



# SIGMA-ALDRICH

## Material Safety Data Sheet

Date Printed: 11/01/2007  
Date Updated: 05/18/2006  
Version 1.90

### Section 1 - Product and Company Information

<b>Product Name</b>	Hexane, ReagentPlus&#174.; ≥99%		
<b>Product Number</b>	139386		
<b>Brand</b>	Aldrich Chemical		
<b>Company</b>	Sigma-Aldrich		
<b>Address</b>	3050 Spruce Street		
<b>City, State, Zip, Country</b>	SAINT LOUIS, MO 63103 US		
<b>Technical Phone:</b>	800-325-5832	<b>Emergency Phone:</b>	314-776-6555
<b>Fax:</b>	800-325-5052		

### Section 2 - Composition/Information on Ingredient

<u>Substance Name</u>	<u>CAS #</u>	<u>SARA 313</u>	<u>EC no</u>	<u>Annex I Index Number</u>
N-HEXANE	110-54-3	Yes	203-777-6	601-037-00-0

<b>Formula</b>	C6H14
<b>Synonyms</b>	Esani (Italian), Gettysolve-B, Heksan (Polish), n-Hexane (ACGIH:OSHA), Hexanen (Dutch), Hexyl hydride, NCI-C60571

### Section 3 - Hazards Identification

#### Emergency Overview

Flammable (USA) Highly Flammable (EU). Harmful. Dangerous for the environment. Irritating to eyes, respiratory system and skin. Harmful: danger of serious damage to health by prolonged exposure through inhalation. Possible risk of impaired fertility. Harmful: may cause lung damage if swallowed. Vapors may cause drowsiness and dizziness. Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. Target organ(s): Nerves, Kidneys.

#### HMIS Rating

Health: 2\*                      Flammability: 3                      Reactivity: 0

#### NFPA Rating

Health: 2                      Flammability: 3                      Reactivity: 0

\*additional chronic hazards present.

### Section 4 - First Aid Measures

#### Oral Exposure

If swallowed, do not induce vomiting; call a physician immediately.

#### Inhalation Exposure

If inhaled, remove to fresh air. If not breathing give artificial respiration. If breathing is difficult, give oxygen.

#### Dermal Exposure

In case of contact, immediately wash skin with soap and copious amounts of water.

**Eye Exposure**

In case of contact, immediately flush eyes with copious amounts of water for at least 15 minutes.

---

**Section 5 - Fire Fighting Measures**

---

**Flammable Hazards:** Yes

**Explosion Hazards**

Vapor may travel considerable distance to source of ignition and flash back.  
Container explosion may occur under fire conditions.

**Flash Point:** -14.8 °F -26 °C

**Explosion Limits:** Lower: 1.2 % Upper: 7.7 %

**Autoignition Temp:** 234 °C **Flammability:** Yes

**Extinguishing Media****Suitable**

For small (incipient) fires, use media such as "alcohol" foam, dry chemical, or carbon dioxide. For large fires, apply water from as far as possible. Use very large quantities (flooding) of water applied as a mist or spray; solid streams of water may be ineffective. Cool all affected containers with flooding quantities of water.

**Firefighting****Protective Equipment**

Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.

**Specific Hazard(s)**

Flammable liquid. Emits toxic fumes under fire conditions. Vapor may travel considerable distance to source of ignition and flash back.

**Specific Method(s) of Fire Fighting**

Use water spray to cool fire-exposed containers.

---

**Section 6 - Accidental Release Measures**

---

**Procedure to be Followed in Case of Leak or Spill**

Evacuate area. Shut off all sources of ignition. Use nonsparking tools.

**Procedure(s) of Personal Precaution(s)**

Wear self-contained breathing apparatus, rubber boots, and heavy rubber gloves.

**Methods for Cleaning Up**

Cover with dry-lime, sand, or soda ash. Place in covered containers using non-sparking tools and transport outdoors. Ventilate area and wash spill site after material pickup is complete.

---

**Section 7 - Handling and Storage**

---

**Handling****User Exposure**

Do not breathe vapor. Do not get in eyes, on skin, on clothing. Avoid prolonged or repeated exposure.

**Storage****Suitable**

Keep tightly closed. Keep away from heat, sparks, and open flame.

**Section 8 - Exposure Controls / PPE****Engineering Controls**

Safety shower and eye bath. Use nonsparking tools. Mechanical exhaust required.

**Personal Protective Equipment****Respiratory**

Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU). 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.

**Hand**

Compatible chemical-resistant gloves.

**Eye**

Chemical safety goggles.

**General Hygiene Measures**

Remove and wash contaminated clothing promptly. Wash thoroughly after handling.

**Exposure Limits****Country**

Poland

Poland

Poland

**Type**

NDS

NDSch

NDSP

**Value**

100 MG/M3

400 MG/M3

-

**Exposure Limits, RTECS****Country**

USA

**Remarks:** Skin

USA

USA

New Zealand

**Remarks:** check ACGIH TLV

USA

**Source**

ACGIH

MSHA Standard-air

OSHA.

OEL

NIOSH

**Type**

TWA

TWA

PEL

TWA

**Value**

50 PPM

500 PPM (1800  
MG/M3)

8H TWA 500  
PPM (1800  
MG/M3)

50 PPM

**Section 9 - Physical/Chemical Properties****Appearance****Physical State**

Liquid

**Molecular Weight:** 86.18 AMU

**pH** 7

**BP/BP Range** 68 - 70 °C

**MP/MP Range** -95 °C

**Freezing Point** N/A

**Vapor Pressure** 132 mmHg 20 °C

**Vapor Density** 3 g/l

**Saturated Vapor Conc.** N/A

**SG/Density** 0.659 g/cm3

**Bulk Density** N/A

**Odor Threshold** 64 - 244 ppm

<b>Volatile%</b>	100 %	
<b>VOC Content</b>	N/A	
<b>Water Content</b>	< 0.01 %	
<b>Solvent Content</b>	N/A	
<b>Evaporation Rate</b>	15.8	
<b>Viscosity</b>	32 Pas	25 °C
<b>Partition Coefficient</b>	Log Kow: 3.90 - 4.11	
<b>Decomposition Temp.</b>	N/A	
<b>Flash Point °F</b>	-14.8 °F	Method: closed cup
<b>Flash Point °C</b>	-26 °C	Method: closed cup
<b>Explosion Limits</b>	Lower: 1.2 % Upper: 7.7 %	
<b>Flammability</b>	N/A	
<b>Autoignition Temp</b>	234 °C	
<b>Refractive Index</b>	1.375	
<b>Solubility</b>	<b>Solubility in Water:</b> Insoluble.	

N/A = not available

---

## Section 10 - Stability and Reactivity

---

### Stability

#### Stable

Stable.

#### Materials to Avoid

Oxidizing agents. Incompatible with: chlorine, fluorine, and magnesium perchlorate.

### Hazardous Decomposition Products

#### Hazardous Decomposition Products

Carbon monoxide, Carbon dioxide.

### Hazardous Polymerization

#### Hazardous Polymerization

Will not occur.

---

## Section 11 - Toxicological Information

---

### Route of Exposure

#### Skin Contact

Causes skin irritation.

#### Skin Absorption

May be harmful if absorbed through the skin.

#### Eye Contact

May cause eye irritation.

#### Inhalation

Material may be irritating to mucous membranes and upper respiratory tract. Harmful if inhaled.

#### Ingestion

Harmful if swallowed.

### Target Organ(s) or System(s)

Peripheral nervous system, Kidneys, Testes.

### Signs and Symptoms of Exposure

Prolonged or repeated contact with skin can cause defatting and dermatitis. Contact with eyes can cause redness, tearing, and blurred vision. Ingestion may cause gastrointestinal irritation. Can cause CNS depression. Exposure can cause: Lung irritation, chest pain, and edema which may be fatal. Headache, dizziness, drowsiness, incoordination, slowed reaction time, slurred speech, giddiness and unconsciousness.

**RTECS Number:** MN9275000

### Toxicity Data

Aldrich Chemical - 139386

Page 4

**Sigma-Aldrich Corporation**  
www.sigma-aldrich.com

Oral - Rat: 25000 mg/kg (LD50)

Inhalation - Rat: 48.000 ppm (LC50)

#### Irritation Data

Eyes - Rabbit: 10 mg

Remarks: Mild irritation effect

#### Chronic Exposure - Carcinogen

Rat - Inhalation: 1000 PPM 4H/59W I

Result: Tumorigenic: Carcinogenic by RTECS criteria. Tumorigenic Effects: Testicular tumors.

Mouse - Inhalation: 9018 PPM 6H/2Y I

Result: Tumorigenic: Neoplastic by RTECS criteria. Liver: Tumors.

#### Chronic Exposure - Teratogen

<u>Species</u>	<u>Dose</u>	<u>Route of Application</u>	<u>Exposure Time</u>
Rat	5000 PPM/20H	Inhalation	(6-19D PREG)

Result: Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus).

Mouse	238 GM/KG	Oral	(6-15D PREG)
-------	-----------	------	--------------

Result: Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus).

#### Chronic Exposure - Mutagen

<u>Species</u>	<u>Dose</u>	<u>Cell Type</u>	<u>Mutation test</u>
Hamster	500 MG/L	fibroblast	Cytogenetic analysis

#### Chronic Exposure - Reproductive Hazard

<u>Species</u>	<u>Dose</u>	<u>Route of Application</u>	<u>Exposure Time</u>
Result: Overexposure may cause reproductive disorder(s) based on tests with laboratory animals.			
Rat	10000 PPM/7H	Inhalation	(15D PRE/1-18D PREG)

Rat	1000 PPM/6H	Inhalation	(8-16D PREG)
-----	-------------	------------	--------------

Result: Effects on Newborn: Growth statistics (e.g., reduced weight gain).

---

## Section 12 - Ecological Information

---

#### Acute Ecotoxicity Tests

##### Test Type

EC50 Daphnia

##### Species

Daphnia magna

##### Time:

48.0 h

##### Value:

3.878 mg/l

##### Test Type

EC50 Algae

##### Species

Chlorella vulgaris

##### Time:

3 h

##### Value:

12.840 mg/l

##### Test Type

EC50 Algae

##### Species

SKELETOMA

##### Time:

8 h

##### Value:

0.3 mg/l

---

## Section 13 - Disposal Considerations

---

#### Appropriate Method of Disposal of Substance or Preparation

Contact a licensed professional waste disposal service to dispose of this material.

Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable.

Observe all federal, state, and local environmental regulations.

---

## Section 14 - Transport Information

---

### DOT

**Proper Shipping Name:** Hexanes

**UN#:** 1208

**Class:** 3

**Packing Group:** Packing Group II

**Hazard Label:** Flammable liquid

**PIH:** Not PIH

### IATA

**Proper Shipping Name:** Hexanes

**IATA UN Number:** 1208

**Hazard Class:** 3

**Packing Group:** II

---

## Section 15 - Regulatory Information

---

### EU Directives Classification

**Symbol of Danger:** F Xn N

#### Indication of Danger

Highly Flammable. Harmful. Dangerous for the environment.

**Risk Statements** R: 11 38 48/20 62 65 67 51/53

Highly flammable. Irritating to skin. Harmful: danger of serious damage to health by prolonged exposure through inhalation.

Possible risk of impaired fertility. Harmful: may cause lung damage if swallowed. Vapors may cause drowsiness and dizziness.

Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

**Safety Statements** S: 9 16 29 33 36/37 61 62

Keep container in a well-ventilated place. Keep away from sources of ignition - no smoking. Do not empty into drains. Take precautionary measures against static discharges. Wear suitable protective clothing and gloves. Avoid release to the environment. Refer to special instructions/safety data sheets. If swallowed, do not induce vomiting; seek medical advice immediately and show this container or label.

### US Classification and Label Text

#### Indication of Danger

Flammable (USA) Highly Flammable (EU). Harmful. Dangerous for the environment.

#### Risk Statements

Irritating to eyes, respiratory system and skin. Harmful: danger of serious damage to health by prolonged exposure through inhalation. Possible risk of impaired fertility. Harmful: may cause lung damage if swallowed. Vapors may cause drowsiness and dizziness. Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

#### Safety Statements

Keep container in a well-ventilated place. Keep away from sources of ignition - no smoking. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Do not empty into drains. Take precautionary measures against static discharges. Wear suitable protective clothing and gloves. Avoid release to the environment. Refer to special instructions/safety data sheets. If swallowed, do not induce vomiting; seek medical advice immediately and show this container or label.

#### US Statements

Target organ(s): Nerves. Kidneys.

### United States Regulatory Information

**SARA Listed:** Yes

**Deminimis:** 1 %

**Notes:** This product is subject to SARA section 313 reporting requirements.

**TSCA Inventory Item:** Yes

### Canada Regulatory Information

#### WHMIS Classification

This product has been classified in accordance with the hazard criteria of the CPR, and the MSDS contains all the information required by the CPR.

DSL: Yes  
NDSL: No

---

**Section 16 - Other Information**

---

**Disclaimer**

For R&D use only. Not for drug, household or other uses.

**Warranty**

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 Inc. shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale. Copyright 2007 Sigma-Aldrich Co. License granted to make unlimited paper copies for internal use only.