECD Test Guideline 209)
Toxicity to fish(Chronic toxicity)	NOEC - <i>Oryzias latipes</i> (Orange-red killifish) - 7.900 mg/l - 200 h Remarks: (External MSDS)

**4-methylpentan-2-one**

Toxicity to fish	static test LC50 - <i>Danio rerio</i> (zebra fish) - > 179 mg/l - 96 h (OECD Test Guideline 203)
Toxicity to daphnia and other aquatic invertebrates	static test EC50 - <i>Daphnia magna</i> (Water flea) - > 200 mg/l - 48 h (OECD Test Guideline 202)
Toxicity to daphnia and other aquatic invertebrates(Chronic toxicity)	semi-static test NOEC - <i>Daphnia</i> - 30 - 78 mg/l - 21 d (OECD Test Guideline 211)

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**SECTION 13: Disposal considerations****13.1 Waste treatment methods**

No data available

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**SECTION 14: Transport information****14.1 UN number**

ADR/RID: 1993

IMDG: 1993

IATA: 1993

**14.2 UN proper shipping name**

ADR/RID: FLAMMABLE LIQUID, N.O.S. (ethanol, NICKEL SULFATE HEXAHYDRATE)

IMDG: FLAMMABLE LIQUID, N.O.S. (ethanol, NICKEL SULFATE HEXAHYDRATE)

IATA: Flammable liquid, n.o.s. (ethanol, NICKEL SULFATE HEXAHYDRATE)

**14.3 Transport hazard class(es)**

ADR/RID: 3

IMDG: 3

IATA: 3

**14.4 Packaging group**

ADR/RID: III

IMDG: III

IATA: III

**14.5 Environmental hazards**

ADR/RID: yes

IMDG Marine pollutant: yes

IATA: no

**14.6 Special precautions for user**

Tunnel restriction code : (D/E)

Further information : No data available

**14.7 Maritime transport in bulk according to IMO instruments**

Not applicable for product as supplied.

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**SECTION 15: Regulatory information**

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

This material safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006.

**Authorisations and/or restrictions on use**

REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles (Annex XVII) : Nickel sulphate hexahydrate

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REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles (Annex XVII) : Methanol

**National legislation**

Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances.

E2 ENVIRONMENTAL HAZARDS

P5c FLAMMABLE LIQUIDS

P5c FLAMMABLE LIQUIDS

E2 ENVIRONMENTAL HAZARDS

22 Methanol



**Other regulations**

Observe work restrictions regarding maternity protection in accordance to Dir 92/85/EEC or stricter national regulations where applicable.

Take note of Dir 94/33/EC on the protection of young people at work.

**15.2 Chemical Safety Assessment**

For this product a chemical safety assessment was not carried out

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**SECTION 16: Other information****Full text of H-Statements**

H225	Highly flammable liquid and vapor.
H301	Toxic if swallowed.
H302	Harmful if swallowed.
H311	Toxic in contact with skin.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H319	Causes serious eye irritation.
H331	Toxic if inhaled.
H332	Harmful if inhaled.
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H335	May cause respiratory irritation.
H336	May cause drowsiness or dizziness.
H341	Suspected of causing genetic defects.
H350i	May cause cancer by inhalation.
H351	Suspected of causing cancer if inhaled.
H360D	May damage the unborn child.
H370	Causes damage to organs.
H371	May cause damage to organs.
H372	Causes damage to organs through prolonged or repeated exposure.
H373	May cause damage to organs through prolonged or repeated exposure.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.
EUH066	Repeated exposure may cause skin dryness or cracking.

## Full text of other abbreviations

ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - Agreement concerning the International Carriage of Dangerous Goods by Road; AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RID - Regulations concerning the International Carriage of Dangerous Goods by Rail; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TECI - Thailand Existing Chemicals Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

### Classification of the mixture

Flam. Liq.3	H226
Acute Tox.4	H302
Skin Irrit.2	H315
Resp. Sens.1	H334
Skin Sens.1	H317
Muta.2	H341
Carc.1A	H350i
Repr.1B	H360D
STOT SE2	H371
STOT RE1	H372
Aquatic Chronic2	H411

### Classification procedure:

Based on product data or assessment
Calculation method
Calculation method
Calculation method
Calculation method
Calculation method
Calculation method
Calculation method
Calculation method
Calculation method

**Further information**

The information is believed to be correct but is not exhaustive and will be used solely as a guideline, which is based on current knowledge of the chemical substance or mixture and is applicable to appropriate safety precautions for the product. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See [www.sigma-aldrich.com](http://www.sigma-aldrich.com) and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

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