

## SAFETY DATA SHEET

Version 6.3  
Revision Date 09/07/2021  
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**SECTION 1: Identification of the substance/mixture and of the company/undertaking****1.1 Product identifiers**

Product name : 2,2,3,3-Tetramethylbutane

Product Number : 540846

Brand : Aldrich

Index-No. : 601-009-00-8

CAS-No. : 594-82-1

**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

Skin irritation (Category 2), H315

Specific target organ toxicity - single exposure (Category 3), Central nervous system, H336

Aspiration hazard (Category 1), H304

Short-term (acute) aquatic hazard (Category 1), H400

Long-term (chronic) aquatic hazard (Category 1), H410

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.                                                                                          |
| H304                       | May be fatal if swallowed and enters airways.                                                                               |
| H315                       | Causes skin irritation.                                                                                                     |
| H336                       | May cause drowsiness or dizziness.                                                                                          |
| H410                       | Very toxic to aquatic life with long lasting effects.                                                                       |
| 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.                                                                       |
| P261                       | Avoid breathing dust/ fume/ gas/ mist/ vapors/ spray.                                                                       |
| P264                       | Wash skin thoroughly after handling.                                                                                        |
| P271                       | Use only outdoors or in a well-ventilated area.                                                                             |
| P273                       | Avoid release to the environment.                                                                                           |
| P280                       | Wear protective gloves/ eye protection/ face protection.                                                                    |
| P301 + P310                | IF SWALLOWED: Immediately call a POISON CENTER/ doctor.                                                                     |
| 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. |
| P331                       | Do NOT induce vomiting.                                                                                                     |
| P332 + P313                | If skin irritation occurs: Get medical advice/ attention.                                                                   |
| 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.                                        |
| P391                       | Collect spillage.                                                                                                           |
| 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         | : Hexamethylethane |
| Molecular weight | : 114.23 g/mol     |
| CAS-No.          | : 594-82-1         |
| EC-No.           | : 209-855-6        |
| Index-No.        | : 601-009-00-8     |

| Component                        | Classification               | Concentration |
|----------------------------------|------------------------------|---------------|
| <b>2,2,3,3-Tetramethylbutane</b> |                              |               |
|                                  | Flam. Liq. 2; Skin Irrit. 2; | <= 100 %      |

|  |                                                                                                                                                                                 |  |
|--|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
|  | STOT SE 3; Asp. Tox. 1;<br>Aquatic Acute 1; Aquatic<br>Chronic 1; H225, H315,<br>H336, H304, H400, H410<br>M-Factor - Aquatic Acute:<br>10<br>M-Factor - Aquatic<br>Chronic: 10 |  |
|--|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|

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. Call in physician.

#### 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.

### 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**

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.

#### **Storage class**

Storage class (TRGS 510): 4.1B: Flammable solid hazardous materials

### **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                                   |
|---------------------------|----------|-------|--------------------|-----------------------------------------|
| 2,2,3,3-Tetramethylbutane | 594-82-1 | TWA   | 300 ppm            | USA. ACGIH Threshold Limit Values (TLV) |

### 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

required

##### 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<br>Color: off-white               |
| b) Odor                                    | No data available                              |
| c) Odor Threshold                          | No data available                              |
| d) pH                                      | No data available                              |
| e) Melting point/freezing point            | Melting point/range: 94 - 97 °C (201 - 207 °F) |
| f) Initial boiling point and boiling range | 106 - 107 °C 223 - 225 °F at 1,020 hPa         |
| g) Flash point                             | 4 °C (39 °F) - closed cup                      |
| h) Evaporation rate                        | No data available                              |

|                                                 |                                                                    |
|-------------------------------------------------|--------------------------------------------------------------------|
| i) Flammability (solid, gas)                    | The substance or mixture is a flammable solid with the category 1. |
| j) Upper/lower flammability or explosive limits | Lower explosion limit: 1 %(V)                                      |
| k) Vapor pressure                               | No data available                                                  |
| l) Vapor density                                | No data available                                                  |
| m) Density                                      | No data available                                                  |
| 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

No data available

### 10.4 Conditions to avoid

Warming.

### 10.5 Incompatible materials

Strong oxidizing agents

### 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

Oral: No data available

Inhalation: No data available

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Dermal: No data available  
No data available

**Skin corrosion/irritation**

No data available

**Serious eye damage/eye irritation**

No data available

**Respiratory or skin sensitization**

No data available

**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

No data available

**Specific target organ toxicity - single exposure**

May cause drowsiness or dizziness.

**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.

**11.2 Additional Information**

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

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**SECTION 12: Ecological information**

**12.1 Toxicity**

No data available

**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: 1325    Class: 4.1    Packing group: II  
Proper shipping name: Flammable solids, organic, n.o.s. (2,2,3,3-Tetramethylbutane)  
Reportable Quantity (RQ):  
Poison Inhalation Hazard: No

### IMDG

UN number: 1325    Class: 4.1    Packing group: II    EMS-No: F-A, S-G  
Proper shipping name: FLAMMABLE SOLID, ORGANIC, N.O.S. (2,2,3,3-Tetramethylbutane)

### IATA

UN number: 1325    Class: 4.1    Packing group: II  
Proper shipping name: Flammable solid, organic, n.o.s. (2,2,3,3-Tetramethylbutane)

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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

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.

### 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.

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

### Pennsylvania Right To Know Components

2,2,3,3-Tetramethylbutane

CAS-No.  
594-82-1

Revision Date

### **New Jersey Right To Know Components**

2,2,3,3-Tetramethylbutane

CAS-No.  
594-82-1

Revision Date

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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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