

## Chemical Safety Data Sheet MSDS / SDS

**2,2,4-Trimethylpentane**

Revision Date:2026-05-31 Revision Number:1

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

Product name : 2,2,4-Trimethylpentane  
CBnumber : CB9853773  
CAS : 540-84-1  
EINECS Number : 208-759-1  
Synonyms : Isooctane,2,2,4-trimethylpentane

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

Relevant identified uses : For R&D use only. Not for medicinal, household or other use.  
Uses advised against : none

**Company Identification**

Company : Chemicalbook  
Address : Building 1, Huihuang International, Shangdi 10th Street, Haidian District, Beijing  
Telephone : 010-86108875

**SECTION 2: Hazards identification****GHS Label elements, including precautionary statements**

Symbol(GHS)



Signal word

Danger

**Precautionary statements**

P210 Keep away from heat/sparks/open flames/hot surfaces. — No smoking.  
P261 Avoid breathing dust/fume/gas/mist/vapours/spray.  
P273 Avoid release to the environment.  
P301+P310 IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.  
P303+P361+P353 IF ON SKIN (or hair): Remove/Take off Immediately all contaminated clothing. Rinse SKIN with water/shower.  
P331 Do NOT induce vomiting.  
P370+P378 In case of fire: Use ... for extinction.  
P403+P235 Store in a well-ventilated place. Keep cool.  
P405 Store locked up.  
P501 Dispose of contents/container to.....

## Hazard statements

H225 Highly Flammable liquid and vapour

H304 May be fatal if swallowed and enters airways

H315 Causes skin irritation

H336 May cause drowsiness or dizziness

H400 Very toxic to aquatic life

H410 Very toxic to aquatic life with long lasting effects

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## SECTION 3: Composition/information on ingredients

### Substance

Product name	: 2,2,4-Trimethylpentane
Synonyms	: Isooctane,2,2,4-trimethylpentane
CAS	: 540-84-1
EC number	: 208-759-1
MF	: C <sub>8</sub> H <sub>18</sub>
MW	: 114.23

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## SECTION 4: First aid measures

### Description of first aid measures

#### General advice

Consult a physician. Show this safety data sheet to the doctor in attendance.

#### If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

#### In case of skin contact

Wash off with soap and plenty of water. Consult a physician.

#### In case of eye contact

Flush eyes with water as a precaution.

#### If swallowed

Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

### 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

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

No data available

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## SECTION 5: Firefighting measures

### Extinguishing media

### Suitable extinguishing media

Dry powder Dry sand

### Unsuitable extinguishing media

Do NOT use water jet.

### Special hazards arising from the substance or mixture

Carbon oxides

Flash back possible over considerable distance., Container explosion may occur under fire conditions.

Combustible.

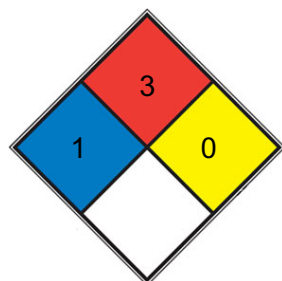
### Advice for firefighters

Wear self-contained breathing apparatus for firefighting if necessary.

### Further information

Use water spray to cool unopened containers.

### NFPA 704



**HEALTH** 1 Exposure would cause irritation with only minor residual injury (e.g. [acetone](#), sodium bromate, potassium chloride)

Liquids and solids (including finely divided suspended solids) that can be ignited under almost all ambient temperature

**FIRE** 3 conditions . Liquids having a flash point below 22.8 °C (73 °F) and having a boiling point at or above 37.8 °C (100 °F) or having a flash point between 22.8 and 37.8 °C (73 and 100 °F). (e.g. gasoline, [acetone](#))

**REACT** 0 Normally stable, even under fire exposure conditions, and is not reactive with water (e.g. helium, [N<sub>2</sub>](#))

**SPEC.**

**HAZ.**

## SECTION 6: Accidental release measures

### Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Remove all sources of ignition.

Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.

For personal protection see section 8.

### Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

### Methods and materials for containment and cleaning up

Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13).

### **Reference to other sections**

For disposal see section 13.

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## **SECTION 7: Handling and storage**

### **Precautions for safe handling**

Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.

Keep away from sources of ignition - No smoking. Take measures to prevent the build up of electrostatic charge.

For precautions see section 2.2.

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

Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Store in cool place.

### **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**

### **control parameter**

#### **Hazard composition and occupational exposure limits**

Does not contain substances with occupational exposure limits.

### **Exposure controls**

#### **Appropriate engineering controls**

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

#### **Personal protective equipment**

##### **Eye/face protection**

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

##### **Skin protection**

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

The selected protective gloves have to satisfy the specifications of Regulation (EU) 2016/425 and the standard EN 374 derived from it.

Full contact

Material: Nitrile rubber

Minimum layer thickness: 0,2 mm Break through time: 482 min

Material tested: Dermatril? P (KCL 743 / Aldrich Z677388, Size M)

Splash contact Material: Nitrile rubber

Minimum layer thickness: 0,11 mm Break through time: 90 min

Material tested: Dermatrill? (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374

If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

#### Body Protection

Complete suit protecting against chemicals, Flame retardant antistatic protective clothing., The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

#### Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full- face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

#### Control of environmental exposure

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

#### Exposure limits

ACGIH TLV: TWA for all isomers 300 ppm (adopted).

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## SECTION 9: Physical and chemical properties

### Information on basic physicochemical properties

Appearance	colourless liquid
Odour	No data available
Odour Threshold	0.11 ppm
pH	No data available
Melting point/freezing point	Melting point/range: -107 °C
Initial boiling point and boiling range	98 - 99 °C
Flash point	-12 °C - closed cup
Evaporation rate	No data available
Flammability (solid, gas)	No data available
Upper/lower flammability or explosive limits	Upper explosion limit: 6 %(V) Lower explosion limit: 1 %(V)
Vapour pressure	55 hPa at 21 °C 117 hPa at 37,80 °C
Vapour density	3,94 - (Air = 1.0)
Relative density	0,692 g/mL at 25 °C
Water solubility	insoluble
Partition coefficient: n-octanol/water	log Pow: 4,6 - Bioaccumulation is not expected.
Autoignition temperature	No data available
Decomposition temperature	No data available
Viscosity	No data available
Explosive properties	No data available

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Oxidizing properties	No data available
Henry's Law Constant	3.23 at 25 °C (Mackay and Shiu, 1981)
$\lambda_{\text{max}}$	$\lambda$ : 205 nm Amax: 1.00
	$\lambda$ : 225 nm Amax: 0.10
	$\lambda$ : 254 nm Amax: 0.01

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### Other safety information

Relative vapour density

3,94 - (Air = 1.0)

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## SECTION 10: Stability and reactivity

### Reactivity

No data available

### Chemical stability

Stable under recommended storage conditions.

### Possibility of hazardous reactions

No data available

### Conditions to avoid

Heat, flames and sparks.

### Incompatible materials

Strong oxidizing agents

### Hazardous decomposition products

Hazardous decomposition products formed under fire conditions. - Carbon oxides Other decomposition products - No data available

In the event of fire: see section 5

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## SECTION 11: Toxicological information

### 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 - > 33,52 mg/l (OECD Test Guideline 403)

LD50 Dermal - Rabbit - male and female - > 2.000 mg/kg (OECD Test Guideline 402)

#### Skin corrosion/irritation

Skin - Rabbit

Result: Irritating to skin. - 24 h (OECD Test Guideline 404)

Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2) Repeated or prolonged exposure may cause skin

irritation and dermatitis, due to degreasing properties of the product.

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

Eyes - Rabbit

Result: No eye irritation (OECD Test Guideline 405)

#### **Respiratory or skin sensitisation**

(OECD Test Guideline 406)

#### **Germ cell mutagenicity**

Ames test TA98

Result: negative

In vitro mammalian cell gene mutation test human lymphoblastoid cells

Result: negative

OECD Test Guideline 486 Rat - male - Liver cells 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.

#### **Reproductive toxicity**

No data available

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

May cause drowsiness or dizziness. - Central nervous system

Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2) Acute inhalation toxicity - mucosal irritations

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

No data available

#### **Aspiration hazard**

Aspiration hazard, Aspiration may cause pulmonary oedema and pneumonitis.

#### **Additional Information**

RTECS: SA3320000

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

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. Liver - Irregularities - Based on Human Evidence

#### **Toxicity**

LD50 orally in Rabbit: > 2500 mg/kg

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## SECTION 12: Ecological information

### **Toxicity**

#### **Toxicity to fish**

semi-static test LC50 - *Oncorhynchus mykiss* (rainbow trout) - 0,11 mg/l - 96 h

(OECD Test Guideline 203)

#### **Toxicity to daphnia and other aquatic invertebrates**

static test EC50 - *Daphnia magna* (Water flea) - 0,4 mg/l - 48 h Remarks: (in analogy to similar products)(ECHA)

### **Toxicity to bacteria**

ECO - Pseudomonas putida - 10.000 mg/l Remarks: (IUCLID)

### **Persistence and degradability**

Biodegradability aerobic - Exposure time 28 d

Result: 51,3 % - Inherently biodegradable. (OECD Test Guideline 301F)

### **Bioaccumulative potential**

### **Mobility in soil**

No data available

### **Results of PBT and vPvB assessment**

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

### **Toxics Screening Level**

The ITSL is being established at 3500 µg/m<sup>3</sup> with 8 hour averaging.

### **Other adverse effects**

Very toxic to aquatic life with long lasting effects. Biological effects:

Endangers drinking-water supplies if allowed to enter soil and/or waters in large quantities.

Discharge into the environment must be avoided.

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## **SECTION 13: Disposal considerations**

### **Waste treatment methods**

#### **Product**

Offer surplus and non-recyclable solutions to a licensed disposal company. Waste material must be disposed of in accordance with the Directive on waste 2008/98/EC as well as other national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself.

#### **Incompatibilities**

Reacts with strong oxidizers, causing fire and explosion hazard. Attacks some forms of plastics, rubber and coatings.

#### **Waste Disposal**

Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an after burner and scrubber. All federal, state, and local environmental regulations must be observed.

#### **Contaminated packaging**

Dispose of as unused product.

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## **SECTION 14: Transport information**

**UN number**

ADR/RID: 1262 IMDG: 1262

**UN proper shipping name**

ADR/RID: OCTANES IMDG: OCTANES IATA: Octanes

**Transport hazard class(es)**

ADR/RID: 3 IMDG: 3 IATA: 3

**Packaging group**

ADR/RID: II IMDG: II IATA: II

**Environmental hazards**

ADR/RID: yes IMDG Marine pollutant: yes IATA: no

**Special precautions for user**

No data available

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## SECTION 15: Regulatory information

**Safety, health and environmental regulations/legislation specific for the substance or mixture****Regulations on the Safety Management of Hazardous Chemicals**

China Catalog of Hazardous chemicals 2015:Listed. website: <https://www.mem.gov.cn/>

**Measures for Environmental Management of New Chemical Substances**

Vietnam National Chemical Inventory:Listed. website: <https://chemicaldata.gov.vn/>

United States Toxic Substances Control Act (TSCA) Inventory:Listed. website: <https://www.epa.gov/>

Philippines Inventory of Chemicals and Chemical Substances (PICCS):Listed. website: <https://emb.gov.ph/>

New Zealand Inventory of Chemicals (NZIoC):Listed. website: <https://www.epa.govt.nz/>

Korea Existing Chemicals List (KECL):Listed. website: <http://ncis.nier.go.kr>

European Inventory of Existing Commercial Chemical Substances (EINECS):Listed. website: <https://echa.europa.eu/>

EC Inventory:Listed.

Chinese Chemical Inventory of Existing Chemical Substances (China IECSC):Listed. website: <https://www.mee.gov.cn/>

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## SECTION 16: Other information

**Abbreviations and acronyms**

ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road

CAS: Chemical Abstracts Service

EC50: Effective Concentration 50%

IATA: International Air Transportation Association

IMDG: International Maritime Dangerous Goods

LC50: Lethal Concentration 50%

LD50: Lethal Dose 50%

RID: Regulation concerning the International Carriage of Dangerous Goods by Rail

STEL: Short term exposure limit

TWA: Time Weighted Average

## References

- 【1】 CAMEO Chemicals, website: <http://cameochemicals.noaa.gov/search/simple>
- 【2】 ChemIDplus, website: <http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp>
- 【3】 ECHA - European Chemicals Agency, website: <https://echa.europa.eu/>
- 【4】 eChemPortal - The Global Portal to Information on Chemical Substances by OECD, website: [http://www.echemportal.org/echemportal/index?pageID=0&request\\_locale=en](http://www.echemportal.org/echemportal/index?pageID=0&request_locale=en)
- 【5】 ERG - Emergency Response Guidebook by U.S. Department of Transportation, website: <http://www.phmsa.dot.gov/hazmat/library/erg>
- 【6】 Germany GESTIS-database on hazard substance, website: <http://www.dguv.de/ifa/gestis/gestis-stoffdatenbank/index-2.jsp>
- 【7】 HSDB - Hazardous Substances Data Bank, website: <https://toxnet.nlm.nih.gov/newtoxnet/hsdb.htm>
- 【8】 IARC - International Agency for Research on Cancer, website: <http://www.iarc.fr/>
- 【9】 IPCS - The International Chemical Safety Cards (ICSC), website: <http://www.ilo.org/dyn/icsc/showcard.home>
- 【10】 Sigma-Aldrich, website: <https://www.sigmaaldrich.com/>

### Disclaimer:

The information in this MSDS is only applicable to the specified product, unless otherwise specified, it is not applicable to the mixture of this product and other substances. This MSDS only provides information on the safety of the product for those who have received the appropriate professional training for the user of the product. Users of this MSDS must make independent judgments on the applicability of this SDS. The authors of this MSDS will not be held responsible for any harm caused by the use of this MSDS.