

## Material Safety Data Sheet

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Version 1.6

According to 91/155/EEC

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1 - Product and Company Information

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Product Name	HEXANE, 99+%
Product Number	139386
Company	Sigma-Aldrich Pte Ltd #08-01 Citilink Warehouse Singapore 118529 Singapore
Technical Phone #	65 271 1089
Fax	65 271 1571

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2 - Composition/Information on Ingredients

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Product Name	CAS #	EC no
N-HEXANE	110-54-3	203-777-6
Formula	C6H14	
Molecular Weight	86.18 AMU	
Synonyms	Esani (Italian) * Gettysolve-B * Heksan (Polish) * n-Hexane (ACGIH:OSHA) * Hexanen (Dutch) * Hexyl hydride * NCI-C60571	

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3 - Hazards Identification

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## SPECIAL INDICATION OF HAZARDS TO HUMANS AND THE ENVIRONMENT

Highly flammable. Irritating to skin. Harmful: danger of serious damage to health by prolonged exposure through inhalation. Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. Possible risk of impaired fertility. Harmful: may cause lung damage if swallowed. Vapors may cause drowsiness and dizziness.  
Repr. Cat.3

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4 - First Aid Measures

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## AFTER INHALATION

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

## AFTER SKIN CONTACT

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

## AFTER EYE CONTACT

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

## AFTER INGESTION

If swallowed, wash out mouth with water provided person is conscious. Call a physician.

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## 5 - Fire Fighting Measures

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### EXTINGUISHING MEDIA

Suitable: Water spray. Carbon dioxide, dry chemical powder, or appropriate foam.

### SPECIAL RISKS

Specific Hazard(s): Flammable liquid. Emits toxic fumes under fire conditions. Vapor may travel considerable distance to source of ignition and flash back.

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

### SPECIAL PROTECTIVE EQUIPMENT FOR FIREFIGHTERS

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

### SPECIFIC METHOD(S) OF FIRE FIGHTING

Use water spray to cool fire-exposed containers.

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## 6 - Accidental Release Measures

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### PERSONAL PRECAUTION PROCEDURES 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.

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## 7 - Handling and Storage

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### HANDLING

Directions for Safe Handling: Do not breathe vapor. Do not get in eyes, on skin, on clothing. Avoid prolonged or repeated exposure.

### STORAGE

Conditions of Storage: Keep tightly closed. Keep away from heat, sparks, and open flame. Store in a cool dry place.

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## 8 - Exposure Controls / Personal Protection

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### ENGINEERING CONTROLS

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

### GENERAL HYGIENE MEASURES

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

### EXPOSURE LIMITS

Country	Source	Type	Value
Poland		NDS	100 MG/M3
Poland		NDSch	400 MG/M3

Poland	NDSP	-
EXPOSURE LIMITS - DENMARK		
Source	Type	Value
OEL	TWA	90 mg/m3
		25 ppm
EXPOSURE LIMITS - GERMANY		
Source	Type	Value
TRGS 900	OEL	180 mg/m3
		50 ppm
Remarks: 4		
Remarks: Y		
EXPOSURE LIMITS - NORWAY		
Source	Type	Value
	OEL	90 mg/m3
		25 ppm
Remarks: R		
EXPOSURE LIMITS - SWEDEN		
Source	Type	Value
	LLV (Level	90 mg/m3
		25 ppm
EXPOSURE LIMITS - SWITZERLAND		
Source	Type	Value
OEL	OEL	180 mg/m3
		50 ppm
Remarks: M C H*		
EXPOSURE LIMITS - UNITED KINGDOM		
Source	Type	Value
OEL	OEL	72 mg/m3
		20 ppm

#### PERSONAL PROTECTIVE EQUIPMENT

Respiratory Protection: Government approved respirator.

Hand Protection: Compatible chemical-resistant gloves.

Eye Protection: Chemical safety goggles.

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### 9 - Physical and Chemical Properties

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Appearance	Physical State: Liquid	
Property	Value	At Temperature or Pressure
pH	7	
BP/BP Range	68 - 70 °C	
MP/MP Range	-95 °C	
Flash Point	-26 °C	Method: closed cup
Flammability	N/A	
Autoignition Temp	234 °C	
Oxidizing Properties	N/A	
Explosive Properties	N/A	
Explosion Limits	Lower: 1.2 %	
	Upper: 7.7 %	
Vapor Pressure	132 mmHg	20 °C
SG/Density	0.659 g/cm3	
Partition Coefficient	Log Kow: 3.9 - 4.11	
Viscosity	32 Pas	25 °C
Vapor Density	3 g/l	

Saturated Vapor Conc.	N/A
Evaporation Rate	15.8
Bulk Density	N/A
Decomposition Temp.	N/A
Solvent Content	N/A
Water Content	< 0.01 %
Surface Tension	N/A
Conductivity	N/A
Miscellaneous Data	N/A
Solubility	Solubility in Water: Insoluble.

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## 10 - Stability and Reactivity

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### 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

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## 11 - Toxicological Information

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RTECS NUMBER: MN9275000

### ACUTE TOXICITY

LD50  
Oral  
Rat  
25000 mg/kg

LC50  
Inhalation  
Rat  
48,000 ppm  
4H

### IRRITATION DATA

Eyes  
Rabbit  
10 mg  
Remarks: Mild irritation effect

### 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.

### 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: May be harmful if inhaled. Material may be

irritating to mucous membranes and upper respiratory tract.  
Ingestion: May be harmful if swallowed.

#### TARGET ORGAN INFORMATION

Peripheral nervous system. Kidneys. Testes.

#### CHRONIC EXPOSURE - CARCINOGEN

Rat

Route of Application: Inhalation

Exposure Time: 4H/59W

Result: Tumorigenic: Carcinogenic by RTECS criteria. Tumorigenic

Effects: Testicular tumors.

Mouse

Route of Application: Inhalation

Exposure Time: 6H/2Y

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

#### CHRONIC EXPOSURE - MUTAGEN

Hamster

500 MG/L

Cell Type: fibroblast

Cytogenetic analysis

#### CHRONIC EXPOSURE - TERATOGEN

Species: Rat

Dose: 5000 PPM/20H

Route of Application: Inhalation

Exposure Time: (6-19D PREG)

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

Species: Mouse

Dose: 238 GM/KG

Route of Application: Oral

Exposure Time: (6-15D PREG)

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

#### CHRONIC EXPOSURE - REPRODUCTIVE HAZARD

Result: Overexposure may cause reproductive disorder(s) based on tests with laboratory animals.

Species: Rat

Dose: 10000 PPM/7H

Route of Application: Inhalation

Exposure Time: (15D PRE/1-18D PREG)

Result: Effects on Newborn: Behavioral.

Species: Rat

Dose: 1000 PPM/6H

Route of Application: Inhalation

Exposure Time: (8-16D PREG)

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

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## 12 - Ecological Information

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### ECOTOXICOLOGICAL EFFECTS

Test Type: EC50 Daphnia  
Species: Daphnia magna  
Time: 48 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

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### 13 - Disposal Considerations

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#### SUBSTANCE DISPOSAL

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.

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### 14 - Transport Information

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#### RID/ADR

UN#: 1208  
Class: 3  
PG: II  
Proper Shipping Name: Hexane

#### IMDG

UN#: 1208  
Class: 3  
PG: II  
EmS Number: 3-07  
MFAG Number: 310  
Proper Shipping Name: Hexanes  
Marine Pollutant: No  
Severe Marine Pollutant: No

#### IATA

UN#: 1208  
Class: 3  
PG: II  
Proper Shipping Name: Hexanes  
Inhalation Packing Group I: No

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### 15 - Regulatory Information

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#### CLASSIFICATION AND LABELING ACCORDING TO EU DIRECTIVES

ANNEX I INDEX NUMBER: 601-037-00-0

NOTA: 4,6

INDICATION OF DANGER: F Xn N

Highly Flammable. Harmful. Dangerous for the environment.

R-PHRASES: 11 38 48/20 51/53 62 65 67

Highly flammable. Irritating to skin. Harmful: danger of serious damage to health by prolonged exposure through inhalation. Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. Possible risk of

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

S-PHRASES: 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.

#### COUNTRY SPECIFIC INFORMATION

Germany

VbF: A I

WGK: 1

SWITZERLAND

SWISS POISON CLASS: 4

NORWAY

Labelling for organic solvents where the package is 1 liter or more.

YL-tall m3/l: 10266

YL-group: 5

Safety phrases: 38 42 210

In case of insufficient ventilation, wear suitable respiratory equipment. During fumigation/spraying wear suitable respiratory equipment. Use compressed air- or fresh air line breathing apparatus in confined spaces.

Declaration Number: 7382

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#### 16 - Other Information

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#### 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 2004 Sigma-Aldrich Co. License granted to make unlimited paper copies for internal use only.

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