

## SAFETY DATA SHEET

Version 4.7  
Revision Date 07/02/2014  
Print Date 11/10/2018

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1. PRODUCT AND COMPANY IDENTIFICATION

## 1.1 Product identifiers

Product name : Decahydronaphthalene, mixture of *cis* + *trans*

Product Number : 294772  
Brand : Sigma-Aldrich

CAS-No. : 91-17-8

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

Identified uses : Laboratory chemicals, Manufacture of substances

## 1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich  
3050 Spruce Street  
SAINT LOUIS MO 63103  
USA

Telephone : +1 800-325-5832  
Fax : +1 800-325-5052

## 1.4 Emergency telephone number

Emergency Phone # : +1-703-527-3887 (CHEMTREC)

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2. HAZARDS IDENTIFICATION

## 2.1 Classification of the substance or mixture

**GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)**

Flammable liquids (Category 3), H226  
Acute toxicity, Inhalation (Category 3), H331  
Skin corrosion (Category 1C), H314  
Serious eye damage (Category 1), H318  
Aspiration hazard (Category 1), H304  
Acute aquatic toxicity (Category 2), H401  
Chronic aquatic toxicity (Category 2), H411

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

## 2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word : Danger

Hazard statement(s)

H226 : Flammable liquid and vapour.  
H304 : May be fatal if swallowed and enters airways.  
H314 : Causes severe skin burns and eye damage.  
H331 : Toxic if inhaled.  
H411 : Toxic to aquatic life with long lasting effects.

Precautionary statement(s)

P210 : Keep away from heat/sparks/open flames/hot surfaces. - No smoking.  
P233 : Keep container tightly closed.

P240	Ground/bond container and receiving equipment.
P241	Use explosion-proof electrical/ ventilating/ lighting/ equipment.
P242	Use only non-sparking tools.
P243	Take precautionary measures against static discharge.
P261	Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P264	Wash skin thoroughly after handling.
P271	Use only outdoors or in a well-ventilated area.
P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P301 + P310	IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician.
P301 + P330 + P331	IF SWALLOWED: rinse mouth. Do NOT induce vomiting.
P303 + P361 + P353	IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.
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.
P310	Immediately call a POISON CENTER or doctor/ physician.
P321	Specific treatment (see supplemental first aid instructions on this label).
P363	Wash contaminated clothing before reuse.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.
P391	Collect spillage.
P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P403 + P235	Store in a well-ventilated place. Keep cool.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

## 2.3 Hazards not otherwise classified (HNOC) or not covered by GHS

May form explosive peroxides.

## 3. COMPOSITION/INFORMATION ON INGREDIENTS

### 3.1 Substances

Synonyms	: Decalin®
Formula	: C <sub>10</sub> H <sub>18</sub>
Molecular Weight	: 138.25 g/mol
CAS-No.	: 91-17-8
EC-No.	: 202-046-9

#### Hazardous components

Component	Classification	Concentration
<b>Decahydronaphthalene</b>		
	Flam. Liq. 3; Acute Tox. 3; Skin Corr. 1C; Eye Dam. 1; Asp. Tox. 1; Aquatic Acute 2; Aquatic Chronic 2; H226, H304, H314, H331, H411	90 - 100 %

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

## 4. FIRST AID MEASURES

### 4.1 Description of first aid measures

#### General advice

Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

#### If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

**In case of skin contact**

Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

**In case of eye contact**

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician. Continue rinsing eyes during transport to hospital.

**If swallowed**

Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. 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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**5. FIREFIGHTING MEASURES****5.1 Extinguishing media****Suitable extinguishing media**

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

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

Carbon oxides

**5.3 Advice for firefighters**

Wear self contained breathing apparatus for fire fighting if necessary.

**5.4 Further information**

Use water spray to cool unopened containers.

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**6. ACCIDENTAL RELEASE MEASURES****6.1 Personal precautions, protective equipment and emergency procedures**

Wear respiratory protection. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations.

Vapours can accumulate in low areas.

For personal protection see section 8.

**6.2 Environmental precautions**

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

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

Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13).

**6.4 Reference to other sections**

For disposal see section 13.

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**7. HANDLING AND STORAGE****7.1 Precautions for safe handling**

Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.

Keep away from sources of ignition - No smoking. Take measures to prevent the build up of electrostatic charge.

For precautions see section 2.2.

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

Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

Handle and store under inert gas. Air and light sensitive. Heat sensitive.

**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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## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### 8.1 Control parameters

#### Components with workplace control parameters

Contains no substances with occupational exposure limit values.

### 8.2 Exposure controls

#### Appropriate engineering controls

Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

#### Personal protective equipment

##### Eye/face protection

Tightly fitting safety goggles. Faceshield (8-inch minimum). Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

##### 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.

##### Splash contact

Material: Nitrile rubber

Minimum layer thickness: 0.2 mm

Break through time: 30 min

Material tested: Dermatrill® 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 CE 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

Complete suit protecting against chemicals, Flame retardant antistatic protective clothing, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

##### Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

##### Control of environmental exposure

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

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## 9. PHYSICAL AND CHEMICAL PROPERTIES

### 9.1 Information on basic physical and chemical properties

- |  |   |
|--|---|
| a) Appearance                              | Form: clear, liquid<br>Colour: colourless     |
| b) Odour                                   | no data available                             |
| c) Odour Threshold                         | no data available                             |
| d) pH                                      | no data available                             |
| e) Melting point/freezing point            | Melting point/range: -125 °C (-193 °F) - lit. |
| f) Initial boiling point and boiling range | 189 - 191 °C (372 - 376 °F) - lit.            |

g) Flash point	57.2 °C (135.0 °F) - closed cup
h) Evaporation rate	no data available
i) Flammability (solid, gas)	no data available
j) Upper/lower flammability or explosive limits	Upper explosion limit: 4.9 %(V) Lower explosion limit: 0.7 %(V)
k) Vapour pressure	988 hPa (741 mmHg) at 188 °C (370 °F) 56 hPa (42 mmHg) at 92 °C (198 °F) 1.064 hPa (0.798 mmHg) at 20 °C (68 °F)
l) Vapour density	4.77 - (Air = 1.0)
m) Relative density	0.896 g/cm <sup>3</sup> at 25 °C (77 °F)
n) Water solubility	0.00089 g/l at 25 °C (77 °F) - slightly soluble
o) Partition coefficient: n-octanol/water	log Pow: 4.79
p) Auto-ignition temperature	255 °C (491 °F) at 1,013 hPa (760 mmHg)
q) Decomposition temperature	no data available
r) Viscosity	3 mm <sup>2</sup> /s at 20 °C (68 °F) -
s) Explosive properties	no data available
t) Oxidizing properties	no data available

## 9.2 Other safety information

Relative vapour density 4.77 - (Air = 1.0)

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## 10. STABILITY AND REACTIVITY

### 10.1 Reactivity

no data available

### 10.2 Chemical stability

Stable under recommended storage conditions.

Test for peroxide formation before distillation or evaporation. Test for peroxide formation or discard after 1 year.

### 10.3 Possibility of hazardous reactions

no data available

### 10.4 Conditions to avoid

Heat, flames and sparks.

### 10.5 Incompatible materials

Oxidizing agents

### 10.6 Hazardous decomposition products

Other decomposition products - no data available

In the event of fire: see section 5

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## 11. TOXICOLOGICAL INFORMATION

### 11.1 Information on toxicological effects

#### Acute toxicity

LD50 Oral - rat - male - 4,170 mg/kg

LC50 Inhalation - rat - male - 4 h - 4.08 mg/l  
(OECD Test Guideline 403)

LD50 Dermal - rabbit - male - 5,200 mg/kg

no data available

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

Skin - rabbit

Result: Corrosive after 1 to 4 hours of exposure - 4 h  
(OECD Test Guideline 404)

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

no data available

#### **Respiratory or skin sensitisation**

Maximisation Test - guinea pig

Result: Does not cause skin sensitisation.  
(OECD Test Guideline 406)

#### **Germ cell mutagenicity**

Ames test

S. typhimurium

Result: negative

Mutagenicity (micronucleus test)

mouse - male and female

Result: negative

#### **Carcinogenicity**

Carcinogenicity - rat - Inhalation

Tumorigenic:Neoplastic by RTECS criteria. Endocrine:Tumors.

Carcinogenicity - mouse - Inhalation

Tumorigenic:Carcinogenic by RTECS criteria. Endocrine:Tumors.

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

#### **Reproductive toxicity**

no data available

no data available

Developmental Toxicity - mouse - Oral

No adverse effect has been observed in chronic toxicity tests.

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

no data available

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

no data available

#### **Aspiration hazard**

May be fatal if swallowed and enters airways.

#### **Additional Information**

Repeated dose toxicity - rat - male - No observed adverse effect level - > 10 mg/kg

RTECS: QJ3150000

burning sensation, Cough, wheezing, laryngitis, Shortness of breath, spasm, inflammation and edema of the larynx, spasm, inflammation and edema of the bronchi, pneumonitis, pulmonary edema, Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin., Nausea, Headache, To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Stomach - Irregularities - Based on Human Evidence  
Stomach - Irregularities - Based on Human Evidence

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## 12. ECOLOGICAL INFORMATION

### 12.1 Toxicity

Toxicity to fish	mortality LC50 - <i>Oryzias latipes</i> - 1.84 mg/l - 48 h
Toxicity to daphnia and other aquatic invertebrates	static test EC50 - <i>Daphnia pulex</i> (Water flea) - 2.49 mg/l - 48 h
Toxicity to algae	static test EC50 - <i>Desmodesmus subspicatus</i> ( <i>Scenedesmus subspicatus</i> ) - > 2.2 mg/l - 72 h (Directive 67/548/EEC, Annex V, C.3.)

### 12.2 Persistence and degradability

Biodegradability      aerobic - Exposure time 28 d  
Result: 0 % - Not readily biodegradable.  
(OECD Test Guideline 301F)

### 12.3 Bioaccumulative potential

Bioaccumulation      *Cyprinus carpio* (Carp) - 56 d  
at 25 °C

Bioconcentration factor (BCF): 839 - 3,050  
(OECD Test Guideline 305C)

Remarks: Indication of bioaccumulation.

### 12.4 Mobility in soil

no data available

### 12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

### 12.6 Other adverse effects

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.  
Toxic to aquatic life with long lasting effects.

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## 13. DISPOSAL CONSIDERATIONS

### 13.1 Waste treatment methods

#### Product

Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

#### Contaminated packaging

Dispose of as unused product.

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## 14. TRANSPORT INFORMATION

### DOT (US)

UN number: 1147      Class: 3      Packing group: III  
Proper shipping name: Decahydronaphthalene  
Reportable Quantity (RQ):  
Marine pollutant: No  
Poison Inhalation Hazard: No

### IMDG

UN number: 1147      Class: 3      Packing group: III      EMS-No: F-E, S-D  
Proper shipping name: DECAHYDRONAPHTHALENE  
Marine pollutant: No

**IATA**

UN number: 1147

Class: 3

Packing group: III

Proper shipping name: Decahydronaphthalene

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**15. REGULATORY INFORMATION****SARA 302 Components**

SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

**SARA 313 Components**

SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

**SARA 311/312 Hazards**

Fire Hazard, Acute Health Hazard, Chronic Health Hazard

**Massachusetts Right To Know Components**

	CAS-No.	Revision Date
Decahydronaphthalene	91-17-8	1993-04-24

**Pennsylvania Right To Know Components**

	CAS-No.	Revision Date
Decahydronaphthalene	91-17-8	1993-04-24

**New Jersey Right To Know Components**

	CAS-No.	Revision Date
Decahydronaphthalene	91-17-8	1993-04-24

**California Prop. 65 Components**

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

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**16. OTHER INFORMATION****Full text of H-Statements referred to under sections 2 and 3.**

Acute Tox.	Acute toxicity
Aquatic Acute	Acute aquatic toxicity
Aquatic Chronic	Chronic aquatic toxicity
Asp. Tox.	Aspiration hazard
Eye Dam.	Serious eye damage
Flam. Liq.	Flammable liquids
H226	Flammable liquid and vapour.
H304	May be fatal if swallowed and enters airways.
H314	Causes severe skin burns and eye damage.
H318	Causes serious eye damage.
H331	Toxic if inhaled.
H401	Toxic to aquatic life.

**HMIS Rating**

Health hazard:	2
Chronic Health Hazard:	*
Flammability:	2
Physical Hazard	0

**NFPA Rating**

Health hazard:	2
Fire Hazard:	2
Reactivity Hazard:	0

**Further information**

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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the



product with regard to appropriate safety precautions. 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.

**Preparation Information**

Sigma-Aldrich Corporation  
Product Safety – Americas Region  
1-800-521-8956

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