

Tetramethylammonium hydroxide pentahydrateVersion number: GHS 2.0
Replaces version of: 2024-07-22 (GHS 1)

Revision: 2025-02-13

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

| | |
|---------------------------------|---|
| Identification of the substance | Tetramethylammonium hydroxide pentahydrate |
| CAS number | 10424-65-4 |
| Alternative number(s) | GRM2474 |

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

| | |
|--------------------------|---|
| Relevant identified uses | Laboratory chemicals, Manufacture of substances |
| Uses advised against | Do not use for squirting or spraying. Do not use for products which come into direct contact with the skin. |

1.3 Details of the supplier of the safety data sheet

HiMedia Laboratories Pvt. Ltd.
Plot No. C40, Road No. 21Y, Wagle Industrial Area, MIDC
Thane West Maharashtra 400604
India

Telephone: +91 22 69034800, +91 22 61169797
e-mail: info@himedialabs.com
Website: www.himedialabs.com

e-mail (competent person) info@himedialabs.com (HiMedia Laboratories Pvt. Ltd)

1.4 Emergency telephone number

Emergency information service +91 9321269711

SECTION 2: Hazards identification**2.1 Classification of the substance or mixture**

Classification acc. to GHS

| Section | Hazard class | Category | Hazard class and category | Hazard statement |
|---------|---------------------------|----------|---------------------------|------------------|
| 3.1O | acute toxicity (oral) | 1 | Acute Tox. 1 | H300 |
| 3.1D | acute toxicity (dermal) | 3 | Acute Tox. 3 | H311 |
| 3.2 | skin corrosion/irritation | 1 | Skin Corr. 1 | H314 |

For full text of abbreviations: see SECTION 16.

The most important adverse physicochemical, human health and environmental effects

Skin corrosion produces an irreversible damage to the skin; namely, visible necrosis through the epidermis and into the dermis.

2.2 Label elements

Labelling

- Signal word danger

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- Pictograms

GHS05, GHS06



- Hazard statements

H300 Fatal if swallowed.
H311 Toxic in contact with skin.
H314 Causes severe skin burns and eye damage.

- Precautionary statements

P260 Do not breathe dust/fume/gas/mist/vapours/spray.
P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection.
P301+P310 IF SWALLOWED: Immediately call a POISON CENTER/doctor.
P301+P330+P331 IF SWALLOWED: rinse mouth. Do NOT induce vomiting.
P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P361+P364 Take off immediately all contaminated clothing and wash it before reuse.
P501 Dispose of contents/container to industrial combustion plant.

2.3 Other hazards

Results of PBT and vPvB assessment

According to the results of its assessment, this substance is not a PBT or a vPvB.

Endocrine disrupting properties

Does not contain an endocrine disruptor (ED) at a concentration of $\geq 0,1\%$.

SECTION 3: Composition/information on ingredients

3.1 Substances

Name of substance Tetramethylammonium hydroxide pentahydrate
Identifiers
CAS No 10424-65-4
EC No 200-882-9

| Specific Conc. Limits | M-Factors | ATE | Exposure route |
|-----------------------|-----------|------------------------|----------------|
| - | - | 0.5 mg/kg 300 mg/kg | oral dermal |

Molecular formula $C_4H_{13}NO.5H_2O$
Molar mass 181.23 g/mol

SECTION 4: First aid measures

4.1 Description of first aid measures

General notes

Do not leave affected person unattended. Remove victim out of the danger area. Keep affected person warm, still and covered. Take off immediately all contaminated clothing. In all cases of doubt, or when symptoms persist, seek medical advice. In case of unconsciousness place person in the recovery position. Never give anything by mouth.

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Following inhalation

If breathing is irregular or stopped, immediately seek medical assistance and start first aid actions. In case of respiratory tract irritation, consult a physician. Provide fresh air.

Following skin contact

Rinse skin with water/shower.

Following eye contact

Remove contact lenses, if present and easy to do. Continue rinsing. Irrigate copiously with clean, fresh water for at least 10 minutes, holding the eyelids apart.

Following ingestion

Rinse mouth with water (only if the person is conscious). Do NOT induce vomiting.

4.2 Most important symptoms and effects, both acute and delayed

Symptoms and effects are not known to date.

4.3 Indication of any immediate medical attention and special treatment needed

none

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media

Water, Foam, ABC-powder

Unsuitable extinguishing media

Water jet

5.2 Special hazards arising from the substance or mixture

Deposited combustible dust has considerable explosion potential.

Hazardous combustion products

Nitrogen oxides (NO_x), Carbon monoxide (CO), Carbon dioxide (CO₂)

5.3 Advice for firefighters

In case of fire and/or explosion do not breathe fumes. Co-ordinate firefighting measures to the fire surroundings. Do not allow firefighting water to enter drains or water courses. Collect contaminated firefighting water separately. Fight fire with normal precautions from a reasonable distance.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel

Remove persons to safety.

For emergency responders

Wear breathing apparatus if exposed to vapours/dust/spray/gases.

6.2 Environmental precautions

Keep away from drains, surface and ground water. Retain contaminated washing water and dispose of it.

6.3 Methods and material for containment and cleaning up

Advice on how to contain a spill

Covering of drains, Take up mechanically

Advice on how to clean up a spill

Take up mechanically.

Other information relating to spills and releases

Place in appropriate containers for disposal. Ventilate affected area.

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6.4 Reference to other sections

Hazardous combustion products: see section 5. Personal protective equipment: see section 8. Incompatible materials: see section 10. Disposal considerations: see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Recommendations

- Measures to prevent fire as well as aerosol and dust generation

Use local and general ventilation. Take precautionary measures against static discharge. Use only in well-ventilated areas. Ground/bond container and receiving equipment.

- Specific notes/details

Dust deposits may accumulate on all deposition surfaces in a technical room. The product in the delivered form is not dust explosion capable; the enrichment of fine dust however leads to the danger of dust explosion.

Advice on general occupational hygiene

Wash hands after use. Do not eat, drink and smoke in work areas. Remove contaminated clothing and protective equipment before entering eating areas. Never keep food or drink in the vicinity of chemicals. Never place chemicals in containers that are normally used for food or drink. Keep away from food, drink and animal feedingstuffs.

7.2 Conditions for safe storage, including any incompatibilities

Managing of associated risks

- Explosive atmospheres

Removal of dust deposits.

- Ventilation requirements

Use local and general ventilation.

- Specific designs for storage rooms or vessels

- Storage temperature

Recommended storage temperature: 10 – 30 °C

- Packaging compatibilities

Only packagings which are approved (e.g. acc. to ADR) may be used.

7.3 Specific end use(s)

See section 16 for a general overview.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

| Occupational exposure limit values (Workplace Exposure Limits) | | | | | | | | | | | |
|--|---------------|--------|------------|-----------|--------------------------|------------|---------------------------|-----------------|--------------------------------|----------|-----------|
| Country | Name of agent | CAS No | Identifier | TWA [ppm] | TWA [mg/m ³] | STEL [ppm] | STEL [mg/m ³] | Ceiling-C [ppm] | Ceiling-C [mg/m ³] | Notation | Source |
| GB | dust | | WEL | | 10 | | | | | i | EH40/2005 |
| GB | dust | | WEL | | 4 | | | | | r | EH40/2005 |

Notation

Ceiling-C ceiling value is a limit value above which exposure should not occur

i inhalable fraction

r respirable fraction

STEL short-term exposure limit: a limit value above which exposure should not occur and which is related to a 15-minute period (unless otherwise specified)

TWA time-weighted average (long-term exposure limit): measured or calculated in relation to a reference period of 8 hours

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Notation

time-weighted average (unless otherwise specified)

8.2 Exposure controls

Appropriate engineering controls

General ventilation.

Individual protection measures (personal protective equipment)

Eye/face protection

Wear eye/face protection.

Skin protection

- Hand protection

In the case of wanting to use the gloves again, clean them before taking off and air them well.

- Other protection measures

Take recovery periods for skin regeneration. Preventive skin protection (barrier creams/ointments) is recommended. Wash hands thoroughly after handling.

Respiratory protection

Particulate filter device (EN 143).

Environmental exposure controls

Use appropriate container to avoid environmental contamination. Keep away from drains, surface and ground water.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

| | |
|--|---|
| Physical state | solid |
| Colour | Colourless or white to off-white hygroscopic crystals or powder |
| Odour | characteristic |
| Melting point/freezing point | not determined |
| Boiling point or initial boiling point and boiling range | not determined |
| Flammability | this material is combustible, but will not ignite readily |
| Lower and upper explosion limit | not relevant (solid (powder)) |
| Flash point | not applicable |
| Auto-ignition temperature | not determined |
| Decomposition temperature | not relevant |
| pH (value) | not applicable |
| Kinematic viscosity | not relevant |
| Solubility(ies) | not determined |

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Partition coefficient

| | |
|---|-----------------------------------|
| Partition coefficient n-octanol/water (log value) | this information is not available |
|---|-----------------------------------|

| | |
|-----------------|----------------|
| Vapour pressure | not determined |
|-----------------|----------------|

Density and/or relative density

| | |
|-------------------------|-------------------------------|
| Density | not determined |
| Relative vapour density | not relevant (solid (powder)) |

| | |
|--------------------------|-------------------|
| Particle characteristics | no data available |
|--------------------------|-------------------|

9.2 Other information

| | |
|--|--|
| Information with regard to physical hazard classes | hazard classes acc. to GHS (physical hazards): not relevant |
|--|--|

Other safety characteristics

| | |
|---------------|-------|
| Solid content | 100 % |
|---------------|-------|

SECTION 10: Stability and reactivity

10.1 Reactivity

Concerning incompatibility: see below "Conditions to avoid" and "Incompatible materials".

10.2 Chemical stability

See below "Conditions to avoid".

10.3 Possibility of hazardous reactions

No known hazardous reactions.

10.4 Conditions to avoid

There are no specific conditions known which have to be avoided.

Hints to prevent fire or explosion

The product in the delivered form is not dust explosion capable; the enrichment of fine dust however leads to the danger of dust explosion.

10.5 Incompatible materials

Oxidisers

10.6 Hazardous decomposition products

Reasonably anticipated hazardous decomposition products produced as a result of use, storage, spill and heating are not known. Hazardous combustion products: see section 5.

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SECTION 11: Toxicological information

11.1 Information on toxicological effects

Classification acc. to GHS

Acute toxicity

Fatal if swallowed. Toxic in contact with skin.

- Acute toxicity estimate (ATE)

Oral 0.5 mg/kg

Dermal 300 mg/kg

Skin corrosion/irritation

Causes severe skin burns and eye damage.

Serious eye damage/eye irritation

Causes serious eye damage.

Respiratory or skin sensitisation

Shall not be classified as a respiratory or skin sensitiser.

Germ cell mutagenicity

Shall not be classified as germ cell mutagenic.

Carcinogenicity

Shall not be classified as carcinogenic.

Reproductive toxicity

Shall not be classified as a reproductive toxicant.

Specific target organ toxicity - single exposure

Shall not be classified as a specific target organ toxicant (single exposure).

Specific target organ toxicity - repeated exposure

Shall not be classified as a specific target organ toxicant (repeated exposure).

Aspiration hazard

Shall not be classified as presenting an aspiration hazard.

11.2 Information on other hazards

There is no additional information.

SECTION 12: Ecological information

12.1 Toxicity

Shall not be classified as hazardous to the aquatic environment.

12.2 Persistence and degradability

Data are not available.

12.3 Bioaccumulative potential

Data are not available.

12.4 Mobility in soil

Data are not available.

12.5 Results of PBT and vPvB assessment

According to the results of its assessment, this substance is not a PBT or a vPvB.

12.6 Endocrine disrupting properties

Does not contain an endocrine disruptor (ED) at a concentration of $\geq 0,1\%$.

12.7 Other adverse effects

Data are not available.

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SECTION 13: Disposal considerations

13.1 Waste treatment methods

Sewage disposal-relevant information

Do not empty into drains. Avoid release to the environment. Refer to special instructions/safety data sheets.

Waste treatment of containers/packagings

It is a dangerous waste; only packagings which are approved (e.g. acc. to ADR) may be used. Completely emptied packages can be recycled. Handle contaminated packages in the same way as the substance itself.

Remarks

Please consider the relevant national or regional provisions. Waste shall be separated into the categories that can be handled separately by the local or national waste management facilities.

SECTION 14: Transport information

14.1 UN number or ID number

| | |
|-----------|---------|
| ADR/RID | UN 3423 |
| IMDG-Code | UN 3423 |
| ICAO-TI | UN 3423 |

14.2 UN proper shipping name

| | |
|-----------|--------------------------------------|
| ADR/RID | TETRAMETHYLAMMONIUM HYDROXIDE, SOLID |
| IMDG-Code | TETRAMETHYLAMMONIUM HYDROXIDE, SOLID |
| ICAO-TI | Tetramethylammonium hydroxide, solid |

14.3 Transport hazard class(es)

| | |
|-----------|---------|
| ADR/RID | 6.1 (8) |
| IMDG-Code | 6.1 (8) |
| ICAO-TI | 6.1 (8) |

14.4 Packing group

| | |
|-----------|---|
| ADR/RID | I |
| IMDG-Code | I |
| ICAO-TI | I |

14.5 Environmental hazards

non-environmentally hazardous acc. to the dangerous goods regulations

14.6 Special precautions for user

Provisions for dangerous goods (ADR) should be complied within the premises.

14.7 Maritime transport in bulk according to IMO instruments

The cargo is not intended to be carried in bulk.

Information for each of the UN Model Regulations

Agreement concerning the International Carriage of Dangerous Goods by Road (ADR) - Additional information

| | |
|---------------------|-------|
| Classification code | TC2 |
| Danger label(s) | 6.1+8 |

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| | |
|-------------------------------|-----|
| Special provisions (SP) | 279 |
| Excepted quantities (EQ) | E5 |
| Limited quantities (LQ) | 0 |
| Transport category (TC) | 1 |
| Tunnel restriction code (TRC) | C/E |
| Hazard identification No | 668 |
| Emergency Action Code | 2X |

Regulations concerning the International Carriage of Dangerous Goods by Rail (RID) - Additional information

| | |
|---------------------|-------|
| Classification code | TC2 |
| Danger label(s) | 6.1+8 |



| | |
|--------------------------|-----|
| Special provisions (SP) | 279 |
| Excepted quantities (EQ) | E5 |
| Limited quantities (LQ) | 0 |
| Transport category (TC) | 1 |
| Hazard identification No | 668 |

International Maritime Dangerous Goods Code (IMDG) - Additional information

| | |
|------------------|-------|
| Marine pollutant | - |
| Danger label(s) | 6.1+8 |



| | |
|--------------------------|--|
| Special provisions (SP) | 279, 409 |
| Excepted quantities (EQ) | E5 |
| Limited quantities (LQ) | 0 |
| EmS | F-A, S-B |
| Stowage category | A |
| Segregation group | 2 - Ammonium compounds 18 - Alkalis |

International Civil Aviation Organization (ICAO-IATA/DGR) - Additional information

| | |
|-----------------|-------|
| Danger label(s) | 6.1+8 |
|-----------------|-------|



| | |
|--------------------------|------------|
| Special provisions (SP) | A113, A234 |
| Excepted quantities (EQ) | E5 |

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SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

Relevant provisions of the European Union (EU)

Deco-Paint Directive

| | |
|-------------|-----|
| VOC content | 0 % |
|-------------|-----|

Industrial Emissions Directive (IED)

| | |
|-------------|-----|
| VOC content | 0 % |
|-------------|-----|

Directive on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS)

not listed

Regulation concerning the establishment of a European Pollutant Release and Transfer Register (PRTR)

not listed

Water Framework Directive (WFD)

not listed

Regulation on persistent organic pollutants (POP)

not listed

National regulations (GB)

List of substances subject to authorisation (GB REACH, Annex 14) / SVHC - candidate list

not listed

Restrictions according to GB REACH, Annex 17

not listed

National inventories

| Country | Inventory | Status |
|---------|------------|---------------------|
| EU | REACH Reg. | substance is listed |

Legend

REACH Reg. REACH registered substances

15.2 Chemical safety assessment

No Chemical Safety Assessment has been carried out for this substance.

SECTION 16: Other information

Indication of changes (revised safety data sheet)

| Section | Former entry (text/value) | Actual entry (text/value) | Safety-relevant |
|---------|--|---|-----------------|
| 9.1 | Lower and upper explosion limit: not relevant (solid) | Lower and upper explosion limit: not relevant (solid (powder)) | yes |
| 9.1 | Relative vapour density: not relevant (solid) | Relative vapour density: not relevant (solid (powder)) | yes |
| 14.3 | ADR/RID: 8 | ADR/RID: 6.1 (8) | yes |

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| Section | Former entry (text/value) | Actual entry (text/value) | Safety-relevant |
|---------|-------------------------------------|---|-----------------|
| 14.3 | IMDG-Code: 8 | IMDG-Code: 6.1 (8) | yes |
| 14.3 | ICAO-TI: 8 | ICAO-TI: 6.1 (8) | yes |
| 14.4 | ADR/RID: II | ADR/RID: I | yes |
| 14.4 | IMDG-Code: II | IMDG-Code: I | yes |
| 14.4 | ICAO-TI: II | ICAO-TI: I | yes |
| 14.7 | Classification code: C8 | Classification code: TC2 | yes |
| 14.7 | Danger label(s): 8 | Danger label(s): 6.1+8 | yes |
| 14.7 | | Danger label(s): change in the listing (table) | yes |
| 14.7 | | Special provisions (SP): 279 | yes |
| 14.7 | Excepted quantities (EQ): E2 | Excepted quantities (EQ): E5 | yes |
| 14.7 | Limited quantities (LQ): 1 kg | Limited quantities (LQ): 0 | yes |
| 14.7 | Transport category (TC): 2 | Transport category (TC): 1 | yes |
| 14.7 | Tunnel restriction code (TRC): E | Tunnel restriction code (TRC): C/E | yes |
| 14.7 | Hazard identification No: 80 | Hazard identification No: 668 | yes |
| 14.7 | Classification code: C8 | Classification code: TC2 | yes |
| 14.7 | Danger label(s): 8 | Danger label(s): 6.1+8 | yes |
| 14.7 | | Danger label(s): change in the listing (table) | yes |
| 14.7 | | Special provisions (SP): 279 | yes |
| 14.7 | Excepted quantities (EQ): E2 | Excepted quantities (EQ): E5 | yes |
| 14.7 | Limited quantities (LQ): 1 kg | Limited quantities (LQ): 0 | yes |
| 14.7 | Transport category (TC): 2 | Transport category (TC): 1 | yes |
| 14.7 | Hazard identification No: 80 | Hazard identification No: 668 | yes |
| 14.7 | Danger label(s): 8 | Danger label(s): 6.1+8 | yes |
| 14.7 | | Danger label(s): change in the listing (table) | yes |
| 14.7 | Special provisions (SP): | Special provisions (SP): | yes |

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| Section | Former entry (text/value) | Actual entry (text/value) | Safety-relevant |
|---------|----------------------------------|---|-----------------|
| | - | 279, 409 | |
| 14.7 | Excepted quantities (EQ): E2 | Excepted quantities (EQ): E5 | yes |
| 14.7 | Limited quantities (LQ): 1 kg | Limited quantities (LQ): 0 | yes |
| 14.7 | Danger label(s): 8 | Danger label(s): 6.1+8 | yes |
| 14.7 | | Danger label(s): change in the listing (table) | yes |
| 14.7 | | Special provisions (SP): A113, A234 | yes |
| 14.7 | Excepted quantities (EQ): E2 | Excepted quantities (EQ): E5 | yes |
| 14.7 | Limited quantities (LQ): 5 kg | | yes |

Abbreviations and acronyms

| Abbr. | Descriptions of used abbreviations |
|-----------|---|
| ADR | Accord relatif au transport international des marchandises dangereuses par route (Agreement concerning the International Carriage of Dangerous Goods by Road) |
| ATE | Acute Toxicity Estimate |
| CAS | Chemical Abstracts Service (service that maintains the most comprehensive list of chemical substances) |
| Ceiling-C | Ceiling value |
| DGR | Dangerous Goods Regulations (see IATA/DGR) |
| EC No | The EC Inventory (EINECS, ELINCS and the NLP-list) is the source for the seven-digit EC number, an identifier of substances commercially available within the EU (European Union) |
| ED | Endocrine disruptor |
| EH40/2005 | EH40/2005 Workplace exposure limits (http://www.nationalarchives.gov.uk/doc/open-government-licence/) |
| EINECS | European Inventory of Existing Commercial Chemical Substances |
| ELINCS | European List of Notified Chemical Substances |
| EmS | Emergency Schedule |
| GB REACH | The REACH etc. (Amendment etc.) (EU Exit) Regulations 2019, SI 2019/758 (as amended) |
| GHS | "Globally Harmonized System of Classification and Labelling of Chemicals" developed by the United Nations |
| IATA | International Air Transport Association |
| IATA/DGR | Dangerous Goods Regulations (DGR) for the air transport (IATA) |
| ICAO | International Civil Aviation Organization |
| ICAO-TI | Technical instructions for the safe transport of dangerous goods by air |
| IMDG | International Maritime Dangerous Goods Code |
| IMDG-Code | International Maritime Dangerous Goods Code |
| NLP | No-Longer Polymer |
| PBT | Persistent, Bioaccumulative and Toxic |

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| Abbr. | Descriptions of used abbreviations |
|-------|---|
| ppm | Parts per million |
| REACH | Registration, Evaluation, Authorisation and Restriction of Chemicals |
| RID | Règlement concernant le transport International ferroviaire des marchandises Dangereuses (Regulations concerning the International carriage of Dangerous goods by Rail) |
| STEL | Short-term exposure limit |
| TWA | Time-weighted average |
| VOC | Volatile Organic Compounds |
| vPvB | Very Persistent and very Bioaccumulative |
| WEL | Workplace exposure limit |

Key literature references and sources for data

Agreement concerning the International Carriage of Dangerous Goods by Road (ADR). Regulations concerning the International Carriage of Dangerous Goods by Rail (RID). International Maritime Dangerous Goods Code (IMDG). Dangerous Goods Regulations (DGR) for the air transport (IATA).

List of relevant phrases (code and full text as stated in section 2 and 3)

| Code | Text |
|------|--|
| H300 | Fatal if swallowed. |
| H311 | Toxic in contact with skin. |
| H314 | Causes severe skin burns and eye damage. |

Disclaimer

This information is based upon the present state of our knowledge. This SDS has been compiled and is solely intended for this product.