

## SAFETY DATA SHEET

Version 6.7  
Revision Date 06/01/2021  
Print Date 10/24/2021

**SECTION 1: Identification of the substance/mixture and of the company/undertaking****1.1 Product identifiers**

Product name : Methanol-d<sub>4</sub>

Product Number : 151947  
Brand : Aldrich  
CAS-No. : 811-98-3

**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 2), H225  
Acute toxicity, Oral (Category 3), H301  
Acute toxicity, Inhalation (Category 3), H331  
Acute toxicity, Dermal (Category 3), H311  
Specific target organ toxicity - single exposure (Category 1), H370

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

Danger

|                            |                                                                                                          |
|----------------------------|----------------------------------------------------------------------------------------------------------|
| Hazard statement(s)        |                                                                                                          |
| H225                       | Highly flammable liquid and vapor.                                                                       |
| H301 + H311 + H331         | Toxic if swallowed, in contact with skin or if inhaled.                                                  |
| H370                       | Causes damage to organs.                                                                                 |
| Precautionary statement(s) |                                                                                                          |
| 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.                                                    |
| P260                       | Do not breathe dust/ fume/ gas/ mist/ vapors/ spray.                                                     |
| 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/ eye protection/ face protection.                                                 |
| P301 + P310 + P330         | IF SWALLOWED: Immediately call a POISON CENTER/ doctor. Rinse mouth.                                     |
| P303 + P361 + P353         | IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.     |
| P304 + P340 + P311         | IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/ doctor. |
| P307 + P311                | IF exposed: Call a POISON CENTER or doctor/ physician.                                                   |
| P362                       | Take off contaminated clothing and wash before reuse.                                                    |
| P370 + P378                | In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.                     |
| P403 + P233                | Store in a well-ventilated place. Keep container tightly closed.                                         |
| 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

Synonyms : Methyl-d3 alcohol d  
Tetradeuteromethanol

Formula : CD4O  
Molecular weight : 36.07 g/mol  
CAS-No. : 811-98-3  
EC-No. : 212-378-6

| Component            | Classification                                                                                                            | Concentration |
|----------------------|---------------------------------------------------------------------------------------------------------------------------|---------------|
| <b>(2H4)methanol</b> |                                                                                                                           |               |
|                      | Flam. Liq. 2; Acute Tox. 3;<br>STOT SE 1; H225, H301,<br>H331, H311, H370<br>Concentration limits:<br>>= 10 %: STOT SE 1, | <= 100 %      |

Aldrich - 151947

Page 2 of 11

|  |                                       |  |
|--|---------------------------------------|--|
|  | H370; 3 - < 10 %: STOT<br>SE 2, H371; |  |
|--|---------------------------------------|--|

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

First aiders need to protect themselves. 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. Call a physician immediately.

#### In case of eye contact

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

#### If swallowed

If swallowed: give water to drink (two glasses at most). Seek medical advice immediately. In exceptional cases only, if medical care is not available within one hour, induce vomiting (only in persons who are wide awake and fully conscious), administer activated charcoal (20 - 40 g in a 10% slurry) and consult a doctor as quickly as possible.

### 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

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

Combustible.

Pay attention to flashback.

Vapors are heavier than air and may spread along floors.

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

Forms explosive mixtures with air at ambient temperatures.

### 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. 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 carefully 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

#### Storage conditions

Keep container tightly closed in a dry and well-ventilated place. Keep away from heat and sources of ignition. Keep locked up or in an area accessible only to qualified or authorized persons.

Store under inert gas. hygroscopic

Storage class (TRGS 510): 3: Flammable liquids

### 7.3 Specific end use(s)

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

## SECTION 8: Exposure controls/personal protection

### 8.1 Control parameters

#### Ingredients with workplace control parameters

| Component     | CAS-No.  | Value                           | Control parameters   | Basis                                                                                   |
|---------------|----------|---------------------------------|----------------------|-----------------------------------------------------------------------------------------|
| (2H4)methanol | 811-98-3 | TWA                             | 200 ppm              | USA. ACGIH Threshold Limit Values (TLV)                                                 |
|               | Remarks  | Danger of cutaneous absorption  |                      |                                                                                         |
|               |          | STEL                            | 250 ppm              | USA. ACGIH Threshold Limit Values (TLV)                                                 |
|               |          | Danger of cutaneous absorption  |                      |                                                                                         |
|               |          | TWA                             | 200 ppm<br>260 mg/m3 | USA. NIOSH Recommended Exposure Limits                                                  |
|               |          | Potential for dermal absorption |                      |                                                                                         |
|               |          | ST                              | 250 ppm<br>325 mg/m3 | USA. NIOSH Recommended Exposure Limits                                                  |
|               |          | Potential for dermal absorption |                      |                                                                                         |
|               |          | TWA                             | 200 ppm<br>260 mg/m3 | USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants        |
|               |          | STEL                            | 250 ppm<br>325 mg/m3 | USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000                           |
|               |          | Skin notation                   |                      |                                                                                         |
|               |          | TWA                             | 200 ppm<br>260 mg/m3 | USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000                           |
|               |          | Skin notation                   |                      |                                                                                         |
|               |          | C                               | 1,000 ppm            | California permissible exposure limits for chemical contaminants (Title 8, Article 107) |
|               |          | Skin                            |                      |                                                                                         |
|               |          | PEL                             | 200 ppm<br>260 mg/m3 | California permissible exposure limits for chemical contaminants (Title 8, Article 107) |
|               |          | Skin                            |                      |                                                                                         |
|               |          | STEL                            | 250 ppm<br>325 mg/m3 | California permissible exposure limits for chemical contaminants (Title 8, Article 107) |
|               |          | Skin                            |                      |                                                                                         |

#### Biological occupational exposure limits

| Component     | CAS-No.  | Parameters                                               | Value   | Biological specimen | Basis                                     |
|---------------|----------|----------------------------------------------------------|---------|---------------------|-------------------------------------------|
| (2H4)methanol | 811-98-3 | Methanol                                                 | 15 mg/l | Urine               | ACGIH - Biological Exposure Indices (BEI) |
|               | Remarks  | End of shift (As soon as possible after exposure ceases) |         |                     |                                           |

## 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)).

Full contact

Material: butyl-rubber

Minimum layer thickness: 0.7 mm

Break through time: 480 min

Material tested: Butoject® (KCL 898)

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.

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## 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        | No data available |

|    |                                              |                                                                 |
|----|----------------------------------------------|-----------------------------------------------------------------|
|    | point/freezing point                         |                                                                 |
| f) | Initial boiling point and boiling range      | 65.4 °C 149.7 °F - lit.                                         |
| g) | Flash point                                  | 11 °C (52 °F) - closed cup                                      |
| h) | Evaporation rate                             | No data available                                               |
| i) | Flammability (solid, gas)                    | No data available                                               |
| j) | Upper/lower flammability or explosive limits | Upper explosion limit: 36 %(V)<br>Lower explosion limit: 6 %(V) |
| k) | Vapor pressure                               | 546.6 hPa at 50.0 °C (122.0 °F)                                 |
| l) | Vapor density                                | No data available                                               |
| m) | 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                         | No data available                                               |

## 9.2 Other safety information

No data available

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## SECTION 10: Stability and reactivity

### 10.1 Reactivity

Vapors may form explosive mixture with air.

### 10.2 Chemical stability

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

### 10.3 Possibility of hazardous reactions

Risk of explosion with:

Oxidizing agents  
perchloric acid  
perchlorates  
salts of oxyhalogenic acids  
chromium(VI) oxide  
halogen oxides  
nitrogen oxides  
nonmetallic oxides  
chromosulfuric acid  
chlorates  
hydrides

Aldrich - 151947

Page 7 of 11

zinc diethyl  
halogens  
hydrogen peroxide  
Nitric acid  
powdered magnesium  
Sulphuric acid  
permanganic acid  
sodium hypochlorite  
Exothermic reaction with:  
acid halides  
Acid anhydrides  
Reducing agents  
acids  
Bromine  
Chlorine  
Chloroform  
magnesium  
tetrachloromethane  
Fluorine  
Oxides of phosphorus  
Raney-nickel  
Generates dangerous gases or fumes in contact with:  
Alkaline earth metals  
Alkali metals

#### **10.4 Conditions to avoid**

Avoid moisture.  
Warming.

#### **10.5 Incompatible materials**

various plastics, magnesium, zinc alloys

#### **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 - 5,628 mg/kg  
LC50 Inhalation - Rat - 4 h - 64000 ppm  
LD50 Dermal - Rabbit - 15,800 mg/kg  
No data available

##### **Skin corrosion/irritation**

Skin - Rabbit  
Result: No skin irritation  
Remarks: (ECHA)  
(in analogy to similar products)  
The value is given in analogy to the following substances: Methanol

##### **Serious eye damage/eye irritation**

Eyes - Rabbit  
Result: No eye irritation

Aldrich - 151947

Page 8 of 11

Remarks: (ECHA)  
(in analogy to similar products)  
The value is given in analogy to the following substances: Methanol

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

Sensitisation test: - Guinea pig

Result: negative

(OECD Test Guideline 406)

Remarks: (in analogy to similar products)

The value is given in analogy to the following substances: Methanol

#### **Germ cell mutagenicity**

No data available

#### **Carcinogenicity**

IARC: No ingredient 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 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**

No data available

#### **Specific target organ toxicity - single exposure**

Causes damage to organs.

#### **Specific target organ toxicity - repeated exposure**

No data available

#### **Aspiration hazard**

No data available

### **11.2 Additional Information**

Weakness, Confusion., Drowsiness, Unconsciousness, May cause convulsions., Dizziness, Gastrointestinal disturbance, Nausea, Headache, Vomiting, Warning: contains methanol. May be fatal or cause blindness if swallowed. Cannot be made nonpoisonous., To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Liver - Irregularities - Based on Human Evidence

Liver - Irregularities - Based on Human Evidence

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## **SECTION 12: Ecological information**

### **12.1 Toxicity**

|                                                     |                                                                 |
|-----------------------------------------------------|-----------------------------------------------------------------|
| Toxicity to fish                                    | LC50 - Oncorhynchus mykiss (rainbow trout) - 19,000 mg/l - 96 h |
| Toxicity to daphnia and other aquatic invertebrates | EC50 - Daphnia magna (Water flea) - 24,500 mg/l - 48 h          |

## 12.2 Persistence and degradability

No data available

## 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 Other adverse effects

No data available

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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: 1230    Class: 3    Packing group: II  
Proper shipping name: Methanol  
Reportable Quantity (RQ): 5000 lbs  
Poison Inhalation Hazard: No

### IMDG

UN number: 1230    Class: 3 (6.1)    Packing group: II    EMS-No: F-E, S-D  
Proper shipping name: METHANOL

### IATA

UN number: 1230    Class: 3 (6.1)    Packing group: II  
Proper shipping name: Methanol

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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:

|               |                     |                             |
|---------------|---------------------|-----------------------------|
| (2H4)methanol | CAS-No.<br>811-98-3 | Revision Date<br>2007-07-01 |
|---------------|---------------------|-----------------------------|

**SARA 311/312 Hazards**

Fire Hazard, Acute Health Hazard, Chronic 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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Details in analogy to the undeuterated compound.

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