

SAFETY DATA SHEET

Version 6.10 Revision Date 08/23/2025 Print Date 08/24/2025

SECTION 1. IDENTIFICATION

1.1 Product identifiers

Product name : Dodecane

Product Number : 297879
Brand : Sigma-Aldrich
CAS-No. : 112-40-3

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

Identified uses : Laboratory chemicals, Synthesis of substances

Uses advised against : The product is being supplied under the TSCA R&D Exemption

(40 CFR Section 720.36). It is the recipient's responsibility to comply with the requirements of the R&D exemption. The product may not be used for a non-exempt commercial purpose under TSCA unless appropriate consent is granted in writing by

MilliporeSigma.

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich Inc.

3050 SPRUCE ST ST. LOUIS MO 63103 UNITED STATES

Telephone : +1 314 771-5765 Fax : +1 800 325-5052

1.4 Emergency telephone number

Emergency Phone # : 800-424-9300 CHEMTREC (USA) +1-703-

527-3887 CHEMTREC (International) 24

Hours/day; 7 Days/week

SECTION 2. HAZARDS IDENTIFICATION

GHS classification in accordance with the OSHA Hazard Communication Standard (29 CFR 1910.1200)

Flammable liquids : Category 4

Aspiration hazard : Category 1

Sigma-Aldrich - 297879

Page 1 of 14



Other hazards

Repeated exposure may cause skin dryness or cracking.

GHS label elements

Hazard pictograms

Signal Word : Danger

Hazard Statements : H227 Combustible liquid.

H304 May be fatal if swallowed and enters airways.

Precautionary statements : **Prevention:**

P210 Keep away from heat, hot surfaces, sparks, open

flames and other ignition sources. No smoking.

P280 Wear protective gloves/ protective clothing/ eye

protection/ face protection.

Response:

P301 + P310 IF SWALLOWED: Immediately call a

POISON CENTER/ doctor. P331 Do NOT induce vomiting.

P370 + P378 In case of fire: Use dry sand, dry chemical

or alcohol-resistant foam to extinguish.

Storage:

P403 Store in a well-ventilated place.

P405 Store locked up.

Disposal:

P501 Dispose of contents/ container to an approved

waste disposal plant.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Substance

Components

Chemical name	CAS No./Unique ID	Concentration (% w/w)	Trade secret
n-dodecane	112-40-3*	>= 80 - <= 100	TSC

^{*} Indicates that the identifier is a CAS No.

TSC- the actual concentration or concentration range is withheld as a trade secret

SECTION 4. FIRST AID MEASURES

Sigma-Aldrich - 297879

Page 2 of 14



General advice : Show this safety data sheet to the doctor in

attendance.

If inhaled : After inhalation: fresh air.

In case of skin contact : In case of skin contact: Take off immediately all

contaminated clothing. Rinse skin with water/ shower.

In case of eye contact : After eye contact: rinse out with plenty of water.

Remove contact lenses.

If swallowed : After swallowing: caution if victim vomits. Risk of

aspiration! Keep airways free.

Pulmonary failure possible after aspiration of vomit.

Call a physician immediately.

Most important

symptoms and effects, both acute and delayed

: The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in

section 11

Protection of first-aiders : For personal protection see section 8.

Notes to physician : No data available

SECTION 5. FIREFIGHTING MEASURES

Suitable extinguishing

media

Carbon dioxide (CO2)

Foam

Dry powder

Unsuitable extinguishing

media

: For this substance/mixture no limitations of

extinguishing agents are given.

Specific hazards during

fire fighting

: Combustible.

Vapours are heavier than air and may spread along

floors.

Forms explosive mixtures with air on intense heating.

Development of hazardous combustion gases or

vapours possible in the event of fire.

Specific extinguishing

Sigma-Aldrich - 297879

: No data available



methods

Further information : Remove container from danger zone and cool with

water.

Prevent fire extinguishing water from contaminating

surface water or the ground water system.

Special protective equipment for fire-

fighters

: In the event of fire, wear self-contained breathing

apparatus.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures Advice for non-emergency personnel: Do not breathe vapours, aerosols.

Avoid substance contact. Ensure adequate ventilation.

Keep away from heat and sources of ignition. Evacuate the danger area, observe emergency

procedures, consult an expert. Advice for emergency responders: For personal protection see section 8.

Environmental precautions

: Do not let product enter drains.

Methods and materials for containment and

cleaning up

: Cover drains. Collect, bind, and pump off spills.
Observe possible material restrictions (see sections 7

and 10).

Take up carefully with liquid-absorbent material (e.g. Chemizorb®). Dispose of properly. Clean up affected

area.

SECTION 7. HANDLING AND STORAGE

For precautions see section 2.2.

Advice on protection against fire and explosion

Keep away from open flames, hot surfaces and

sources of ignition.

Take precautionary measures against static discharge.

Further information on storage conditions

: Tightly closed.

Keep locked up or in an area accessible only to

qualified or authorised persons.

Storage class : 10, Combustible liquids

Recommended storage : Recommended storage temperature see product label.

Sigma-Aldrich - 297879

Page 4 of 14



storage stability

Further information on : Handle and store under inert gas.

hygroscopic

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Ingredients with workplace control parameters

Contains no substances with occupational exposure limit values.

Engineering measures: No data available

Personal protective equipment

Respiratory protection : required when vapours/aerosols are generated.

Our recommendations on filtering respiratory

protection are based on the following standards: DIN

EN 143, DIN 14387 and other accompanying

standards relating to the used respiratory protection

system.

Recommended Filter

type:

: Filter A (acc. to DIN 3181) for vapours of organic

compounds

The entrepeneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.

Hand protection

Material : Nitrile rubber : 480 min Break through time : 0.4 mm Glove thickness Protective index : Full contact

Manufacturer : Camatril® (KCL 730 / Aldrich Z677442, Size M)

: Nitrile rubber Material : 30 min Break through time Glove thickness : 0.11 mm : Splash contact Protective index

Manufacturer : KCL 741 Dermatril® L

Remarks : This recommendation applies only to the product

stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN 16523-1 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-

36124 Eichenzell, Internet: www.kcl.de).

Eye protection : Use equipment for eye protection tested and

approved under appropriate government standards

such as NIOSH (US) or EN 166(EU).

Safety glasses

Skin and body protection : protective clothing

Hygiene measures : Change contaminated clothing. Preventive skin

protection recommended. Wash hands after working

with substance.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance : clear

Color : colourless

Odor : weak

Odor Threshold : No data available pH : No data available

Melting point/ range : 14.7 °F / -9.6 °C

Boiling point/boiling range : 419 - 423 °F / 215 - 217 °C

Flash point : $158 \, ^{\circ}\text{F} / 70 \, ^{\circ}\text{C}$

(1,013 hPa)

Method: Pensky-Martens closed cup

Evaporation rate : No data available

Flammability (solid, gas) : No data available

Flammability (liquids) : No data available

Burning rate : No data available

Self-ignition : 392 °F / 200 °C

1,013 hPa

Upper explosion limit / Upper flammability limit

: No data available

Lower explosion limit / : Lower explosion limit

Sigma-Aldrich - 297879

Millipore

Lower flammability limit 0.6 %(V)

Vapor pressure : 0.2 hPa (77 °F / 25 °C)

Relative vapour density : 5.88

(Air = 1.0)

Relative density : No data available

Density : 0.75 g/mL (77 °F / 25 °C)

Solubility(ies)

Water solubility : insoluble

Solubility in other

solvents

: insoluble

Partition coefficient: n-

octanol/water

: log Pow: 6.2 (77 °F / 25 °C)

Method: EPI Suite™

Potential bioaccumulation (Lit.)

Autoignition temperature : 401 °F / 205 °C

Decomposition temperature

: No data available

Viscosity

Viscosity, dynamic : No data available

Viscosity, kinematic : 1.98 mm2/s (68 °F / 20 °C)

Flow time : No data available

Explosive properties : Not classified as explosive.

Oxidizing properties : none

Molecular weight : 170.33 g/mol

Particle characteristics

Particle size : No data available

SECTION 10. STABILITY AND REACTIVITY

Reactivity : Forms explosive mixtures with air on intense heating.

A range from approx. 15 Kelvin below the flash point

is to be rated as critical.

Chemical stability : The product is chemically stable under standard

Sigma-Aldrich - 297879

Page 7 of 14



ambient conditions (room temperature) .

Possibility of hazardous

reactions

: Violent reactions possible with:

Oxidizing agents

Conditions to avoid : Exposure to moisture may affect product quality.

Strong heating.

Incompatible materials : various plastics

products

Hazardous decomposition : In the event of fire: see section 5

SECTION 11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity

LD50 Oral - Rat - male and female - > 5,000 mg/kg

(OECD Test Guideline 401)

LC50 Inhalation - Rat - male and female - 4 h - > 4,951 mg/m3 - vapour

(OECD Test Guideline 403)

LD50 Dermal - Rabbit - male and female - > 5,000 mg/kg

(OECD Test Guideline 402)

Skin corrosion/irritation

Skin - Rabbit

Result: No skin irritation - 4 h (OECD Test Guideline 404)

Serious eye damage/eye irritation

Eyes - Rabbit

Result: No eye irritation (OECD Test Guideline 405)

Respiratory or skin sensitization

Maximisation Test - Guinea pig

Result: negative

(OECD Test Guideline 406)

Germ cell mutagenicity

Test Type: Ames test

Test system: S. typhimurium

Metabolic activation: with and without metabolic activation

Method: OECD Test Guideline 471

Result: negative

Test Type: Chromosome aberration test in vitro

Test system: Human lymphocytes

Metabolic activation: with and without metabolic activation

Method: OECD Test Guideline 473

Result: negative

Test Type: sister chromatid exchange assay Test system: Chinese hamster ovary cells

Metabolic activation: with and without metabolic activation

Method: OECD Test Guideline 479

Result: negative

Test Type: In vitro mammalian cell gene mutation test

Test system: Chinese hamster lung cells

Metabolic activation: with and without metabolic activation

Method: OECD Test Guideline 476

Result: negative

Test Type: In vitro mammalian cell gene mutation test

Test system: mouse lymphoma cells

Metabolic activation: with and without metabolic activation

Method: OECD Test Guideline 476

Result: negative

Test Type: In vivo micronucleus test

Species: Mouse

Application Route: Oral

Method: OECD Test Guideline 474

Result: negative

Test Type: dominant lethal test

Species: Rat

Application Route: Inhalation Method: OECD Test Guideline 478

Result: negative

Carcinogenicity

IARC: No component of this product present at levels greater than or equal to 0.1% is

identified as probable, possible or confirmed human carcinogen by IARC.

NTP: No component of this product present at levels greater than or equal to 0.1% is

identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is

on OSHA's list of regulated carcinogens.

Reproductive toxicity

No data available

Specific target organ toxicity - single exposure

No data available

Specific target organ toxicity - repeated exposure

No data available

Aspiration hazard

The substance or mixture is known to cause human aspiration toxicity hazards or has to be regarded as if it causes a human aspiration toxicity hazard.

Aspiration hazard, Aspiration may cause pulmonary oedema and pneumonitis.

11.2 Additional Information

Repeated dose toxicity - Rat - male and female - Oral - No observed adverse effect level - >= 1,000 mg/kg

Sigma-Aldrich - 297879

Page 9 of 14



RTECS: JR2125000

Cough, irritant effects, Dizziness, Headache, Shortness of breath

It generally applies for aliphatic hydrocarbons with 6 - 18 carbon atoms that they may cause pneumonia, in some cases also pulmonary oedema, upon direct inhalation, i.e. in conditions that can occur only in very special circumstances (nebulizations, spraying, inhalation of aerosols and similar). After absorption of very large quantities: narcosis. To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Systemic effects:

Headache Dizziness Unconsciousness

It generally applies for aliphatic hydrocarbons with 6 - 18 carbon atoms that they may cause pneumonia, in some cases also pulmonary oedema, upon direct inhalation, i.e. in conditions that can occur only in very special circumstances (nebulizations, spraying, inhalation of aerosols and similar). After absorption of very large quantities: narcosis.

Other dangerous properties can not be excluded.

Handle in accordance with good industrial hygiene and safety practice.

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Components:

n-dodecane:

: Remarks: No data available Toxicity to fish

Ecotoxicology Assessment

Acute aquatic toxicity : This product has no known ecotoxicological effects.

Chronic aquatic toxicity : This product has no known ecotoxicological effects.

Persistence and degradability

Components:

n-dodecane:

Biodegradability : aerobic

> Inoculum: activated sludge Result: Readily biodegradable. Biodegradation: 89.8 %

Exposure time: 28 d

Sigma-Aldrich - 297879 Page 10 of 14



Method: OECD Test Guideline 301F

GLP: yes

Bioaccumulative potential

Components:

n-dodecane:

Bioaccumulation : Species: Leuciscus idus melanotus

Bioconcentration factor (BCF): 52

Exposure time: 3 d Concentration: 37 μg/l

Partition coefficient: n-

octanol/water

: log Pow: 6.2 (77 °F / 25 °C)

Method: EPI Suite™

Remarks: Potential bioaccumulation

(Lit.)

Mobility in soil

No data available

Other adverse effects

Product:

Ozone-Depletion Potential: Regulation: 40 CFR Protection of Environment; Part

82 Protection of Stratospheric Ozone - CAA Section

602 Class I Substances

Remarks: This product neither contains, nor was manufactured with a Class I or Class II ODS as

defined by the U.S. Clean Air Act Section 602 (40 CFR

82, Subpt. A, App.A + B).

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods

Waste from residues : Waste material must be disposed of in accordance

with the national and local regulations. Leave

chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product

itself.

SECTION 14. TRANSPORT INFORMATION

International Regulations

IATA-DGR

Not regulated as a dangerous good

IMDG-Code

Not regulated as a dangerous good



Transport in bulk according to IMO instruments

Not applicable for product as supplied.

National Regulations

49 CFR Road

UN/ID/NA number : NA 1993

Proper shipping name : Combustible liquid, n.o.s.

(n-dodecane)

Class : CBL
Packing group : III
Labels : None
ERG Code : 128
Marine pollutant : no

Poison Inhalation Hazard : No

Special precautions for user

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

SECTION 15. REGULATORY INFORMATION

CERCLA Reportable Quantity

This material does not contain any components with a CERCLA RQ.

SARA 304 Extremely Hazardous Substances Reportable Quantity

This material does not contain any components with a section 304 EHS RQ.

SARA 302 Extremely Hazardous Substances Threshold Planning Quantity

This material does not contain any components with a section 302 EHS TPQ.

SARA 311/312 : Fire Hazard

Hazards

SARA 313 : This material does not contain any chemical

components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by

SARA Title III, Section 313.

Clean Air Act

This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B). This product does not contain any hazardous air pollutants (HAP), as defined by the U.S. Clean Air Act Section 112 (40 CFR 61).

This product does not contain any chemicals listed under the U.S. Clean Air Act Section 112(r) for Accidental Release Prevention (40 CFR 68.130, Subpart F).

This product does not contain any chemicals listed under the U.S. Clean Air Act Section 111 SOCMI Intermediate or Final VOC's (40 CFR 60.489).

Sigma-Aldrich - 297879

Page 12 of 14



Clean Water Act

This product does not contain any Hazardous Substances listed under the U.S. CleanWater Act, Section 311, Table 116.4A.

This product does not contain any Hazardous Chemicals listed under the U.S. CleanWater Act, Section 311, Table 117.3.

This product does not contain any toxic pollutants listed under the U.S. Clean Water Act Section 307

This product does not contain any priority pollutants related to the U.S. Clean Water Act

US State Regulations

Massachusetts Right To Know

No components are subject to the Massachusetts Right to Know Act.

Maine Chemicals of High Concern

Product does not contain any listed chemicals

Vermont Chemicals of High Concern

Product does not contain any listed chemicals

Washington Chemicals of High Concern

Product does not contain any listed chemicals

The components of this product are reported in the following inventories:

TSCA : All substances listed as active on the TSCA inventory

TSCA list

No substances are subject to a Significant New Use Rule.

No substances are subject to TSCA 12(b) export notification requirements.

SECTION 16. OTHER INFORMATION

Full text of other abbreviations

AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DOT - Department of Transportation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; EHS - Extremely Hazardous Substance; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonised System; GLP - Good Laboratory Practice; HMIS - Hazardous Materials Identification System; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organisation; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardisation; KECI - Korea Existing Chemicals Inventory;

Sigma-Aldrich - 297879 Page 13 of 14



LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; MSHA - Mine Safety and Health Administration; n.o.s. - Not Otherwise Specified; NFPA - National Fire Protection Association; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organisation for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; RCRA -Resource Conservation and Recovery Act; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RQ - Reportable Quantity; SADT - Self-Decomposition Temperature; SARA - Superfund Amendments Reauthorization Act; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TECI - Thailand Existing Chemicals Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

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