

## SAFETY DATA SHEET

Version 6.4  
Revision Date 06/03/2022  
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**SECTION 1: Identification of the substance/mixture and of the company/undertaking****1.1 Product identifiers**

Product name : Nitromethane-<sup>13</sup>C

Product Number : 292141  
Brand : Aldrich  
CAS-No. : 32480-00-5

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

Identified uses : Laboratory chemicals, Synthesis of substances

**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**

Emergency Phone # : 800-424-9300 CHEMTREC (USA) +1-703-  
527-3887 CHEMTREC (International) 24  
Hours/day; 7 Days/week

**SECTION 2: Hazards identification****2.1 Classification of the substance or mixture****GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)**

Flammable liquids (Category 3), H226  
Acute toxicity, Oral (Category 4), H302  
Acute toxicity, Inhalation (Category 4), H332  
Carcinogenicity (Category 2), H351  
Reproductive toxicity (Category 2), H361

For the full text of the H-Statements mentioned in this Section, see Section 16.

**2.2 GHS Label elements, including precautionary statements**

Pictogram



Signal Word

Warning

|                            |                                                                                                                             |
|----------------------------|-----------------------------------------------------------------------------------------------------------------------------|
| Hazard statement(s)        |                                                                                                                             |
| H226                       | Flammable liquid and vapor.                                                                                                 |
| H302 + H332                | Harmful if swallowed or if inhaled.                                                                                         |
| H351                       | Suspected of causing cancer.                                                                                                |
| H361                       | Suspected of damaging fertility or the unborn child.                                                                        |
| Precautionary statement(s) |                                                                                                                             |
| P201                       | Obtain special instructions before use.                                                                                     |
| P202                       | Do not handle until all safety precautions have been read and understood.                                                   |
| P210                       | Keep away from heat/ sparks/ open flames/ hot surfaces. No smoking.                                                         |
| P233                       | Keep container tightly closed.                                                                                              |
| P240                       | Ground/bond container and receiving equipment.                                                                              |
| P241                       | Use explosion-proof electrical/ ventilating/ lighting/ equipment.                                                           |
| P242                       | Use only non-sparking tools.                                                                                                |
| P243                       | Take precautionary measures against static discharge.                                                                       |
| P261                       | Avoid breathing mist or vapors.                                                                                             |
| P264                       | Wash skin thoroughly after handling.                                                                                        |
| P270                       | Do not eat, drink or smoke when using this product.                                                                         |
| P271                       | Use only outdoors or in a well-ventilated area.                                                                             |
| P280                       | Wear protective gloves/ protective clothing/ eye protection/ face protection.                                               |
| P301 + P312 + P330         | IF SWALLOWED: Call a POISON CENTER/ doctor if you feel unwell. Rinse mouth.                                                 |
| P303 + P361 + P353         | IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.                        |
| P304 + P340 + P312         | IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/ doctor if you feel unwell. |
| P308 + P313                | IF exposed or concerned: Get medical advice/ attention.                                                                     |
| P370 + P378                | In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.                                        |
| P403 + P235                | Store in a well-ventilated place. Keep cool.                                                                                |
| P405                       | Store locked up.                                                                                                            |
| P501                       | Dispose of contents/ container to an approved waste disposal plant.                                                         |

### 2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

## SECTION 3: Composition/information on ingredients

### 3.1 Substances

|                  |   |                                               |
|------------------|---|-----------------------------------------------|
| Formula          | : | <sup>13</sup> CH <sub>3</sub> NO <sub>2</sub> |
| Molecular weight | : | 62.03 g/mol                                   |
| CAS-No.          | : | 32480-00-5                                    |

| Component                | Classification                                                             | Concentration |
|--------------------------|----------------------------------------------------------------------------|---------------|
| <b>[13C]Nitromethane</b> |                                                                            |               |
|                          | Flam. Liq. 3; Acute Tox. 4; Carc. 2; Repr. 2; H226, H302, H332, H351, H361 | <= 100 %      |

For the full text of the H-Statements mentioned in this Section, see Section 16.

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## SECTION 4: First aid measures

### 4.1 Description of first-aid measures

#### General advice

Show this material safety data sheet to the doctor in attendance.

#### If inhaled

After inhalation: fresh air. Immediately call in physician. If breathing stops: immediately apply artificial respiration, if necessary also oxygen.

#### In case of skin contact

In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. Consult a physician.

#### In case of eye contact

After eye contact: rinse out with plenty of water. Call in ophthalmologist. Remove contact lenses.

#### If swallowed

After swallowing: immediately make victim drink water (two glasses at most). Consult a physician.

### 4.2 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

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

No data available

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## SECTION 5: Firefighting measures

### 5.1 Extinguishing media

#### Suitable extinguishing media

Water Foam Carbon dioxide (CO<sub>2</sub>) Dry powder

#### Unsuitable extinguishing media

For this substance/mixture no limitations of extinguishing agents are given.

### 5.2 Special hazards arising from the substance or mixture

Carbon oxides

Nitrogen oxides (NO<sub>x</sub>)

Carbon oxides

Nitrogen oxides (NO<sub>x</sub>)

Combustible.

Vapors are heavier than air and may spread along floors.

Forms explosive mixtures with air at elevated temperatures.

Development of hazardous combustion gases or vapours possible in the event of fire.

### 5.3 Advice for firefighters

Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

## 5.4 Further information

Remove container from danger zone and cool with water. Suppress (knock down) gases/vapors/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

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## SECTION 6: Accidental release measures

### 6.1 Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Do not breathe vapors, 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. For personal protection see section 8.

### 6.2 Environmental precautions

Do not let product enter drains. Risk of explosion.

### 6.3 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 with liquid-absorbent material (e.g. Chemizorb® ). Dispose of properly. Clean up affected area.

### 6.4 Reference to other sections

For disposal see section 13.

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## SECTION 7: Handling and storage

### 7.1 Precautions for safe handling

#### Advice on safe handling

Work under hood. Do not inhale substance/mixture. Avoid generation of vapours/aerosols.

#### Advice on protection against fire and explosion

Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static discharge.

#### Hygiene measures

Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance. For precautions see section 2.2.

### 7.2 Conditions for safe storage, including any incompatibilities

No data available

### 7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

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## SECTION 8: Exposure controls/personal protection

### 8.1 Control parameters

#### Ingredients with workplace control parameters

| Component         | CAS-No.    | Value                                                        | Control parameters   | Basis                                                                                   |
|-------------------|------------|--------------------------------------------------------------|----------------------|-----------------------------------------------------------------------------------------|
| [13C]Nitromethane | 32480-00-5 | TWA                                                          | 20 ppm               | USA. ACGIH Threshold Limit Values (TLV)                                                 |
|                   | Remarks    | Confirmed animal carcinogen with unknown relevance to humans |                      |                                                                                         |
|                   |            | TWA                                                          | 100 ppm<br>250 mg/m3 | USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants        |
|                   |            | PEL                                                          | 2 ppm<br>5 mg/m3     | California permissible exposure limits for chemical contaminants (Title 8, Article 107) |

## 8.2 Exposure controls

### Appropriate engineering controls

Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

### Personal protective equipment

#### Eye/face protection

Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Safety glasses

#### Skin protection

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 EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: [www.kcl.de](http://www.kcl.de)).

Splash contact

Material: Viton®

Minimum layer thickness: 0.7 mm

Break through time: 120 min

Material tested: Vitoject® (KCL 890 / Aldrich Z677698, Size M)

#### Body Protection

Flame retardant antistatic protective clothing.

#### 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.

#### Control of environmental exposure

Do not let product enter drains. Risk of explosion.

## SECTION 9: Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

a) Appearance                      Form: liquid

|                                                 |                                                                      |
|-------------------------------------------------|----------------------------------------------------------------------|
| b) Odor                                         | No data available                                                    |
| c) Odor Threshold                               | No data available                                                    |
| d) pH                                           | No data available                                                    |
| e) Melting point/freezing point                 | No data available                                                    |
| f) Initial boiling point and boiling range      | 101 °C 214 °F - lit.                                                 |
| g) Flash point                                  | 36.00 °C (96.80 °F) - closed cup                                     |
| h) Evaporation rate                             | No data available                                                    |
| i) Flammability (solid, gas)                    | No data available                                                    |
| j) Upper/lower flammability or explosive limits | Lower explosion limit: 7.30 %(V)                                     |
| k) Vapor pressure                               | 36.4 hPa at 20.00 °C (68.00 °F)                                      |
| l) Vapor density                                | No data available                                                    |
| m) Density                                      | 1.145 g/mL at 25 °C (77 °F) 1.145 g/cm <sup>3</sup> at 25 °C (77 °F) |
| Relative density                                | No data available                                                    |
| n) Water solubility                             | No data available                                                    |
| o) Partition coefficient: n-octanol/water       | No data available                                                    |
| p) Autoignition temperature                     | No data available                                                    |
| q) Decomposition temperature                    | No data available                                                    |
| r) Viscosity                                    | No data available                                                    |
| s) Explosive properties                         | No data available                                                    |
| t) Oxidizing properties                         | none                                                                 |

## 9.2 Other safety information

No data available

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## SECTION 10: Stability and reactivity

### 10.1 Reactivity

Vapor/air-mixtures are explosive at intense warming.

### 10.2 Chemical stability

The product is chemically stable under standard ambient conditions (room temperature) .

### 10.3 Possibility of hazardous reactions

No data available

### 10.4 Conditions to avoid

Elevated temperatures.

Heating.

### **10.5 Incompatible materials**

Amines, Strong acids, Strong bases, Strong oxidizing agents, Strong reducing agents, Copper

### **10.6 Hazardous decomposition products**

In the event of fire: see section 5

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## **SECTION 11: Toxicological information**

### **11.1 Information on toxicological effects**

#### **Acute toxicity**

LD50 Oral - Rat - male and female - 1,478 mg/kg

Remarks: (ECHA)

Symptoms: Nausea, Vomiting, Diarrhea

LC50 Inhalation - Rabbit - 4 h - 14.34 mg/l - vapor

Remarks: (ECHA)

Symptoms: Irritation symptoms in the respiratory tract.

LD50 Dermal - Rabbit - male and female - > 2,000 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

Remarks: (ECHA)

#### **Respiratory or skin sensitization**

Intracutaneous test - Guinea pig

Result: negative

Remarks: (ECHA)

#### **Germ cell mutagenicity**

Test Type: Ames test

Test system: Salmonella typhimurium

Metabolic activation: with and without metabolic activation

Method: OECD Test Guideline 471

Result: negative

Test Type: Mutagenicity (mammal cell test): chromosome aberration.

Test system: Chinese hamster ovary cells

Metabolic activation: with and without metabolic activation

Method: OECD Test Guideline 473

Result: negative

Test Type: Micronucleus test

Species: Mouse

Cell type: Bone marrow

Application Route: inhalation (vapor)

Method: OECD Test Guideline 474

Result: negative

**Carcinogenicity**

Suspected of causing cancer.

IARC: 2B - Group 2B: Possibly carcinogenic to humans ([13C]Nitromethane)

NTP: No ingredient 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**

Suspected of damaging the unborn child.

Suspected of damaging fertility.

**Specific target organ toxicity - single exposure**

No data available

**Specific target organ toxicity - repeated exposure**

No data available

**Aspiration hazard**

No data available

**11.2 Additional Information**

Repeated dose toxicity - Rat - male and female - Oral - 28 Days - LOAEL (Lowest observed adverse effect level) - 100 mg/kg

Remarks: (ECHA)

Absorption into the body leads to the formation of methemoglobin which in sufficient concentration causes cyanosis. Onset may be delayed 2 to 4 hours or longer.

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

After absorption:

Methaemoglobinemia

Absorption may result in damage of the following:

Liver

Kidney

Handle in accordance with good industrial hygiene and safety practice.

Other dangerous properties can not be excluded.

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**SECTION 12: Ecological information****12.1 Toxicity**

|                                       |                                                                                             |
|---------------------------------------|---------------------------------------------------------------------------------------------|
| Toxicity to fish                      | static test LC50 - Pimephales promelas (fathead minnow) - > 659.2 mg/l - 96 h (APHA 231)    |
| Toxicity to daphnia and other aquatic | static test EC50 - Daphnia magna (Water flea) - > 103 mg/l - 48 h (OECD Test Guideline 202) |

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invertebrates

Toxicity to algae static test ErC50 - Pseudokirchneriella subcapitata (green algae) - > 102 mg/l - 72 h  
(OECD Test Guideline 201)

Toxicity to bacteria static test EC50 - activated sludge - 310 mg/l - 30 min  
(OECD Test Guideline 209)  
Remarks: (in analogy to similar products)  
The value is given in analogy to the following substances: 1-nitropropane

## 12.2 Persistence and degradability

Biodegradability aerobic - Exposure time 28 d  
Result: 9.9 % - Not readily biodegradable.  
(OECD Test Guideline 301D)

## 12.3 Bioaccumulative potential

No data available

## 12.4 Mobility in soil

No data available

## 12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

## 12.6 Endocrine disrupting properties

No data available

## 12.7 Other adverse effects

Discharge into the environment must be avoided.

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## SECTION 13: Disposal considerations

### 13.1 Waste treatment methods

#### Product

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. See [www.retrologistik.com](http://www.retrologistik.com) for processes regarding the return of chemicals and containers, or contact us there if you have further questions.

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## SECTION 14: Transport information

### DOT (US)

UN number: 1261 Class: 3 Packing group: II  
Proper shipping name: Nitromethane  
Reportable Quantity (RQ):  
Poison Inhalation Hazard: No

### IMDG

UN number: 1261 Class: 3 Packing group: II EMS-No: F-E, S-D  
Proper shipping name: NITROMETHANE

**IATA**

UN number: 1261 Class: 3

Packing group: II

Proper shipping name: Nitromethane

IATA Passenger: Not permitted for transport

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**SECTION 15: Regulatory information****SARA 302 Components**

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

**SARA 313 Components**

The following components are subject to reporting levels established by SARA Title III, Section 313:

|                   |                       |                             |
|-------------------|-----------------------|-----------------------------|
| [13C]Nitromethane | CAS-No.<br>32480-00-5 | Revision Date<br>2013-02-08 |
|-------------------|-----------------------|-----------------------------|

**SARA 311/312 Hazards**

Fire Hazard, Acute Health Hazard

**Massachusetts Right To Know Components**

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

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**SECTION 16: Other information****Further information**

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 Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See [www.sigma-aldrich.com](http://www.sigma-aldrich.com) and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

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