

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Version 6.8

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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 : 1-Hexanol

Product Number : 471402

Brand : Sigma-Aldrich

Index-No. : 603-059-00-6

REACH No. : 01-2119487967-12-XXXX

CAS-No. : 111-27-3

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

Identified uses : Laboratory chemicals, Manufacture of substances

### 1.3

CHEMIKART

### 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.

Acute toxicity, (Category 4) H312: Harmful in contact with skin.

Eye irritation, (Category 2) H319: Causes serious eye irritation.

## 2.2 Label elements

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

#### Pictogram

|                                |                                                                                                                                  |
|--------------------------------|----------------------------------------------------------------------------------------------------------------------------------|
| Signal Word                    | Warning                                                                                                                          |
| Hazard Statements              |                                                                                                                                  |
| H226                           | Flammable liquid and vapor.                                                                                                      |
| H302 + H312                    | Harmful if swallowed or in contact with skin.                                                                                    |
| H319                           | Causes serious eye irritation.                                                                                                   |
| Precautionary Statements       |                                                                                                                                  |
| P210                           | Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.                                   |
| P233                           | Keep container tightly closed.                                                                                                   |
| 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.                                     |
| P305 + P351 + P338             | IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. |
| Supplemental Hazard Statements | none                                                                                                                             |

### Reduced Labeling (<= 125 ml)

#### Pictogram

|                                |         |
|--------------------------------|---------|
| Signal Word                    | Warning |
| Hazard Statements              | none    |
| Precautionary Statements       | none    |
| Supplemental Hazard Statements | none    |

## 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

### 3.1 Substances

Synonyms : Hexyl alcohol

Formula : C<sub>6</sub>H<sub>14</sub>O

Molecular weight : 102,17 g/mol

CAS-No. : 111-27-3

EC-No. : 203-852-3

Index-No. : 603-059-00-6

| Component         |              | Classification                                                         | Concentration |
|-------------------|--------------|------------------------------------------------------------------------|---------------|
| <b>hexan-1-ol</b> |              |                                                                        |               |
| CAS-No.           | 111-27-3     | Flam. Liq. 3; Acute Tox. 4;<br>Eye Irrit. 2; H226, H302,<br>H312, H319 | <= 100 %      |
| EC-No.            | 203-852-3    |                                                                        |               |
| Index-No.         | 603-059-00-6 |                                                                        |               |

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

Show this material safety data sheet to the doctor in attendance.

#### If inhaled

After inhalation: fresh air.

#### In case of skin contact

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

#### In case of eye contact

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

#### If swallowed

After swallowing: caution if victim vomits. Risk of aspiration! Keep airways free. Pulmonary failure possible after aspiration of vomit. Call a physician immediately.

### 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**

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

Combustible.

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. 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 with liquid-absorbent material (e.g. Chemisorb® ).

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 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.

### 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

# SECTION 8: Exposure controls/personal protection

## 8.1 Control parameters

### Ingredients with workplace control parameters

#### Derived No Effect Level (DNEL)

| Application Area     | Routes of exposure | Health effect              | Value     |
|----------------------|--------------------|----------------------------|-----------|
| Worker DNEL, acute   | inhalation         | Local and systemic effects | 220 mg/m3 |
| Worker DNEL, acute   | dermal             | Local and systemic effects |           |
| Consumer DNEL, acute | inhalation         | Local and systemic effects | 65 mg/m3  |
| Consumer DNEL, acute | dermal             | Local and systemic effects |           |
| Consumer DNEL, acute | oral               | Local and systemic effects |           |

#### Predicted No Effect Concentration (PNEC)

| Compartment            | Value      |
|------------------------|------------|
| Fresh water            | 2,6 mg/l   |
| Fresh water sediment   | 5,08 mg/kg |
| Sea water              | 0,256 mg/l |
| Sea sediment           | 0,5 mg/kg  |
| Sewage treatment plant | 63,2 mg/l  |
| Soil                   | 2,8 mg/kg  |

## 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**

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN 16523-1 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: [www.kcl.de](http://www.kcl.de)).

Full contact

Material: butyl-rubber

Minimum layer thickness: 0,7 mm

Break through time: 480 min

Material tested: Butoject® (KCL 898)

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN 16523-1 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: [www.kcl.de](http://www.kcl.de)).

Splash contact

Material: Nitrile rubber

Minimum layer thickness: 0,4 mm

Break through time: 30 min

Material tested: Camatril® (KCL 730 / Aldrich Z677442, Size M)

### **Body Protection**

Flame retardant antistatic protective clothing.

### **Respiratory protection**

Recommended Filter type: Filter A (acc. to DIN 3181) for vapours of organic compounds

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                          | clear, liquid                      |
| b) Color                                   | colorless                          |
| c) Odor                                    | characteristic                     |
| d) Melting point/freezing point            | Melting point/range: -52 °C - lit. |
| e) Initial boiling point and boiling range | 156 - 157 °C - lit.                |
| f) Flammability (solid, gas)               | No data available                  |

|                                                 |                                                                                                                   |
|-------------------------------------------------|-------------------------------------------------------------------------------------------------------------------|
| g) Upper/lower flammability or explosive limits | Upper explosion limit: 7,7 %(V)<br>Lower explosion limit: 1,3 %(V)                                                |
| h) Flash point                                  | 60 °C - closed cup - ASTM D 93                                                                                    |
| i) Autoignition temperature                     | ca.313 °C<br>at 1.013 hPa - ASTM E-659                                                                            |
| j) Decomposition temperature                    | No data available                                                                                                 |
| k) pH                                           | No data available                                                                                                 |
| l) Viscosity                                    | Viscosity, kinematic: 3,64 mm <sup>2</sup> /s at 40 °C - ASTM D 445<br><br>Viscosity, dynamic: 5,3 mPa.s at 20 °C |
| m) Water solubility                             | 1,3 g/l at 23 °C - OECD Test Guideline 105- soluble                                                               |
| n) Partition coefficient: n-octanol/water       | log Pow: 1,8 - OECD Test Guideline 117 - Bioaccumulation is not expected.                                         |
| o) Vapor pressure                               | 3,64 hPa at ca.38 °C - ASTM D 2879-86                                                                             |
| p) Density                                      | 0,814 g/cm <sup>3</sup> at 25 °C - lit.                                                                           |
| Relative density                                | No data available                                                                                                 |
| q) Relative vapor density                       | No data available                                                                                                 |
| r) Particle characteristics                     | No data available                                                                                                 |
| s) Explosive properties                         | No data available                                                                                                 |
| t) Oxidizing properties                         | none                                                                                                              |

## 9.2 Other safety information

|                        |                              |
|------------------------|------------------------------|
| Surface tension        | 30,21 mN/m - Surface tension |
| Relative vapor density | 3,53 - (Air = 1.0)           |

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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

Violent reactions possible with:

Strong oxidizing agents

halogens

Risk of ignition or formation of inflammable gases or vapours with:

Alkali metals

Alkaline earth metals  
Aluminum

#### **10.4 Conditions to avoid**

Heating.

#### **10.5 Incompatible materials**

No data available

#### **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**

##### **Acute toxicity**

LD50 Oral - Rat - 720 mg/kg

Remarks: Liver:Fatty liver degeneration.

Kidney, Ureter, Bladder:Other changes.

Blood:Other changes.

LC50 Inhalation - Rat - male and female - 4 h - > 2,05 mg/l - vapor

Remarks: (ECHA)

(Regulation (EC) No 1272/2008, Annex VI)

LD50 Dermal - Rabbit - male and female - > 1.500 - < 2.000 mg/kg

(OECD Test Guideline 402)

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

Skin - Rabbit

Result: Mild skin irritation - 4 h

(OECD Test Guideline 404)

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

Eyes - Rabbit

Result: Eye irritation - 4 h

(OECD Test Guideline 405)

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

Maximization Test - Guinea pig

Result: negative

(OECD Test Guideline 406)

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

Test Type: Ames test

Test system: *S. typhimurium*

Metabolic activation: with and without metabolic activation

Method: OECD Test Guideline 471

Result: negative

Test Type: In vitro mammalian cell gene mutation test

Test system: mouse lymphoma cells

Metabolic activation: with and without metabolic activation

Method: OECD Test Guideline 476

Result: negative

Test Type: Chromosome aberration test in vitro  
Test system: Chinese hamster fibroblasts  
Metabolic activation: with and without metabolic activation  
Method: OECD Test Guideline 473  
Result: negative

Test Type: Micronucleus test  
Species: Mouse

Application Route: Oral  
Method: OECD Test Guideline 474  
Result: negative

**Carcinogenicity**  
No data available

**Reproductive toxicity**  
No data available

**Specific target organ toxicity - single exposure**  
No data available

**Specific target organ toxicity - repeated exposure**  
No data available

**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.

RTECS: MQ4025000

Dermatitis, Nausea, Dizziness, Headache, narcosis

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Systemic effects:

After absorption of large quantities:

Nausea  
Vomiting  
Diarrhea  
Headache  
narcosis

Other dangerous properties can not be excluded.

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## SECTION 12: Ecological information

### 12.1 Toxicity

|                                                     |                                                                                                                |
|-----------------------------------------------------|----------------------------------------------------------------------------------------------------------------|
| Toxicity to fish                                    | flow-through test LC50 - Pimephales promelas (fathead minnow) - 97,2 - 97,5 mg/l - 96 h (US-EPA)               |
| Toxicity to daphnia and other aquatic invertebrates | static test EC50 - Daphnia magna (Water flea) - 7 mg/l - 48 h (OECD Test Guideline 202)<br>Remarks: (ECHA)     |
| Toxicity to algae                                   | static test ErC50 - Pseudokirchneriella subcapitata (green algae) - 79,7 mg/l - 72 h (OECD Test Guideline 201) |

### 12.2 Persistence and degradability

|                  |                                                                                                       |
|------------------|-------------------------------------------------------------------------------------------------------|
| Biodegradability | aerobic - Exposure time 28 d<br>Result: 87,5 % - Readily biodegradable.<br>(OECD Test Guideline 301B) |
| Ratio BOD/ThBOD  | 28 %<br>Remarks: (Lit.)                                                                               |

### 12.3 Bioaccumulative potential

|                 |                                                                                                              |
|-----------------|--------------------------------------------------------------------------------------------------------------|
| Bioaccumulation | Oncorhynchus mykiss (rainbow trout) - 24 h<br>- 39800 µg/l(hexan-1-ol)<br>Bioconcentration factor (BCF): 0,5 |
|-----------------|--------------------------------------------------------------------------------------------------------------|

### 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

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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: 2282

IMDG: 2282

IATA: 2282

### 14.2 UN proper shipping name

ADR/RID: HEXANOLS

IMDG: HEXANOLS

IATA: Hexanols

### 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: no

IMDG Marine pollutant: no

IATA: no

### 14.6 Special precautions for user

Tunnel restriction code : (D/E)

Further information : No data available

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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.

#### National legislation

Seveso III: Directive 2012/18/EU of the P5c FLAMMABLE LIQUIDS  
European Parliament and of the Council  
on the control of major-accident hazards  
involving dangerous substances.

#### 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

A Chemical Safety Assessment has been carried out for this substance.

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## SECTION 16: Other information

### Full text of H-Statements

|      |                                |
|------|--------------------------------|
| H226 | Flammable liquid and vapor.    |
| H302 | Harmful if swallowed.          |
| H312 | Harmful in contact with skin.  |
| H319 | Causes serious eye irritation. |

### 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

### 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

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