

n-Pentane

Safety Data Sheet

according to Regulation (EU) 2015/830

Date of issue: 03/04/2017 Version: 0.0

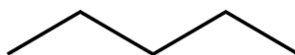
Doc. No: SDS-959.017/1



SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product form : Substance
Substance name : n-Pentane
EC Index-No. : 601-006-00-1
EC-No. : 203-692-4
CAS-No. : 109-66-0
Type of product : Pure substance
Formula : $\text{CH}_3(\text{CH}_2)_3\text{CH}_3$
Chemical structure :



Synonyms : AD3/AD4-51 / alkane C5 / C5 pentane / normal pentane / normal-pentane / normal-pentane, commercial / normal-pentane, polymerization / normal-pentane, pure / normal-pentane, research / norpar 5 / pentane / pentane 75 / pentane, anhydrous / pentane, commercial / pentane, normal / pentane, pure grade / Pentanes, liquid / skellysolve A

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

1.2.1. Relevant identified uses

Use of the substance/mixture : Solvent
Laboratory chemical

1.2.2. Uses advised against

No additional information available

1.3. Details of the supplier of the safety data sheet

ISOLAB Laborgeräte GmbH
Am Dillhof 2 - 63863 Eschau / GERMANY
Tel: + 49 93 74 / 978 55-0
Fax: +49 93 74 / 978 55-29
prodsafe@isolab.de

1.4. Emergency telephone number

| Country | Organisation/Company | Address | Emergency number | Comment |
|---------|--|-----------------------------------|------------------|---------|
| Germany | Giftnotruf der Charité CBF, Haus VIII (Wirtschaftgebäude), UG | Hindenburgdamm 30 12203 Berlin | +49 30 19240 | |

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP]

Flam. Liq. 2 H225
Asp. Tox. 1 H304
STOT SE 3 H336
Aquatic Chronic 2 H411

Full text of hazard classes and H-statements : see section 16

Adverse physicochemical, human health and environmental effects

No additional information available

2.2. Label elements

Labelling according to Regulation (EC) No. 1272/2008 [CLP]

Hazard pictograms (CLP) :



GHS02

GHS08

GHS07

GHS09

Signal word (CLP) : Danger

Hazard statements (CLP) : H225 - Highly flammable liquid and vapour

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- H304 - May be fatal if swallowed and enters airways
H336 - May cause drowsiness or dizziness
H411 - Toxic to aquatic life with long lasting effects
- Precautionary statements (CLP) : P210 - Keep away from heat/sparks/open flames/hot surfaces. - No smoking
P301 + P310 - IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician.
P331 - Do NOT induce vomiting
P370+P378 - In case of fire: Use suitable extinguishing medium to extinguish.
P403 + P233 - Store in a well-ventilated place. Keep container tightly closed
- EUH-statements : EUH066 - Repeated exposure may cause skin dryness or cracking

2.3. Other hazards

No additional information available

SECTION 3: Composition/information on ingredients

3.1. Substances

| Name | Product identifier | % |
|-----------|---|-----|
| n-Pentane | (CAS-No.) 109-66-0 (EC-No.) 203-692-4 (EC Index-No.) 601-006-00-1 | 100 |

Full text of H-statements: see section 16

3.2. Mixtures

Not applicable

SECTION 4: First aid measures

4.1. Description of first aid measures

- First-aid measures general : Check the vital functions. Unconscious: maintain adequate airway and respiration. Respiratory arrest: artificial respiration or oxygen. Cardiac arrest: perform resuscitation. Victim conscious with laboured breathing: half-seated. Victim in shock: on his back with legs slightly raised. Vomiting: prevent asphyxia/aspiration pneumonia. Prevent cooling by covering the victim (no warming up). Keep watching the victim. Give psychological aid. Keep the victim calm, avoid physical strain. Depending on the victim's condition: doctor/hospital. Never give alcohol to drink.
- First-aid measures after inhalation : Remove the victim into fresh air. Respiratory problems: consult a doctor/medical service.
- First-aid measures after skin contact : Wash immediately with lots of water. Soap may be used. Take victim to a doctor if irritation persists.
- First-aid measures after eye contact : Rinse with water. Do not apply neutralizing agents. Take victim to an ophthalmologist if irritation persists.
- First-aid measures after ingestion : Rinse mouth with water. Immediately after ingestion: give lots of water to drink. Do not give milk/oil to drink. Do not induce vomiting. Give activated charcoal. Call Poison Information Centre (www.big.be/antigif.htm). Consult a doctor/medical service if you feel unwell. Ingestion of large quantities: immediately to hospital.

4.2. Most important symptoms and effects, both acute and delayed

- Symptoms/effects after inhalation : Dry/sore throat. EXPOSURE TO HIGH CONCENTRATIONS: Irritation of the respiratory tract. Irritation of the nasal mucous membranes. Coughing. Feeling of weakness. Nausea. Central nervous system depression. Dizziness. Narcosis. Mental confusion. Coordination disorders. Disturbances of consciousness. Disturbances of heart rate. Respiratory difficulties.
- Symptoms/effects after skin contact : ON CONTINUOUS EXPOSURE/CONTACT: Red skin. Swelling of the skin. Dry skin. Cracking of the skin. Itching.
- Symptoms/effects after eye contact : Slight irritation. Redness of the eye tissue.
- Symptoms/effects after ingestion : Gastrointestinal complaints. Risk of aspiration pneumonia.
- Chronic symptoms : ON CONTINUOUS/REPEATED EXPOSURE/CONTACT: Itching. Skin rash/inflammation. Impaired concentration. Loss of appetite.

4.3. Indication of any immediate medical attention and special treatment needed

No additional information available

SECTION 5: Fire-fighting measures

5.1. Extinguishing media

- Suitable extinguishing media : Polyvalent foam. AFFF foam. BC powder. Carbon dioxide.
- Unsuitable extinguishing media : Solid water jet ineffective as extinguishing medium.

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5.2. Special hazards arising from the substance or mixture

- Fire hazard : DIRECT FIRE HAZARD. Highly flammable. Gas/vapour flammable with air within explosion limits. INDIRECT FIRE HAZARD. May build up electrostatic charges: risk of ignition. May be ignited by sparks. Gas/vapour spreads at floor level: ignition hazard. Reactions involving a fire hazard: see "Reactivity Hazard".
- Explosion hazard : DIRECT EXPLOSION HAZARD. Gas/vapour explosive with air within explosion limits. INDIRECT EXPLOSION HAZARD. Heat may cause pressure rise in tanks/drums: explosion risk. may be ignited by sparks. Reactions with explosion hazards: see "Reactivity Hazard".

5.3. Advice for firefighters

- Firefighting instructions : If no hazard for/from the surroundings: controlled burning. If hazardous substances are nearby: consider extinguishment. Cool tanks/drums with water spray/remove them into safety. Physical explosion risk: extinguish/cool from behind cover. Do not move the load if exposed to heat. After cooling: persistent risk of physical explosion. Take account of environmentally hazardous firefighting water. Use water moderately and if possible collect or contain it.
- Protection during firefighting : Heat/fire exposure: compressed air/oxygen apparatus.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

- Protective equipment : Gloves. Protective clothing. Large spills/in enclosed spaces: compressed air apparatus. See "Material-Handling" to select protective clothing.
- Emergency procedures : Keep upwind. Mark the danger area. Consider evacuation. Seal off low-lying areas. Close doors and windows of adjacent premises. Stop engines and no smoking. No naked flames or sparks. Spark- and explosionproof appliances and lighting equipment. Keep containers closed. Wash contaminated clothes.

6.1.2. For emergency responders

No additional information available

6.2. Environmental precautions

Prevent soil and water pollution. Prevent spreading in sewers.

6.3. Methods and material for containment and cleaning up

- For containment : Contain released substance, pump into suitable containers. Consult "Material-handling" to select material of containers. Plug the leak, cut off the supply. Dam up the liquid spill. Try to reduce evaporation. Measure the concentration of the explosive gas-air mixture. Dilute/disperse combustible gas/vapour with water curtain. Provide equipment/receptacles with earthing. Do not use compressed air for pumping over spills.
- Methods for cleaning up : Dam up with non combustible material. Take up liquid spill into a non combustible material e.g.: sand, earth, vermiculite or kieselguhr. Scoop absorbed substance into closing containers. See "Material-handling" for suitable container materials. Carefully collect the spill/leftovers. Damaged/cooled tanks must be emptied. Do not use compressed air for pumping over spills. Clean contaminated surfaces with an excess of water. Take collected spill to manufacturer/competent authority. Wash clothing and equipment after handling.

6.4. Reference to other sections

No additional information available

SECTION 7: Handling and storage

7.1. Precautions for safe handling

- Precautions for safe handling : Comply with the legal requirements. Remove contaminated clothing immediately. Clean contaminated clothing. Handle uncleaned empty containers as full ones. Thoroughly clean/dry the installation before use. Do not discharge the waste into the drain. Do not use compressed air for pumping over. Use spark-/explosionproof appliances and lighting system. Take precautions against electrostatic charges. Keep away from naked flames/heat. Keep away from ignition sources/sparks. Observe normal hygiene standards. Keep container tightly closed. Measure the concentration in the air regularly. Work under local exhaust/ventilation.

7.2. Conditions for safe storage, including any incompatibilities

- Heat and ignition sources : KEEP SUBSTANCE AWAY FROM: heat sources. ignition sources.
- Information on mixed storage : KEEP SUBSTANCE AWAY FROM: oxidizing agents.
- Storage area : Store in a cool area. Keep out of direct sunlight. Ventilation at floor level. Fireproof storeroom. Provide for an automatic sprinkler system. Provide for a tub to collect spills. Provide the tank with earthing. May be stored under nitrogen. Meet the legal requirements.
- Special rules on packaging : SPECIAL REQUIREMENTS: closing. clean. correctly labelled. meet the legal requirements. Secure fragile packagings in solid containers.

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Packaging materials

: SUITABLE MATERIAL: steel, stainless steel, aluminium, copper, nickel, glass. MATERIAL TO AVOID: No data available.

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

| n-Pentane (109-66-0) | | |
|----------------------|--|---|
| EU | Local name | Pentane |
| EU | IOELV TWA (mg/m ³) | 3000 mg/m ³ (Pentane; EU; Time-weighted average exposure limit 8 h; Indicative occupational exposure limit value) |
| EU | IOELV TWA (ppm) | 1000 ppm (Pentane; EU; Time-weighted average exposure limit 8 h; Indicative occupational exposure limit value) |
| Austria | Local name | n-Pentan |
| Austria | MAK (mg/m ³) | 1800 mg/m ³ |
| Austria | MAK (ppm) | 600 ppm |
| Austria | MAK Short time value (mg/m ³) | 3600 mg/m ³ |
| Austria | MAK Short time value (ppm) | 1200 ppm |
| Belgium | Local name | Pentane, tous isomères # Pentaan, alle isomeren |
| Belgium | Limit value (mg/m ³) | 1800 mg/m ³ (Pentane, tous isomères; Belgium; Time-weighted average exposure limit 8 h) |
| Belgium | Limit value (ppm) | 600 ppm (Pentane, tous isomères; Belgium; Time-weighted average exposure limit 8 h) |
| Belgium | Short time value (mg/m ³) | 2250 mg/m ³ (Pentane, tous isomères; Belgium; Short time value) |
| Belgium | Short time value (ppm) | 750 ppm (Pentane, tous isomères; Belgium; Short time value) |
| Bulgaria | Local name | n-Пентан |
| Bulgaria | OEL TWA (mg/m ³) | 3000 mg/m ³ |
| Bulgaria | OEL TWA (ppm) | 1000 ppm |
| Bulgaria | Notes | • (Химични агенти, за които са определени гранични стойности във въздуха на работната среда за Европейската общност) |
| Croatia | Local name | Pentan |
| Croatia | GVI (granična vrijednost izloženosti) (mg/m ³) | 3000 mg/m ³ |
| Croatia | GVI (granična vrijednost izloženosti) (ppm) | 1000 ppm |
| Croatia | Naznake (HR) | EU** (naznaka da se radi o tvarima za koje su utvrđene indikativne granične vrijednosti izloženosti prema Direktivi 2006/15/ EC (druga lista)); F+ (vrlo lako zapaljivo); Xn (Štetno); N (opasno za okoliš) |
| Czech Republic | Local name | Pentan a isopentan |
| Czech Republic | Expoziční limity (PEL) (mg/m ³) | 3000 mg/m ³ |
| Czech Republic | Expoziční limity (PEL) (ppm) | 1020 ppm |
| Czech Republic | Expoziční limity (NPK-P) (mg/m ³) | 4500 mg/m ³ |
| Czech Republic | Expoziční limity (NPK-P) (ppm) | 1526 ppm |
| Czech Republic | Remark (CZ) | * |
| Denmark | Local name | Pentan |
| Denmark | Grænseværdie (langvarig) (mg/m ³) | 1500 mg/m ³ |
| Denmark | Grænseværdie (langvarig) (ppm) | 500 ppm |
| Denmark | Anmærkninger (DK) | E (betyder, at stoffet har en EF-grænseværdi) |
| Estonia | Local name | Pentaan |
| Estonia | OEL TWA (mg/m ³) | 3000 mg/m ³ |
| Estonia | OEL TWA (ppm) | 1000 ppm |
| Finland | Local name | n-Pentaani |

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| n-Pentane (109-66-0) | | |
|----------------------|---|--|
| Finland | HTP-arvo (8h) (mg/m ³) | 1500 mg/m ³ |
| Finland | HTP-arvo (8h) (ppm) | 500 ppm |
| Finland | HTP-arvo (15 min) | 1900 mg/m ³ |
| Finland | HTP-arvo (15 min) (ppm) | 630 ppm |
| France | Local name | n-Pentane |
| France | VME (mg/m ³) | 3000 mg/m ³ (n-Pentane; France; Time-weighted average exposure limit 8 h; VRC: Valeur réglementaire contraignante) |
| France | VME (ppm) | 1000 ppm (n-Pentane; France; Time-weighted average exposure limit 8 h; VRC: Valeur réglementaire contraignante) |
| France | Note (FR) | Valeurs réglementaires contraignantes |
| Germany | Local name | Pentan |
| Germany | TRGS 900 Occupational exposure limit value (mg/m ³) | 3000 mg/m ³ |
| Germany | TRGS 900 Occupational exposure limit value (ppm) | 1000 ppm |
| Germany | Remark (TRGS 900) | DFG,EU,Y |
| Greece | OEL TWA (mg/m ³) | 2950 mg/m ³ |
| Greece | OEL TWA (ppm) | 1000 ppm |
| Greece | OEL STEL (mg/m ³) | 2950 mg/m ³ |
| Greece | OEL STEL (ppm) | 1000 ppm |
| Hungary | Local name | n-PENTÁN |
| Hungary | AK-érték | 2950 mg/m ³ |
| Hungary | Megjegyzések (HU) | IV. |
| Ireland | Local name | n-Pentane |
| Ireland | OEL (8 hours ref) (mg/m ³) | 3000 mg/m ³ |
| Ireland | OEL (8 hours ref) (ppm) | 1000 ppm |
| Ireland | Notes (IE) | IOELV |
| Italy | Local name | Pentano |
| Italy | OEL TWA (mg/m ³) | 2000 mg/m ³ |
| Italy | OEL TWA (ppm) | 667 ppm |
| Latvia | Local name | Pentāns |
| Latvia | OEL TWA (mg/m ³) | 3000 mg/m ³ |
| Latvia | OEL TWA (ppm) | 1000 ppm |
| Lithuania | Local name | Pentanas |
| Lithuania | IPRV (mg/m ³) | 3000 mg/m ³ |
| Lithuania | IPRV (ppm) | 1000 ppm |
| Luxembourg | Local name | Pentane |
| Luxembourg | OEL TWA (mg/m ³) | 3000 mg/m ³ |
| Luxembourg | OEL TWA (ppm) | 1000 ppm |
| Malta | Local name | Pentane |
| Malta | OEL TWA (mg/m ³) | 3000 mg/m ³ |
| Malta | OEL TWA (ppm) | 1000 ppm |
| Netherlands | Local name | n-Pentaaan |
| Netherlands | Grenswaarde TGG 8H (mg/m ³) | 1800 mg/m ³ (n-Pentaaan; Netherlands; Time-weighted average exposure limit 8 h; Public occupational exposure limit value) |
| Netherlands | Grenswaarde TGG 8H (ppm) | 600 ppm (n-Pentaaan; Netherlands; Time-weighted average exposure limit 8 h; Public occupational exposure limit value) |
| Poland | Local name | Pentan |
| Poland | NDS (mg/m ³) | 3000 mg/m ³ |
| Portugal | Local name | Pentano , todos os isómeros |
| Portugal | OEL TWA (ppm) | 1000 ppm |

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| n-Pentane (109-66-0) | | |
|-----------------------------|---|---|
| Romania | Local name | Pentan |
| Romania | OEL TWA (mg/m ³) | 3000 mg/m ³ |
| Romania | OEL TWA (ppm) | 1000 ppm |
| Slovakia | Local name | Pentán |
| Slovakia | NPHV (priemerná) (mg/m ³) | 3000 mg/m ³ |
| Slovakia | NPHV (priemerná) (ppm) | 1000 ppm |
| Slovenia | Local name | pentan |
| Slovenia | OEL TWA (mg/m ³) | 3000 mg/m ³ |
| Slovenia | OEL TWA (ppm) | 1000 ppm |
| Spain | Local name | n-Pentano |
| Spain | VLA-ED (mg/m ³) | 3000 mg/m ³ |
| Spain | VLA-ED (ppm) | 1000 ppm |
| Spain | Notes | VLI (Agente químico para el que la U.E. estableció en su día un valor límite indicativo. Todos estos agentes químicos figuran al menos en una de las directivas de valores límite indicativos publicadas hasta ahora (ver Anexo C. Bibliografía). Los estados miembros disponen de un tiempo fijado en dichas directivas para su transposición a los valores límites de cada país miembro. Una vez adoptados, estos valores tienen la misma validez que el resto de los valores adoptados por el país). |
| Sweden | Local name | n-Pentan |
| Sweden | nivågränsvärde (NVG) (mg/m ³) | 1800 mg/m ³ |
| Sweden | nivågränsvärde (NVG) (ppm) | 600 ppm |
| Sweden | kortidsvärde (KTV) (mg/m ³) | 2000 mg/m ³ |
| Sweden | kortidsvärde (KTV) (ppm) | 750 ppm |
| Sweden | Anmärkning (SE) | V (Vägledande kortidsgränsvärde ska användas som ett rekommenderat högsta värde som inte bör överskridas) |
| United Kingdom | Local name | Pentane |
| United Kingdom | WEL TWA (mg/m ³) | 1800 mg/m ³ Pentane; United Kingdom; Time-weighted average exposure limit 8 h; Workplace exposure limit (EH40/2005) |
| United Kingdom | WEL TWA (ppm) | 600 ppm Pentane; United Kingdom; Time-weighted average exposure limit 8 h; Workplace exposure limit (EH40/2005) |
| Iceland | Local name | Pentan, allir ísómerar |
| Iceland | OEL (8 hours ref) (mg/m ³) | 1500 mg/m ³ |
| Iceland | OEL (8 hours ref) (ppm) | 500 ppm |
| Russian Federation | Local name | Пентан |
| Russian Federation | OEL Ceiling (mg/m ³) | 900 mg/m ³ |
| Russian Federation | OEL TWA (mg/m ³) | 300 mg/m ³ |
| Russian Federation | Remark (RU) | 4 класс опасности - умеренно опасное; п (пары и/или газы) |
| Norway | Local name | Pentan |
| Norway | Grenseverdier (AN) (mg/m ³) | 750 mg/m ³ |
| Norway | Grenseverdier (AN) (ppm) | 250 ppm |
| Norway | Merknader (NO) | E (EU har en veiledende grenseverdi for stoffet) |
| Switzerland | Local name | n-Pentan |
| Switzerland | VME (mg/m ³) | 1800 mg/m ³ |
| Switzerland | VME (ppm) | 600 ppm |
| Switzerland | VLE (mg/m ³) | 3600 mg/m ³ |
| Switzerland | VLE (ppm) | 1200 ppm |

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| n-Pentane (109-66-0) | | |
|----------------------|-------------------------------------|---|
| Switzerland | Remark (CH) | SS _C - PNS ^{KT HU} - NIOSH |
| Turkey | Local name | Pentan |
| Turkey | OEL TWA (mg/m ³) | 3000 mg/m ³ |
| Turkey | OEL TWA (ppm) | 1000 ppm |
| Australia | Local name | Pentane |
| Australia | TWA (mg/m ³) | 1770 mg/m ³ |
| Australia | TWA (ppm) | 600 ppm |
| Australia | STEL (mg/m ³) | 2210 mg/m ³ |
| Australia | STEL (ppm) | 750 ppm |
| USA - ACGIH | Local name | Pentane, all isomers (1989) |
| USA - ACGIH | ACGIH TWA (ppm) | 1000 ppm (Pentane, all isomers; USA; Time-weighted average exposure limit 8 h; TLV - Adopted Value) |
| USA - OSHA | Local name | Pentane |
| USA - OSHA | OSHA PEL (TWA) (mg/m ³) | 2950 mg/m ³ |
| USA - OSHA | OSHA PEL (TWA) (ppm) | 1000 ppm |

8.2. Exposure controls

Materials for protective clothing:

GIVE EXCELLENT RESISTANCE: viton. polyethylene/ethylenevinylalcohol. GIVE GOOD RESISTANCE: nitrile rubber. PVA. GIVE LESS RESISTANCE: No data available. GIVE POOR RESISTANCE: butyl rubber. natural rubber. polyethylene. PVC. neoprene

Hand protection:

Gloves

Eye protection:

Safety glasses

Skin and body protection:

Head/neck protection. Protective clothing

Respiratory protection:

Wear gas mask with filter type A if conc. in air > exposure limit

| Device | Filter type | Condition | Standard |
|----------|--|----------------------------------|----------|
| Gas mask | Type A - High-boiling (>65 °C) organic compounds | If conc. in air > exposure limit | |



SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

| | |
|--|---|
| Physical state | : Liquid |
| Appearance | : Liquid. |
| Molecular mass | : 72.15 g/mol |
| Colour | : Colourless. |
| Odour | : Almost odourless. Paraffin odour. Petroleum-like odour. |
| Odour threshold | : 119 - 1149 ppm 357 - 3447 mg/m ³ |
| pH | : No data available |
| Relative evaporation rate (butylacetate=1) | : 29 |
| Relative evaporation rate (ether=1) | : 6.7 |
| Melting point | : -130 °C (1013 hPa) |
| Freezing point | : No data available |

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| | |
|---|---|
| Boiling point | : 36 °C (1013 hPa) |
| Flash point | : -49 °C |
| Critical temperature | : 197 °C |
| Auto-ignition temperature | : 260 °C |
| Decomposition temperature | : No data available |
| Flammability (solid, gas) | : No data available |
| Vapour pressure | : 573 hPa (20 °C) |
| Critical pressure | : 33700 hPa |
| Relative vapour density at 20 °C | : 2.5 |
| Relative density | : 0.63 (20 °C) |
| Relative density of saturated gas/air mixture | : 1.8 |
| Density | : 0,626 g/cm ³ at 25 °C |
| Solubility | : Insoluble in water. Substance floats in water. Soluble in ethanol. Soluble in ether. Soluble in acetone. Soluble in chloroform. Soluble in heptane. Soluble in oils/fats. Water: 0.04 g/100ml (20 °C) Ethanol: Complete Ether: Complete Acetone: Complete |
| Log Pow | : 3.45 (Experimental value; 25 °C) |
| Viscosity, kinematic | : No data available |
| Viscosity, dynamic | : 0.00022 Pa.s (25 °C) |
| Explosive properties | : No data available |
| Oxidising properties | : No data available |
| Explosive limits | : 1.4 - 8.0 vol % 41 - 240 g/m ³ |

9.2. Other information

| | |
|--------------------------|--|
| Minimum ignition energy | : 0.22 mJ |
| Saturation concentration | : 1695 g/m ³ |
| VOC content | : 100 % |
| Other properties | : Gas/vapour heavier than air at 20°C. Clear. Highly volatile. Substance has neutral reaction. May generate electrostatic charges. |

SECTION 10: Stability and reactivity

10.1. Reactivity

Upon combustion: CO and CO₂ are formed. Reacts with (strong) oxidizers: (increased) risk of fire/explosion.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

No additional information available

10.4. Conditions to avoid

No additional information available

10.5. Incompatible materials

No additional information available

10.6. Hazardous decomposition products

No additional information available

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Not classified

| n-Pentane (109-66-0) | |
|----------------------|---|
| LD50 oral rat | > 2000 mg/kg (Rat; OECD 401: Acute Oral Toxicity; Experimental value) |

| | |
|-----------------------------------|------------------|
| Skin corrosion/irritation | : Not classified |
| Serious eye damage/irritation | : Not classified |
| Respiratory or skin sensitisation | : Not classified |

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| | |
|------------------------|---|
| Germ cell mutagenicity | : Not classified |
| Carcinogenicity | : Not classified |
| Reproductive toxicity | : Not classified |
| STOT-single exposure | : May cause drowsiness or dizziness. |
| STOT-repeated exposure | : Not classified |
| Aspiration hazard | : May be fatal if swallowed and enters airways. |

SECTION 12: Ecological information

12.1. Toxicity

| | |
|-------------------|---|
| Ecology - general | : Dangerous for the environment. |
| Ecology - air | : Not classified as dangerous for the ozone layer (Regulation (EC) No 1005/2009). TA-Luft Klasse 5.2.5/1. |
| Ecology - water | : Toxic to fishes. Toxic to invertebrates (Daphnia). Harmful to algae. |

12.2. Persistence and degradability

| n-Pentane (109-66-0) | |
|-------------------------------|---|
| Persistence and degradability | Readily biodegradable in water. Low potential for adsorption in soil. |

12.3. Bioaccumulative potential

| n-Pentane (109-66-0) | |
|---------------------------|--|
| BCF fish 1 | 171 (BCF) |
| Log Pow | 3.45 (Experimental value; 25 °C) |
| Bioaccumulative potential | Low potential for bioaccumulation (BCF < 500). |

12.4. Mobility in soil

| n-Pentane (109-66-0) | |
|----------------------|--|
| Surface tension | 0.015 N/m (25 °C; 100 %; 0.013 N/m; 20 °C) |
| Log Koc | log Koc,2.9; QSAR |

12.5. Results of PBT and vPvB assessment

No additional information available

12.6. Other adverse effects

No additional information available

SECTION 13: Disposal considerations

13.1. Waste treatment methods

| | |
|--|---|
| Product/Packaging disposal recommendations | : Remove waste in accordance with local and/or national regulations. Hazardous waste shall not be mixed together with other waste. Different types of hazardous waste shall not be mixed together if this may entail a risk of pollution or create problems for the further management of the waste. Hazardous waste shall be managed responsibly. All entities that store, transport or handle hazardous waste shall take the necessary measures to prevent risks of pollution or damage to people or animals. Recycle by distillation. Incinerate under surveillance with energy recovery. Do not discharge into surface water. |
| Additional information | : LWCA (the Netherlands): KGA category 03. Hazardous waste according to Directive 2008/98/EC. |
| European List of Waste (LoW) code | : 07 01 04* - other organic solvents, washing liquids and mother liquors |

SECTION 14: Transport information

In accordance with ADR / RID / IMDG / IATA / ADN

| ADR | IMDG | IATA | ADN | RID |
|---|---|--|--|--|
| 14.1. UN number | | | | |
| 1265 | 1265 | 1265 | 1265 | 1265 |
| 14.2. UN proper shipping name | | | | |
| PENTANES | PENTANES | Pentanes | PENTANES | PENTANES |
| Transport document description | | | | |
| UN 1265 PENTANES, 3, II, (D/E), ENVIRONMENTALLY HAZARDOUS | UN 1265 PENTANES, 3, II, MARINE POLLUTANT/ENVIRONMENTALLY HAZARDOUS | UN 1265 Pentanes, 3, II, ENVIRONMENTALLY HAZARDOUS | UN 1265 PENTANES, 3, II, ENVIRONMENTALLY HAZARDOUS | UN 1265 PENTANES, 3, II, ENVIRONMENTALLY HAZARDOUS |

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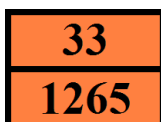


| ADR | IMDG | IATA | ADN | RID |
|---|---|-------------------------------------|-------------------------------------|-------------------------------------|
| 14.3. Transport hazard class(es) | | | | |
| 3 | 3 | 3 | 3 | 3 |
| | | | | |
| 14.4. Packing group | | | | |
| II | II | II | II | II |
| 14.5. Environmental hazards | | | | |
| Dangerous for the environment : Yes | Dangerous for the environment : Yes Marine pollutant : Yes | Dangerous for the environment : Yes | Dangerous for the environment : Yes | Dangerous for the environment : Yes |
| No supplementary information available | | | | |

14.6. Special precautions for user

- Overland transport

Classification code (ADR) : F1
Limited quantities (ADR) : 1I
Excepted quantities (ADR) : E2
Packing instructions (ADR) : P001, IBC02
Mixed packing provisions (ADR) : MP19
Portable tank and bulk container instructions (ADR) : T4
Portable tank and bulk container special provisions (ADR) : TP1
Tank code (ADR) : L1.5BN
Vehicle for tank carriage : FL
Transport category (ADR) : 2
Special provisions for carriage - Operation (ADR) : S2, S20
Hazard identification number (Kemler No.) : 33
Orange plates :



Tunnel restriction code (ADR) : D/E
EAC code : 3YE

- Transport by sea

Transport regulations (IMDG) : Subject
Limited quantities (IMDG) : 1 L
Excepted quantities (IMDG) : E2
Packing instructions (IMDG) : P001
IBC packing instructions (IMDG) : IBC02
Tank instructions (IMDG) : T4
Tank special provisions (IMDG) : TP1
EmS-No. (Fire) : F-E
EmS-No. (Spillage) : S-D
Stowage category (IMDG) : E
Properties and observations (IMDG) : Colourless liquids with a paraffin-like odour. Explosive limits: 1.4% to 8%. normal-PENTANE: boiling point 36°C. Immiscible with water. Slightly irritating to skin, eyes and mucous membranes. Narcotic in high concentrations.
MFAG-No : 128

- Air transport

Transport regulations (IATA) : Subject to the provisions

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| | |
|--|--------|
| PCA Excepted quantities (IATA) | : E2 |
| PCA Limited quantities (IATA) | : Y341 |
| PCA limited quantity max net quantity (IATA) | : 1L |
| PCA packing instructions (IATA) | : 353 |
| PCA max net quantity (IATA) | : 5L |
| CAO packing instructions (IATA) | : 364 |
| CAO max net quantity (IATA) | : 60L |
| ERG code (IATA) | : 3H |

- Inland waterway transport

| | |
|-----------------------------------|-------------|
| Classification code (ADN) | : F1 |
| Limited quantities (ADN) | : 1 L |
| Excepted quantities (ADN) | : E2 |
| Carriage permitted (ADN) | : T |
| Equipment required (ADN) | : PP, EX, A |
| Ventilation (ADN) | : VE01 |
| Number of blue cones/lights (ADN) | : 1 |

- Rail transport

| | |
|-----------------------------|---------------|
| Transport regulations (RID) | : Subject |
| Classification code (RID) | : F1 |
| Limited quantities (RID) | : 1L |
| Excepted quantities (RID) | : E2 |
| Packing instructions (RID) | : P001, IBC02 |

| | |
|---|----------|
| Special packing provisions (RID) | : B8 |
| Mixed packing provisions (RID) | : MP19 |
| Portable tank and bulk container instructions (RID) | : T4 |
| Portable tank and bulk container special provisions (RID) | : TP1 |
| Tank codes for RID tanks (RID) | : L1.5BN |
| Transport category (RID) | : 2 |
| Colis express (express parcels) (RID) | : CE7 |
| Hazard identification number (RID) | : 33 |

14.7. Transport in bulk according to Annex II of Marpol and the IBC Code

Not applicable

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

15.1.1. EU-Regulations

No REACH Annex XVII restrictions

n-Pentane is not on the REACH Candidate List

n-Pentane is not on the REACH Annex XIV List

VOC content : 100 %

15.1.2. National regulations

Germany

VwVwS Annex reference : Water hazard class (WGK) 2, hazard to waters (Classification according to VwVwS, Annex 1 or 2; ID No. 452)

WGK remark : Classification water polluting in compliance with Verwaltungsvorschrift wassergefährdender Stoffe (VwVwS) of 27 July 2005 (Anhang 2)

12th Ordinance Implementing the Federal Immission Control Act - 12.BImSchV : Is not subject of the 12. BImSchV (Hazardous Incident Ordinance)

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Netherlands

- Waterbezwaarlijkheid : 6 - Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment
- SZW-lijst van kankerverwekkende stoffen : The substance is not listed
- SZW-lijst van mutagene stoffen : The substance is not listed
- NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Borstvoeding : The substance is not listed
- NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Vruchtbaarheid : The substance is not listed
- NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Ontwikkeling : The substance is not listed

Denmark

- Classification remarks : Emergency management guidelines for the storage of flammable liquids must be followed
- Recommendations Danish Regulation : Young people below the age of 18 years are not allowed to use the product
Pregnant/breastfeeding women working with the product must not be in direct contact with the product

15.2. Chemical safety assessment

No additional information available

SECTION 16: Other information

Abbreviations and acronyms:

| | |
|-------|---|
| ADN | European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways |
| ADR | European Agreement concerning the International Carriage of Dangerous Goods by Road |
| ATE | Acute Toxicity Estimate |
| BCF | Bioconcentration factor |
| CLP | Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008 |
| EC50 | Median effective concentration |
| IATA | International Air Transport Association |
| IMDG | International Maritime Dangerous Goods |
| LC50 | Median lethal concentration |
| LD50 | Median lethal dose |
| REACH | Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation (EC) No 1907/2006 |
| RID | Regulations concerning the International Carriage of Dangerous Goods by Rail |

Data sources : REGULATION (EC) No 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006.

| Full text of H- and EUH-statements: | |
|-------------------------------------|--|
| Aquatic Chronic 2 | Hazardous to the aquatic environment — Chronic Hazard, Category 2 |
| Asp. Tox. 1 | Aspiration hazard, Category 1 |
| Flam. Liq. 2 | Flammable liquids, Category 2 |
| STOT SE 3 | Specific target organ toxicity — Single exposure, Category 3, Narcosis |
| H225 | Highly flammable liquid and vapour |
| H304 | May be fatal if swallowed and enters airways |
| H336 | May cause drowsiness or dizziness |
| H411 | Toxic to aquatic life with long lasting effects |
| EUH066 | Repeated exposure may cause skin dryness or cracking |

SDS ISOLAB

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product