



N-DECANE (D22, 99%) 97% CHEMICAL PURITY

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830 and according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

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Version: 3.0

DLM-133

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

1.1. Product identifier

Product form : Substance
Substance name : N-DECANE (D22, 99%) 97% CHEMICAL PURITY
EC No : 204-686-4 (Unlabeled)
CAS No : 16416-29-8
Product code : DLM-133
Formula : CD3(CD2)8CD3

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

1.2.1. Relevant identified uses

Main use category : Professional use
Industrial/Professional use spec : For professional use only

1.2.2. Uses advised against

No additional information available

1.3. Details of the supplier of the safety data sheet

Cambridge Isotope Laboratories, Inc.
50 Frontage Road
Andover, MA 01810
USA

USA: 1-800-322-1174 Int: 1-978-749-8000
cilsales@isotope.com www.isotope.com

Emergency telephone number

Emergency numbers:

Chemtrec: 1-800-424-9300 (24 hours)
International: 1-703-741-5970 (24 hours)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

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

Flam. Liq. 3 H226
Asp. Tox. 1 H304

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

Classification according to Directive 67/548/EEC [DSD] or 1999/45/EC [DPD]

Xn; R65
F; R11

Full text of R-phrases: see section 16

GHS-US classification

Flam. Liq. 3 H226
Asp. Tox. 1 H304

Full text of H statements : see section 16

Adverse physicochemical, human health and environmental effects

Nerves.

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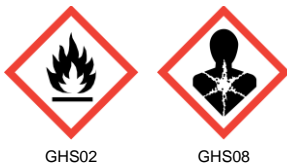
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2.2. Label elements

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

Hazard pictograms (CLP) :



Signal word (CLP) :

: Danger

Hazard statements (CLP) :

: H226 - Flammable liquid and vapor
H304 - May be fatal if swallowed and enters airways

Precautionary statements (CLP) :

: P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking
P233 - Keep container tightly closed
P240 - Ground/bond container and receiving equipment
P241 - Use explosion-proof ventilating, lighting, electrical equipment
P280 - Wear protective gloves, protective clothing
P301+P310 - IF SWALLOWED: Immediately call a doctor, a POISON CENTER
P303+P361+P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower
P331 - Do NOT induce vomiting

GHS-US labeling

Hazard pictograms (GHS-US) :



Signal word (GHS-US) :

: Danger

Hazard statements (GHS-US) :

: H226 - Flammable liquid and vapor
H304 - May be fatal if swallowed and enters airways

Precautionary statements (GHS-US) :

: P210 - Keep away from sparks, open flames, hot surfaces, heat. - No smoking
P233 - Keep container tightly closed
P240 - Ground/Bond container and receiving equipment
P241 - Use explosion-proof ventilating, lighting, electrical equipment
P242 - Use only non-sparking tools
P243 - Take precautionary measures against static discharge
P280 - Wear protective gloves, protective clothing
P301+P310 - If swallowed: Immediately call a doctor, a POISON CENTER
P303+P361+P353 - If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower
P331 - Do NOT induce vomiting
P370+P378 - In case of fire: Use Alcohol resistant foam, Carbon dioxide, Dry chemical, Water spray to extinguish
P403+P235 - Store in a well-ventilated place. Keep cool
P405 - Store locked up
P501 - Dispose of contents/container to Comply with applicable regulations

2.3. Other hazards

No additional information available

SECTION 3: Composition/Information on ingredients

3.1. Substances

Name	Product identifier	%	Classification according to Directive 67/548/EEC
N-DECANE (D22, 99%) 97% CHEMICAL PURITY	(CAS No) 16416-29-8 (EC No) 204-686-4 (Unlabeled)	100	Xn; R65 F; R11
Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
N-DECANE (D22, 99%) 97% CHEMICAL PURITY	(CAS No) 16416-29-8 (EC No) 204-686-4 (Unlabeled)	100	Flam. Liq. 3, H226 Asp. Tox. 1, H304

Full text of R- and H- phrases: see section 16

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Name	Product identifier	%	GHS-US classification
N-DECANE (D22, 99%) 97% CHEMICAL PURITY (Main constituent)	(CAS No) 16416-29-8	100	Flam. Liq. 3, H226 Asp. Tox. 1, H304

Full text of H-phrases: see section 16

3.2. Mixtures

Not applicable

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general	: Call a poison center/doctor/physician if you feel unwell.
First-aid measures after inhalation	: Remove person to fresh air and keep comfortable for breathing. Call a poison center/doctor/physician if you feel unwell.
First-aid measures after skin contact	: Wash skin with plenty of water. Take off contaminated clothing. If skin irritation occurs: Get medical advice/attention.
First-aid measures after eye contact	: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.
First-aid measures after ingestion	: Do not induce vomiting. Rinse mouth. Call a poison center/doctor/physician if you feel unwell.

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

Symptoms/injuries after inhalation	: May be fatal if swallowed and enters airways.
Symptoms/injuries after skin contact	: May cause skin irritation.
Symptoms/injuries after eye contact	: May cause eye irritation.
Symptoms/injuries after ingestion	: May be fatal if swallowed and enters airways.

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

Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media : Water spray. Alcohol resistant foam. Dry powder. Dry chemical. Carbon dioxide.

5.2. Special hazards arising from the substance or mixture

Reactivity : The product is non-reactive under normal conditions of use, storage and transport.

5.3. Advice for firefighters

Firefighting instructions	: Do not enter fire area without proper protective equipment, including respiratory protection.
Protection during firefighting	: Wear respiratory protection. Self-contained breathing apparatus. Do not attempt to take action without suitable protective equipment. Complete protective clothing.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Protective equipment	: Wear recommended personal protective equipment. Avoid breathing dust, mist or spray. Avoid dust formation. Ensure there is adequate ventilation. Evacuate the danger area. Special attention should be given to low areas/pits where flammable vapors can accumulate.
Emergency procedures	: Ventilate spillage area. Avoid breathing vapors, mist, dust. Avoid contact with skin and eyes.

6.1.2. For emergency responders

Protective equipment	: Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection".
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6.2. Environmental precautions

Prevent entry to sewers and public waters. Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

For containment	: Take up mechanically (sweeping, shoveling) and collect in suitable container for disposal.
Methods for cleaning up	: Shovel or sweep up and put in a closed container for disposal. This material and its container must be disposed of in a safe way, and as per local legislation.
Other information	: Dispose of materials or solid residues at an authorized site.

6.4. Reference to other sections

For further information refer to section 13.

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SECTION 7: Handling and storage

7.1. Precautions for safe handling

- Precautions for safe handling : Avoid contact with skin and eyes. Avoid dust formation. Provide good ventilation in process area to prevent formation of vapor. Use only outdoors or in a well-ventilated area. Avoid breathing dust, mist, vapors. Wear personal protective equipment.
- Hygiene measures : Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Wash contaminated clothing before reuse. Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

7.2. Conditions for safe storage, including any incompatibilities

- Technical measures : Store locked up. Store in a well-ventilated place. Keep container tightly closed.
- Storage conditions : Store at room temperature away from light and moisture.

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

No additional information available

8.2. Exposure controls

Appropriate engineering controls : Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Ensure good ventilation of the work station.

Personal protective equipment : Gloves. Protective clothing. Protective goggles. Self-contained breathing apparatus.



- Materials for protective clothing : Wear suitable protective clothing and gloves.
- Hand protection : Wear suitable protective clothing and gloves.
- Eye protection : Wear eye protection. Chemical goggles or face shield with safety glasses. Safety glasses.
- Skin and body protection : Wear suitable protective clothing, gloves and eye/face protection.
- Respiratory protection : In case of inadequate ventilation wear respiratory protection. Approved supplied air respirator.
- Environmental exposure controls : Avoid release to the environment.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

- Physical state : Liquid
- Appearance : Liquid. clear.
- Molecular mass : 164.42 g/mol (Labeled)
- Color : Colorless.
- Odor : No data available.
- Odor threshold : No data available
- pH : No data available
- Relative evaporation rate (butyl acetate=1) : No data available
- Melting point : -30 °C (-22 °F) - lit
- Freezing point : No data available
- Boiling point : 174 °C (345 °F) - lit
- Flash point : 46 °C (114.8 °F) - closed cup
- Auto-ignition temperature : 210 °C (410 °F); 206 °C (403 °F) at 1,013 hPa (760 mmHg)
- Decomposition temperature : No data available
- Flammability (solid, gas) : No data available
- Vapor pressure : 5.1 hPa (3.8mmHg) at 37.7 °C (99.9 °F); 1.3 hPa (1.0 mmHg) at 16.5 °C (61.7 °F); 1 hPa (1 mmHg) at 20 °C (68 °F)
- Relative vapor density at 20 °C : No data available
- Relative density : No data available
- Specific gravity / density : 0.73 g/ml at 25 °C (77 °F)
- Solubility : No data available
- Log Pow : No data available
- Log Kow : No data available

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Viscosity, kinematic	: 1.16 mm ² /s at 20 °C (68 °F)
Viscosity, dynamic	: No data available
Explosive properties	: No data available
Oxidizing properties	: No data available
Explosion limits	: 0.8 - 2.6 % (V)

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

The product is non-reactive under normal conditions of use, storage and transport.

10.2. Chemical stability

Stable if stored under recommended conditions.

10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use.

10.4. Conditions to avoid

Heat. Open flame. Sparks.

10.5. Incompatible materials

Strong oxidizing agents.

10.6. Hazardous decomposition products

Carbon oxides (CO, CO₂).

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Not classified

N-DECANE (D22, 99%) 97% CHEMICAL PURITY (16416-29-8)	
LD50 oral rat	> 5000 mg/kg male and female (OECD Test Guideline 401)
LD50 dermal rabbit	> 5000 mg/kg male and female (OECD Test Guideline 402)
LC50 inhalation rat (mg/l)	> 5.6 mg/l male and female - 4 h (OECD Test Guideline 403)
LC50 inhalation rat (ppm)	> 1369 ppm male - 8 h (OECD Test Guideline 403)

Skin corrosion/irritation	: Skin. rabbit. Result: No skin irritation. 4 Hours. (OECD Test Guideline 404)
Serious eye damage/irritation	: Eyes. rabbit. Result: No eye irritation. (OECD 405 method)
Respiratory or skin sensitization	: Guinea pig. Maximisation Test . Result: Result: Does not cause skin sensitisation. (OECD 406 method)
Germ cell mutagenicity	: S. typhimurium result: negative. . Mutagenicity (micronucleus test) - Mouse - male and female - Result: negative
Carcinogenicity	: Not classified
Reproductive toxicity	: Not classified
Specific target organ toxicity – single exposure	: Not classified
Specific target organ toxicity – repeated exposure	: Not classified Repeated dose toxicity - rat male and female - Oral - No observed adverse effect level - >5,000 mg/kg
Aspiration hazard	: May be fatal if swallowed and enters airways.
Potential Adverse human health effects and symptoms	: 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. Simple Asphyxiant. Difficulty in breathing. Headache. Dizziness. Prolonged or repeated exposure to skin causes defatting and dermatitis. Narcosis. Effects on humans. stomach.
Other information	: Acts as a simple asphyxiant by displacing air, anesthetic effects, difficulty breathing, headache, dizziness, prolonged or repeated contact with skin may cause: defatting, dermatitis. Contact with eyes can cause: Redness, blurred vision, provokes tears. Effects due to ingestion may include: Gastrointestinal discomfort, Central nervous system depression, Paresthesia, Drowsiness, Convulsions, Conjunctivitis, Pulmonary edema. Effects may be delayed. Irregular breathing, Stomach/intestinal disorders, Nausea, vomiting, Increased liver enzymes, Weakness, Heavy or prolonged skin exposure may result in the absorption of harmful amounts of material.
Symptoms/injuries after inhalation	: May be fatal if swallowed and enters airways.
Symptoms/injuries after skin contact	: May cause skin irritation.

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Symptoms/injuries after eye contact : May cause eye irritation.
Symptoms/injuries after ingestion : May be fatal if swallowed and enters airways.

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general : The product is not considered harmful to aquatic organisms or to cause long-term adverse effects in the environment.

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LC50 fish 1	> 1000 mg/l semi-static test LC50 - Oncorhynchus mykiss (rainbow trout) - 96 h (OECD Test Guideline 203)
EC50 Daphnia 1	> 1000 mg/l static test EC50 - Daphnia magna (Water flea) - 48 h
EC50 other aquatic organisms 1	> 1000 static test EC50 - Pseudokirchneriella subcapitata - 72 h (OECD Test Guideline 201)

12.2. Persistence and degradability

N-DECANE (D22, 99%) 97% CHEMICAL PURITY (16416-29-8)

Persistence and degradability	Aerobic - exposure time: 28 d.
Biodegradation	83.2 % - Readily biodegradable. (OECD Test Guideline 301F)

12.3. Bioaccumulative potential

No additional information available

12.4. Mobility in soil

No additional information available

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

Regional legislation (waste) : Waste materials should be disposed of under conditions which meet Federal, State, and Local environmental control regulations.
Product/Packaging disposal recommendations: : Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.
Ecology - waste materials : Dispose of as unused product.

SECTION 14: Transport information

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

14.1. UN number

UN-No.(DOT) : 2247
DOT NA no. UN2247

14.2. UN proper shipping name

Proper Shipping Name (DOT) : n-Decane
Class (DOT) : 3 - Class 3 - Flammable and combustible liquid 49 CFR 173.120
Hazard labels (DOT) : 3 - Flammable liquid



Packing group (DOT) : III - Minor Danger

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DOT Special Provisions (49 CFR 172.102)	: B1 - If the material has a flash point at or above 38 C (100 F) and below 93 C (200 F), then the bulk packaging requirements of 173.241 of this subchapter are applicable. If the material has a flash point of less than 38 C (100 F), then the bulk packaging requirements of 173.242 of this subchapter are applicable. IB3 - Authorized IBCs: Metal (31A, 31B and 31N); Rigid plastics (31H1 and 31H2); Composite (31HZ1 and 31HA2, 31HB2, 31HN2, 31HD2 and 31HH2). Additional Requirement: Only liquids with a vapor pressure less than or equal to 110 kPa at 50 C (1.1 bar at 122 F), or 130 kPa at 55 C (1.3 bar at 131 F) are authorized, except for UN2672 (also see Special Provision IP8 in Table 2 for UN2672). T2 - 1.5 178.274(d)(2) Normal..... 178.275(d)(3) TP1 - The maximum degree of filling must not exceed the degree of filling determined by the following: Degree of filling = $97 / 1 + a (tr - tf)$ Where: tr is the maximum mean bulk temperature during transport, and tf is the temperature in degrees celsius of the liquid during filling.
DOT Packaging Exceptions (49 CFR 173.xxx)	: 150
DOT Packaging Non Bulk (49 CFR 173.xxx)	: 203
DOT Packaging Bulk (49 CFR 173.xxx)	: 242

14.3. Additional information

Emergency Response Guide (ERG) Number	: 128
Other information	: No supplementary information available.

Overland transport

EAC	: 3Y
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Transport by sea

DOT Vessel Stowage Location	: A - The material may be stowed "on deck" or "under deck" on a cargo vessel and on a passenger vessel.
MFAG-No	: 128

Air transport

DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27)	: 60 L
DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75)	: 220 L
Civil Aeronautics Law	: Flammable liquids

14.4. Environmental hazards

Other information	: No supplementary information available.
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14.5. Special precautions for user

14.6. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable

SECTION 15: Regulatory information

15.1. US Federal regulations

N-DECANE (D22, 99%) 97% CHEMICAL PURITY (16416-29-8)	
SARA Section 302 Threshold Planning Quantity (TPQ)	Not subject to reporting requirements of the United States SARA Section 302.
SARA Section 311/312 Hazard Classes	Fire hazard Delayed (chronic) health hazard
SARA Section 313 - Emission Reporting	Not subject to reporting requirements of the United States SARA Section 313.

15.2. International regulations

CANADA

N-DECANE (D22, 99%) 97% CHEMICAL PURITY (16416-29-8)
Listed on the Canadian DSL (Domestic Substances List)

15.2.1. National regulations

No additional information available

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15.3. US State regulations

N-DECANE (D22, 99%) 97% CHEMICAL PURITY(16416-29-8)	
U.S. - California - Proposition 65 - Carcinogens List	No
U.S. - California - Proposition 65 - Developmental Toxicity	No
U.S. - California - Proposition 65 - Reproductive Toxicity - Female	No
U.S. - California - Proposition 65 - Reproductive Toxicity - Male	No
State or local regulations	U.S. - Pennsylvania - RTK (Right to Know) List U.S. - New Jersey - Right to Know Hazardous Substance List

SECTION 16: Other information

Other information : This product is not radioactive. The data given for this product are those of the corresponding unlabeled compound, unless specifically indicated otherwise. Health and safety data for labeled compounds are generally not available, but are assumed to be similar or identical to the corresponding unlabeled compound.

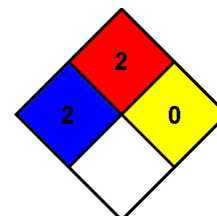
Full text of R-, H- and EUH-phrases:

Asp. Tox. 1	Aspiration hazard Category 1
Flam. Liq. 3	Flammable liquids Category 3
H226	Flammable liquid and vapor
H304	May be fatal if swallowed and enters airways
R11	Highly flammable
R65	Harmful: may cause lung damage if swallowed
F	Highly flammable
Xn	Harmful

NFPA health hazard : 2 - Materials that, under emergency conditions, can cause temporary incapacitation or residual injury.

NFPA fire hazard : 2 - Materials that must be moderately heated or exposed to relatively high ambient temperatures before ignition can occur.

NFPA reactivity : 0 - Material that in themselves are normally stable, even under fire conditions.



HMIS III Rating

Health : 0 Minimal Hazard - No significant risk to health

Flammability : 2 Moderate Hazard

Physical : 0 Minimal Hazard

CIL Multi-Solvent Mixture SDS

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