

MATERIAL SAFETY DATA SHEET

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Version 1.6

Section 1 - Product and Company Information

Product Name HEXANE, 95+%, HPLC GRADE
 (POLY-COATEDBOTTLE)
Product Number 439177
Brand ALDRICH

Company Sigma-Aldrich
Street Address 3050 Spruce Street
City, State, Zip, Country SAINT LOUIS MO 63103 US
Technical Phone: 314 771 5765
Emergency Phone: 414 273 3850 Ext. 5996
Fax: 800 325 5052

Section 2 - Composition/Information on Ingredient

| | | |
|----------------|----------|----------|
| Substance Name | CAS # | SARA 313 |
| N-HEXANE | 110-54-3 | Yes |

Formula C6H14
Synonyms Esani (Italian) * Gettysolve-B * Heksan (Polish)
 * n-Hexane (ACGIH:OSHA) * Hexanen (Dutch) * Hexyl
 hydride * NCI-C60571
RTECS Number: MN9275000

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

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

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.

For additional information on toxicity, please refer to Section 11.

Section 4 - First Aid Measures

ORAL EXPOSURE

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

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

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 Method: closed cup

EXPLOSION LIMITS

Lower: 1.2 % Upper: 7.7 %

AUTOIGNITION TEMP

234 °C

FLAMMABILITY

N/A

EXTINGUISHING MEDIA

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

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. Store in a cool dry place.

Section 8 - Exposure Controls / PPE

ENGINEERING CONTROLS

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

PERSONAL PROTECTIVE EQUIPMENT

Respiratory: Government approved 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, RTECS

| Country | Source | Type | Value |
|--------------------------|-------------------|------|-----------------------------|
| USA | ACGIH | TWA | 50 PPM |
| Remarks: Skin | | | |
| USA | MSHA Standard-air | TWA | 500 PPM (1800 MG/M3) |
| USA | OSHA. | PEL | 8H TWA 500 PPM (1800 MG/M3) |
| New Zealand OEL | | | |
| Remarks: check ACGIH TLV | | | |
| USA | NIOSH | TWA | 50 PPM |

EXPOSURE LIMITS

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

Section 9 - Physical/Chemical Properties

| | | |
|-----------------------|------------------------|----------------------------|
| Appearance | Physical State: Liquid | |
| Property | Value | At Temperature or Pressure |
| 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 | |
| Volatile% | 100 % | |
| VOC Content | N/A | |
| Water Content | < 0.01 % | |
| Solvent Content | N/A | |
| Evaporation Rate | 15.8 | |
| Viscosity | 32 Pas | 25 °C |
| Surface Tension | N/A | |
| Partition Coefficient | Log Kow: 3.9 - 4.11 | |
| Decomposition Temp. | N/A | |
| Flash Point | -14.8 °F -26 °C | Method: closed cup |
| Explosion Limits | Lower: 1.2 % Upper: 7.7 % | |
| Flammability | N/A | |
| Autoignition Temp | 234 °C | |
| Refractive Index | 1.375 | |
| Optical Rotation | N/A | |
| Miscellaneous Data | N/A | |
| Solubility | Solubility in Water: 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: May be harmful if inhaled. Material may be irritating to mucous membranes and upper respiratory tract.

Ingestion: May be 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.

TOXICITY DATA

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

Species: Rat
Route of Application: Inhalation
Dose: 1000 PPM
Exposure Time: 4H/59W
Frequency: I
Result: Tumorigenic: Carcinogenic by RTECS criteria. Tumorigenic
Effects: Testicular tumors.

Species: Mouse
Route of Application: Inhalation
Dose: 9018 PPM
Exposure Time: 6H/2Y
Frequency: I
Result: Tumorigenic: Neoplastic by RTECS criteria. Liver: Tumors.

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 - MUTAGEN

Species: Hamster
Dose: 500 MG/L
Cell Type: fibroblast
Mutation test: Cytogenetic analysis

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).

Section 12 - Ecological Information

ACUTE ECOTOXICITY TESTS

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

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.

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

Risk Statements: 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: 9 16 29 33 36/37 61 62

Safety Statements: 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: 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.

Safety Statements: In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). 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, gloves, and eye/face protection. 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.

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