

**Product name:** CE OQ - PV Test Kit  
**Part no.:** 5063-6515

This product is composed of the following:

### Kit Components, Reagents

| Box/Module Part number | Box/Module Name | Kit Component Part Number | Kit Component Name                       | Qty Units | GHS |
|------------------------|-----------------|---------------------------|--|-----------|-----|
| -                      | -               | Not available.            | 4'-(Hydroxy) Acetophenone Solution 5.0mM | 1         | Yes |
| -                      | -               | Not available.            | 4'-(Hydroxy) Acetophenone Solution 1.0mM | 1         | Yes |
| -                      | -               | Not available.            | 4'-(Hydroxy) Acetophenone Solution 0.5mM | 1         | Yes |
| -                      | -               | Not available.            | 4'-(Hydroxy) Acetophenone Solution 0.1mM | 1         | Yes |
| -                      | -               | 5062-8576                 | Sodium Hydroxide Solution 1.0N for HPCE  | 1         | Yes |
| -                      | -               | 8500-6782                 | 20 mM Borate Buffer - pH9.3              | 1         | Yes |

Article SDSs, if maintained, are available on [www.agilent.com](http://www.agilent.com). We recommend using the article product code when searching. SDSs are only available for a limited set of countries.

### Transport Information for the Kit:

**Dangerous Goods classification for:** 5063-6515

| DOT                                       | IMDG                                      | IATA                                      |
|---|---|---|
| ☑ N1824, Sodium hydroxide solution, 8, II | ☑ N1824, SODIUM HYDROXIDE SOLUTION, 8, II | ☑ N1824, Sodium hydroxide solution, 8, II |

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SDSs for each individual Kit component follow this cover sheet.

|                         |               |      |
|-------------------------|---------------|------|
| <b>Validation date:</b> | 05/26/2025    |      |
| <b>SDS Country:</b>     | United States | 1/74 |

# SAFETY DATA SHEET

4'-(Hydroxy) Acetophenone Solution 0.1mM

## Section 1. Identification

### 1.1 Product identifier

**Product name** : 4'-(Hydroxy) Acetophenone Solution 0.1mM

**Part no.** : Not available.

**Validation date** : 5/26/2025

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

**Identified uses** : Reagents and Standards for Analytical Chemistry Laboratory Use  
1 x 3 ml vial

### 1.3 Details of the supplier of the safety data sheet

**Supplier/Manufacturer** : Agilent Technologies, Inc.  
5301 Stevens Creek Blvd  
Santa Clara, CA 95051, USA  
800-227-9770

### 1.4 Emergency telephone number

**In case of emergency** : CHEMTREC®: 1-800-424-9300

## Section 2. Hazards identification

### 2.1 Classification of the substance or mixture

**OSHA/HCS status** : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

### Classification of the substance or mixture

H360 TOXIC TO REPRODUCTION - Category 1B

### 2.2 GHS label elements

**Hazard pictograms** :



**Signal word** : Danger

**Hazard statements** : H360 - May damage fertility or the unborn child.

### Precautionary statements

**Prevention** : P201 - Obtain special instructions before use.  
P280 - Wear protective gloves, protective clothing and eye or face protection.

**Response** : P308 + P313 - IF exposed or concerned: Get medical advice or attention.

**Storage** : Not applicable.

**Disposal** : P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.

### 2.3 Other hazards

**Hazards not otherwise classified** : None known.

## Section 3. Composition/information on ingredients

**Substance/mixture** : Mixture

| Ingredient name                 | %  | Identifiers    |
|---------------------------------|----|----------------|
| Disodium tetraborate, anhydrous | ≤1 | CAS: 1330-43-4 |

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

**There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified and hence require reporting in this section.**

Occupational exposure limits, if available, are listed in Section 8.

## Section 4. First aid measures

### 4.1 Description of necessary first aid measures

- Eye contact** : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention if irritation occurs.
- Inhalation** : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
- Skin contact** : Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Get medical attention. Wash clothing before reuse. Clean shoes thoroughly before reuse.
- Ingestion** : Wash out mouth with water. Remove dentures if any. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

### 4.2 Most important symptoms/effects, acute and delayed

#### Potential acute health effects

- Eye contact** : No known significant effects or critical hazards.
- Inhalation** : No known significant effects or critical hazards.
- Skin contact** : No known significant effects or critical hazards.
- Ingestion** : No known significant effects or critical hazards.

#### Over-exposure signs/symptoms

- Eye contact** : No specific data.
- Inhalation** : Adverse symptoms may include the following:  
reduced fetal weight  
increase in fetal deaths  
skeletal malformations
- Skin contact** : Adverse symptoms may include the following:  
reduced fetal weight  
increase in fetal deaths  
skeletal malformations

## Section 4. First aid measures

- Ingestion** : Adverse symptoms may include the following:  
 reduced fetal weight  
 increase in fetal deaths  
 skeletal malformations

### 4.3 Indication of immediate medical attention and special treatment needed, if necessary

- Notes to physician** : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
- Specific treatments** : No specific treatment.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

See toxicological information (Section 11)

## Section 5. Fire-fighting measures

### 5.1 Extinguishing media

- Suitable extinguishing media** : Use an extinguishing agent suitable for the surrounding fire.
- Unsuitable extinguishing media** : None known.

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

- Specific hazards arising from the chemical** : In a fire or if heated, a pressure increase will occur and the container may burst.
- Hazardous thermal decomposition products** : No specific data.

### 5.3 Advice for firefighters

- Special protective actions for fire-fighters** : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
- Special protective equipment for fire-fighters** : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

## Section 6. Accidental release measures

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

- For non-emergency personnel** : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
- For emergency responders** : If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

- 6.2 Environmental precautions** : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

## Section 6. Accidental release measures

### 6.3 Methods and materials for containment and cleaning up

- Methods for cleaning up** : Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

## Section 7. Handling and storage

### 7.1 Precautions for safe handling

- Protective measures** : Put on appropriate personal protective equipment (see Section 8). Avoid exposure - obtain special instructions before use. Avoid exposure during pregnancy. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not ingest. Avoid breathing vapor or mist. If during normal use the material presents a respiratory hazard, use only with adequate ventilation or wear appropriate respirator. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.
- Advice on general occupational hygiene** : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

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

- : Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

### 7.3 Specific end use(s)

- Recommendations** : Industrial applications, Professional applications.
- Industrial sector specific solutions** : Not available.

## Section 8. Exposure controls/personal protection

### 8.1 Control parameters

#### Occupational exposure limits

| Ingredient name                 | Exposure limits   |
|---------------------------------|---|
| Disodium tetraborate, anhydrous | <p><b>NIOSH REL (United States, 10/2020)</b><br/>TWA 10 hours: 1 mg/m<sup>3</sup>.</p> <p><b>CAL OSHA PEL (United States, 5/2018)</b><br/><b>[borates, tetra, sodium salts, anhydrous]</b><br/>TWA 8 hours: 5 mg/m<sup>3</sup>.</p> <p><b>OSHA PEL 1989 (United States, 3/1989)</b><br/>TWA 8 hours: 10 mg/m<sup>3</sup>.</p> <p><b>ACGIH TLV (United States, 1/2024) [Borate compounds, Inorganic] A4.</b><br/>TWA 8 hours: 2 mg/m<sup>3</sup>. Form: Inhalable fraction.<br/>STEL 15 minutes: 6 mg/m<sup>3</sup>. Form: Inhalable fraction.</p> |

## Section 8. Exposure controls/personal protection

### Biological exposure indices

No exposure indices known.

### 8.2 Exposure controls

- Appropriate engineering controls** : If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.
- Environmental exposure controls** : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

### Individual protection measures

- Hygiene measures** : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.
- Eye/face protection** : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields.
- Skin protection**
- Hand protection** : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.
- Body protection** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Other skin protection** : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Respiratory protection** : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

## Section 9. Physical and chemical properties and safety characteristics

The conditions of measurement of all properties are at standard temperature and pressure unless otherwise indicated.

### Appearance

- Physical state** : Liquid. [Clear.]
- Color** : Colorless.
- Odor** : Jasmine-like.
- Odor threshold** : Not available.
- pH** : Not available.
- Melting point/freezing point** : 0°C (32°F)

## Section 9. Physical and chemical properties and safety characteristics

**Boiling point or initial boiling point and boiling range** : 100°C (212°F)

**Flash point** : Not available.

**Evaporation rate** : Not available.

**Flammability** : Not applicable.

**Lower and upper explosion limit/flammability limit** : Not available.

| Ingredient name | Vapor Pressure at 20°C |     |        | Vapor pressure at 50°C |      |        |
|-----------------|------------------------|-----|--------|------------------------|------|--------|
|                 | mm Hg                  | kPa | Method | mm Hg                  | kPa  | Method |
| water           | 17.5                   | 2.3 | -      | 92.258                 | 12.3 | -      |

**Relative vapor density** : Not available.

**Relative density** : Not available.

| Media | Result  |
|-------|---------|
| Water | Soluble |

**Miscible with water** : Yes.

**Partition coefficient: n-octanol/water** : Not applicable.

**Auto-ignition temperature** : Not available.

**Decomposition temperature** : Not available.

**Viscosity** : Dynamic (room temperature): Not available.  
Kinematic (room temperature): Not available.  
Kinematic (40°C (104°F)): Not available.

### Particle characteristics

**Median particle size** : Not applicable.

## Section 10. Stability and reactivity

**10.1 Reactivity** : No specific test data related to reactivity available for this product or its ingredients.

**10.2 Chemical stability** : The product is stable.

**10.3 Possibility of hazardous reactions** : Under normal conditions of storage and use, hazardous reactions will not occur.

**10.4 Conditions to avoid** : No specific data.

**10.5 Incompatible materials** : May react or be incompatible with oxidizing materials.

**10.6 Hazardous decomposition products** : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

## Section 11. Toxicological information

### 11.1 Information on toxicological effects

#### Acute toxicity

**Conclusion/Summary** : Not available.  
**[Product]**

#### Skin corrosion/irritation

**Conclusion/Summary** : Not available.  
**[Product]**

#### Serious eye damage/eye irritation

**Conclusion/Summary** : Not available.  
**[Product]**

#### Respiratory corrosion/irritation

**Conclusion/Summary** : Not available.  
**[Product]**

#### Respiratory or skin sensitization

##### **Skin**

**Conclusion/Summary** : Not available.  
**[Product]**

##### **Respiratory**

**Conclusion/Summary** : Not available.  
**[Product]**

#### Germ cell mutagenicity

**Conclusion/Summary** : Not available.  
**[Product]**

#### Carcinogenicity

Not available.

**Conclusion/Summary** : Not available.  
**[Product]**

#### Reproductive toxicity

**Conclusion/Summary** : Not available.  
**[Product]**

#### Specific target organ toxicity (single exposure)

Not available.

#### Specific target organ toxicity (repeated exposure)

Not available.

#### Aspiration hazard

Not available.

## Section 11. Toxicological information

**Information on the likely routes of exposure** : Routes of entry anticipated: Oral, Dermal, Inhalation, Eyes.

### Potential acute health effects

**Eye contact** : No known significant effects or critical hazards.  
**Inhalation** : No known significant effects or critical hazards.  
**Skin contact** : No known significant effects or critical hazards.  
**Ingestion** : No known significant effects or critical hazards.

### Symptoms related to the physical, chemical and toxicological characteristics

**Eye contact** : No specific data.  
**Inhalation** : Adverse symptoms may include the following:  
 reduced fetal weight  
 increase in fetal deaths  
 skeletal malformations  
**Skin contact** : Adverse symptoms may include the following:  
 reduced fetal weight  
 increase in fetal deaths  
 skeletal malformations  
**Ingestion** : Adverse symptoms may include the following:  
 reduced fetal weight  
 increase in fetal deaths  
 skeletal malformations

### Delayed and immediate effects and also chronic effects from short and long term exposure

#### **Short term exposure**

**Potential immediate effects** : Not available.  
**Potential delayed effects** : Not available.

#### **Long term exposure**

**Potential immediate effects** : Not available.  
**Potential delayed effects** : Not available.

### Potential chronic health effects

**Conclusion/Summary [Product]** : Not available.  
**General** : No known significant effects or critical hazards.  
**Carcinogenicity** : No known significant effects or critical hazards.  
**Mutagenicity** : No known significant effects or critical hazards.  
**Reproductive toxicity** : May damage fertility or the unborn child.

### Numerical measures of toxicity

#### Acute toxicity estimates

N/A

## Section 12. Ecological information

### 12.1 Toxicity

| Product/ingredient name         | Result                     |                      |
|---------------------------------|----------------------------|----------------------|
| Disodium tetraborate, anhydrous | Acute - LC50 - Fresh water | 141 mg/l [48 hours]  |
|                                 | Acute - LC50 - Fresh water | 1900 mg/l [96 hours] |
|                                 | Acute - EC50 - Fresh water | 15.4 mg/l [96 hours] |

**Conclusion/Summary [Product]** : Not available.

### 12.2 Persistence and degradability

**Conclusion/Summary [Product]** : Not available.

### 12.3 Bioaccumulative potential

| Product/ingredient name         | LogP <sub>ow</sub> | BCF | Potential |
|---------------------------------|--------------------|-----|-----------|
| Disodium tetraborate, anhydrous | -1.53              | -   | Low       |

### 12.4 Mobility in soil

**Soil/Water partition coefficient** : Not available.

**12.5 Other adverse effects** : No known significant effects or critical hazards.

## Section 13. Disposal considerations

### 13.1 Waste treatment methods

**Disposal methods** : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Disposal should be in accordance with applicable regional, national and local laws and regulations. Local regulations may be more stringent than regional or national requirements.

The information presented below only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations.

Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees.

## Section 14. Transport information

**DOT / TDG / Mexico / IMDG / IATA** : Not regulated.

**Special precautions for user** : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

**Transport in bulk according to IMO instruments** : Not available.

## Section 15. Regulatory information

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

#### U.S. Federal regulations

##### TSCA 12(b) - Chemical export notification

Not applicable.

**Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs)** : Not listed

**Clean Air Act Section 602 Class I Substances** : Not listed

**Clean Air Act Section 602 Class II Substances** : Not listed

**DEA List I Chemicals (Precursor Chemicals)** : Not listed

**DEA List II Chemicals (Essential Chemicals)** : Not listed

##### SARA 302/304

##### Composition/information on ingredients

No products were found.

**SARA 304 RQ** : Not applicable.

##### SARA 311/312

**Classification** : TOXIC TO REPRODUCTION - Category 1B

##### Composition/information on ingredients

| Name                            | %  | Classification  |
|---------------------------------|----|---|
| Disodium tetraborate, anhydrous | ≤1 | EYE IRRITATION - Category 2A<br>TOXIC TO REPRODUCTION - Category 1B |

#### State regulations

**Massachusetts** : None of the components are listed.

**New York** : None of the components are listed.

**New Jersey** : None of the components are listed.

**Pennsylvania** : None of the components are listed.

##### California Prop. 65

This product does not require a Safe Harbor warning under California Prop. 65.

#### International regulations

##### Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

## Section 15. Regulatory information

### Montreal Protocol

Not listed.

### Stockholm Convention on Persistent Organic Pollutants

Not listed.

### Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

### UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

### Inventory list

|                          |  |
|--------------------------|--|
| <b>Australia</b>         | : All components are listed or exempted.   |
| <b>Canada</b>            | : All components are listed or exempted.   |
| <b>China</b>             | : All components are listed or exempted.   |
| <b>Japan</b>             | : <b>Japan inventory (CSCL)</b> : All components are listed or exempted.<br><b>Japan inventory (ISHL)</b> : All components are listed or exempted. |
| <b>New Zealand</b>       | : All components are listed or exempted.   |
| <b>Philippines</b>       | : All components are listed or exempted.   |
| <b>Republic of Korea</b> | : All components are listed or exempted.   |
| <b>Taiwan</b>            | : All components are listed or exempted.   |
| <b>Thailand</b>          | : Not determined.  |
| <b>Turkey</b>            | : Not determined.  |
| <b>United States</b>     | : All components are active or exempted.   |
| <b>Viet Nam</b>          | : All components are listed or exempted.   |

## Section 16. Other information

### Procedure used to derive the classification

| Classification                      | Justification      |
|-------------------------------------|--------------------|
| TOXIC TO REPRODUCTION - Category 1B | Calculation method |

### History

|                                       |  |
|---------------------------------------|--|
| <b>Date of issue/Date of revision</b> | : 05/26/2025   |
| <b>Date of previous issue</b>         | : 05/02/2025   |
| <b>Version</b>                        | : 1.1  |
| <b>Key to abbreviations</b>           | : ATE = Acute Toxicity Estimate<br>BCF = Bioconcentration Factor<br>DOT = Department of Transportation<br>GHS = Globally Harmonized System of Classification and Labelling of Chemicals<br>IATA = International Air Transport Association<br>IBC = Intermediate Bulk Container<br>IMDG = International Maritime Dangerous Goods<br>IMO = International Maritime Organization<br>LogPow = logarithm of the octanol/water partition coefficient<br>MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)<br>N/A = Not available<br>SGG = Segregation Group<br>TDG = Transportation of Dangerous Goods<br>UN = United Nations |

Indicates information that has changed from previously issued version.

## Section 16. Other information

### [Notice to reader](#)

**Disclaimer:** The information contained in this document is based on Agilent's state of knowledge at the time of preparation. No warranty as to its accurateness, completeness or suitability for a particular purpose is expressed or implied.

# SAFETY DATA SHEET

4'-(Hydroxy) Acetophenone Solution 0.5mM

## Section 1. Identification

### 1.1 Product identifier

**Product name** : 4'-(Hydroxy) Acetophenone Solution 0.5mM  
**Part no.** : Not available.  
**Validation date** : 5/26/2025

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

**Identified uses** : Reagents and Standards for Analytical Chemistry Laboratory Use  
1 x 3 ml vial

### 1.3 Details of the supplier of the safety data sheet

**Supplier/Manufacturer** : Agilent Technologies, Inc.  
5301 Stevens Creek Blvd  
Santa Clara, CA 95051, USA  
800-227-9770

### 1.4 Emergency telephone number

**In case of emergency** : CHEMTREC®: 1-800-424-9300

## Section 2. Hazards identification

### 2.1 Classification of the substance or mixture

**OSHA/HCS status** : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

### Classification of the substance or mixture

H360 TOXIC TO REPRODUCTION - Category 1B

### 2.2 GHS label elements

**Hazard pictograms** :



**Signal word** : Danger  
**Hazard statements** : H360 - May damage fertility or the unborn child.

### Precautionary statements

**Prevention** : P201 - Obtain special instructions before use.  
P280 - Wear protective gloves, protective clothing and eye or face protection.  
**Response** : P308 + P313 - IF exposed or concerned: Get medical advice or attention.  
**Storage** : Not applicable.  
**Disposal** : P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.

### 2.3 Other hazards

**Hazards not otherwise classified** : None known.

## Section 3. Composition/information on ingredients

**Substance/mixture** : Mixture

| Ingredient name                 | %  | Identifiers    |
|---------------------------------|----|----------------|
| Disodium tetraborate, anhydrous | ≤1 | CAS: 1330-43-4 |

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

**There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified and hence require reporting in this section.**

Occupational exposure limits, if available, are listed in Section 8.

## Section 4. First aid measures

### 4.1 Description of necessary first aid measures

- Eye contact** : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention if irritation occurs.
- Inhalation** : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
- Skin contact** : Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Get medical attention. Wash clothing before reuse. Clean shoes thoroughly before reuse.
- Ingestion** : Wash out mouth with water. Remove dentures if any. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

### 4.2 Most important symptoms/effects, acute and delayed

#### Potential acute health effects

- Eye contact** : No known significant effects or critical hazards.
- Inhalation** : No known significant effects or critical hazards.
- Skin contact** : No known significant effects or critical hazards.
- Ingestion** : No known significant effects or critical hazards.

#### Over-exposure signs/symptoms

- Eye contact** : No specific data.
- Inhalation** : Adverse symptoms may include the following:  
reduced fetal weight  
increase in fetal deaths  
skeletal malformations
- Skin contact** : Adverse symptoms may include the following:  
reduced fetal weight  
increase in fetal deaths  
skeletal malformations

## Section 4. First aid measures

- Ingestion** : Adverse symptoms may include the following:  
 reduced fetal weight  
 increase in fetal deaths  
 skeletal malformations

### 4.3 Indication of immediate medical attention and special treatment needed, if necessary

- Notes to physician** : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
- Specific treatments** : No specific treatment.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

See toxicological information (Section 11)

## Section 5. Fire-fighting measures

### 5.1 Extinguishing media

- Suitable extinguishing media** : Use an extinguishing agent suitable for the surrounding fire.
- Unsuitable extinguishing media** : None known.

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

- Specific hazards arising from the chemical** : In a fire or if heated, a pressure increase will occur and the container may burst.
- Hazardous thermal decomposition products** : No specific data.

### 5.3 Advice for firefighters

- Special protective actions for fire-fighters** : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
- Special protective equipment for fire-fighters** : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

## Section 6. Accidental release measures

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

- For non-emergency personnel** : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
- For emergency responders** : If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

- 6.2 Environmental precautions** : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

## Section 6. Accidental release measures

### 6.3 Methods and materials for containment and cleaning up

- Methods for cleaning up** : Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

## Section 7. Handling and storage

### 7.1 Precautions for safe handling

- Protective measures** : Put on appropriate personal protective equipment (see Section 8). Avoid exposure - obtain special instructions before use. Avoid exposure during pregnancy. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not ingest. Avoid breathing vapor or mist. If during normal use the material presents a respiratory hazard, use only with adequate ventilation or wear appropriate respirator. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.

- Advice on general occupational hygiene** : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

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

- : Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

### 7.3 Specific end use(s)

- Recommendations** : Industrial applications, Professional applications.
- Industrial sector specific solutions** : Not available.

## Section 8. Exposure controls/personal protection

### 8.1 Control parameters

#### Occupational exposure limits

| Ingredient name                 | Exposure limits   |
|---------------------------------|---|
| Disodium tetraborate, anhydrous | <p><b>NIOSH REL (United States, 10/2020)</b><br/>TWA 10 hours: 1 mg/m<sup>3</sup>.</p> <p><b>CAL OSHA PEL (United States, 5/2018)</b><br/><b>[borates, tetra, sodium salts, anhydrous]</b><br/>TWA 8 hours: 5 mg/m<sup>3</sup>.</p> <p><b>OSHA PEL 1989 (United States, 3/1989)</b><br/>TWA 8 hours: 10 mg/m<sup>3</sup>.</p> <p><b>ACGIH TLV (United States, 1/2024) [Borate compounds, Inorganic] A4.</b><br/>TWA 8 hours: 2 mg/m<sup>3</sup>. Form: Inhalable fraction.<br/>STEL 15 minutes: 6 mg/m<sup>3</sup>. Form: Inhalable fraction.</p> |

## Section 8. Exposure controls/personal protection

### Biological exposure indices

No exposure indices known.

### 8.2 Exposure controls

- Appropriate engineering controls** : If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.
- Environmental exposure controls** : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

### Individual protection measures

- Hygiene measures** : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.
- Eye/face protection** : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields.
- Skin protection**
- Hand protection** : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.
- Body protection** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Other skin protection** : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Respiratory protection** : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

## Section 9. Physical and chemical properties and safety characteristics

The conditions of measurement of all properties are at standard temperature and pressure unless otherwise indicated.

### Appearance

- Physical state** : Liquid. [Clear.]
- Color** : Colorless.
- Odor** : Jasmine-like.
- Odor threshold** : Not available.
- pH** : Not available.
- Melting point/freezing point** : 0°C (32°F)

## Section 9. Physical and chemical properties and safety characteristics

**Boiling point or initial boiling point and boiling range** : 100°C (212°F)

**Flash point** : Not available.

**Evaporation rate** : Not available.

**Flammability** : Not applicable.

**Lower and upper explosion limit/flammability limit** : Not available.

| Ingredient name | Vapor Pressure at 20°C |     |        | Vapor pressure at 50°C |      |        |
|-----------------|------------------------|-----|--------|------------------------|------|--------|
|                 | mm Hg                  | kPa | Method | mm Hg                  | kPa  | Method |
| water           | 17.5                   | 2.3 | -      | 92.258                 | 12.3 | -      |

**Relative vapor density** : Not available.

**Relative density** : Not available.

| Media | Result  |
|-------|---------|
| Water | Soluble |

**Miscible with water** : Yes.

**Partition coefficient: n-octanol/water** : Not applicable.

**Auto-ignition temperature** : Not available.

**Decomposition temperature** : Not available.

**Viscosity** : Dynamic (room temperature): Not available.  
Kinematic (room temperature): Not available.  
Kinematic (40°C (104°F)): Not available.

### Particle characteristics

**Median particle size** : Not applicable.

## Section 10. Stability and reactivity

**10.1 Reactivity** : No specific test data related to reactivity available for this product or its ingredients.

**10.2 Chemical stability** : The product is stable.

**10.3 Possibility of hazardous reactions** : Under normal conditions of storage and use, hazardous reactions will not occur.

**10.4 Conditions to avoid** : No specific data.

**10.5 Incompatible materials** : May react or be incompatible with oxidizing materials.

**10.6 Hazardous decomposition products** : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

## Section 11. Toxicological information

### 11.1 Information on toxicological effects

#### Acute toxicity

**Conclusion/Summary** : Not available.  
**[Product]**

#### Skin corrosion/irritation

**Conclusion/Summary** : Not available.  
**[Product]**

#### Serious eye damage/eye irritation

**Conclusion/Summary** : Not available.  
**[Product]**

#### Respiratory corrosion/irritation

**Conclusion/Summary** : Not available.  
**[Product]**

#### Respiratory or skin sensitization

##### **Skin**

**Conclusion/Summary** : Not available.  
**[Product]**

##### **Respiratory**

**Conclusion/Summary** : Not available.  
**[Product]**

#### Germ cell mutagenicity

**Conclusion/Summary** : Not available.  
**[Product]**

#### Carcinogenicity

Not available.

**Conclusion/Summary** : Not available.  
**[Product]**

#### Reproductive toxicity

**Conclusion/Summary** : Not available.  
**[Product]**

#### Specific target organ toxicity (single exposure)

Not available.

#### Specific target organ toxicity (repeated exposure)

Not available.

#### Aspiration hazard

Not available.

## Section 11. Toxicological information

**Information on the likely routes of exposure** : Routes of entry anticipated: Oral, Dermal, Inhalation, Eyes.

### Potential acute health effects

**Eye contact** : No known significant effects or critical hazards.  
**Inhalation** : No known significant effects or critical hazards.  
**Skin contact** : No known significant effects or critical hazards.  
**Ingestion** : No known significant effects or critical hazards.

### Symptoms related to the physical, chemical and toxicological characteristics

**Eye contact** : No specific data.  
**Inhalation** : Adverse symptoms may include the following:  
reduced fetal weight  
increase in fetal deaths  
skeletal malformations  
**Skin contact** : Adverse symptoms may include the following:  
reduced fetal weight  
increase in fetal deaths  
skeletal malformations  
**Ingestion** : Adverse symptoms may include the following:  
reduced fetal weight  
increase in fetal deaths  
skeletal malformations

### Delayed and immediate effects and also chronic effects from short and long term exposure

#### **Short term exposure**

**Potential immediate effects** : Not available.  
**Potential delayed effects** : Not available.

#### **Long term exposure**

**Potential immediate effects** : Not available.  
**Potential delayed effects** : Not available.

### Potential chronic health effects

**Conclusion/Summary [Product]** : Not available.  
**General** : No known significant effects or critical hazards.  
**Carcinogenicity** : No known significant effects or critical hazards.  
**Mutagenicity** : No known significant effects or critical hazards.  
**Reproductive toxicity** : May damage fertility or the unborn child.

### Numerical measures of toxicity

#### Acute toxicity estimates

N/A

## Section 12. Ecological information

### 12.1 Toxicity

| Product/ingredient name         | Result                     |                      |
|---------------------------------|----------------------------|----------------------|
| Disodium tetraborate, anhydrous | Acute - LC50 - Fresh water | 141 mg/l [48 hours]  |
|                                 | Acute - LC50 - Fresh water | 1900 mg/l [96 hours] |
|                                 | Acute - EC50 - Fresh water | 15.4 mg/l [96 hours] |

**Conclusion/Summary [Product]** : Not available.

### 12.2 Persistence and degradability

**Conclusion/Summary [Product]** : Not available.

### 12.3 Bioaccumulative potential

| Product/ingredient name         | LogP <sub>ow</sub> | BCF | Potential |
|---------------------------------|--------------------|-----|-----------|
| Disodium tetraborate, anhydrous | -1.53              | -   | Low       |

### 12.4 Mobility in soil

**Soil/Water partition coefficient** : Not available.

**12.5 Other adverse effects** : No known significant effects or critical hazards.

## Section 13. Disposal considerations

### 13.1 Waste treatment methods

**Disposal methods** : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Disposal should be in accordance with applicable regional, national and local laws and regulations. Local regulations may be more stringent than regional or national requirements.

The information presented below only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations.

Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees.

## Section 14. Transport information

**DOT / TDG / Mexico / IMDG / IATA** : Not regulated.

**Special precautions for user** : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

**Transport in bulk according to IMO instruments** : Not available.

## Section 15. Regulatory information

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

#### U.S. Federal regulations

##### TSCA 12(b) - Chemical export notification

Not applicable.

**Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs)** : Not listed

**Clean Air Act Section 602 Class I Substances** : Not listed

**Clean Air Act Section 602 Class II Substances** : Not listed

**DEA List I Chemicals (Precursor Chemicals)** : Not listed

**DEA List II Chemicals (Essential Chemicals)** : Not listed

##### SARA 302/304

##### Composition/information on ingredients

No products were found.

**SARA 304 RQ** : Not applicable.

##### SARA 311/312

**Classification** : TOXIC TO REPRODUCTION - Category 1B

##### Composition/information on ingredients

| Name                            | %  | Classification  |
|---------------------------------|----|---|
| Disodium tetraborate, anhydrous | ≤1 | EYE IRRITATION - Category 2A<br>TOXIC TO REPRODUCTION - Category 1B |

#### State regulations

**Massachusetts** : None of the components are listed.

**New York** : None of the components are listed.

**New Jersey** : None of the components are listed.

**Pennsylvania** : None of the components are listed.

##### California Prop. 65

This product does not require a Safe Harbor warning under California Prop. 65.

#### International regulations

##### Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

## Section 15. Regulatory information

### Montreal Protocol

Not listed.

### Stockholm Convention on Persistent Organic Pollutants

Not listed.

### Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

### UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

### Inventory list

|                          |  |
|--------------------------|--|
| <b>Australia</b>         | : All components are listed or exempted.   |
| <b>Canada</b>            | : All components are listed or exempted.   |
| <b>China</b>             | : All components are listed or exempted.   |
| <b>Japan</b>             | : <b>Japan inventory (CSCL)</b> : All components are listed or exempted.<br><b>Japan inventory (ISHL)</b> : All components are listed or exempted. |
| <b>New Zealand</b>       | : All components are listed or exempted.   |
| <b>Philippines</b>       | : All components are listed or exempted.   |
| <b>Republic of Korea</b> | : All components are listed or exempted.   |
| <b>Taiwan</b>            | : All components are listed or exempted.   |
| <b>Thailand</b>          | : Not determined.  |
| <b>Turkey</b>            | : Not determined.  |
| <b>United States</b>     | : All components are active or exempted.   |
| <b>Viet Nam</b>          | : All components are listed or exempted.   |

## Section 16. Other information

### Procedure used to derive the classification

| Classification                      | Justification      |
|-------------------------------------|--------------------|
| TOXIC TO REPRODUCTION - Category 1B | Calculation method |

### History

**Date of issue/Date of revision** : 05/26/2025

**Date of previous issue** : 05/02/2025

**Version** : 1.1

**Key to abbreviations** :

- ATE = Acute Toxicity Estimate
- BCF = Bioconcentration Factor
- DOT = Department of Transportation
- GHS = Globally Harmonized System of Classification and Labelling of Chemicals
- IATA = International Air Transport Association
- IBC = Intermediate Bulk Container
- IMDG = International Maritime Dangerous Goods
- IMO = International Maritime Organization
- LogPow = logarithm of the octanol/water partition coefficient
- MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
- N/A = Not available
- SGG = Segregation Group
- TDG = Transportation of Dangerous Goods
- UN = United Nations

Indicates information that has changed from previously issued version.

## Section 16. Other information

### [Notice to reader](#)

**Disclaimer:** The information contained in this document is based on Agilent's state of knowledge at the time of preparation. No warranty as to its accurateness, completeness or suitability for a particular purpose is expressed or implied.

# SAFETY DATA SHEET

4'-(Hydroxy) Acetophenone Solution 1.0mM

## Section 1. Identification

### 1.1 Product identifier

**Product name** : 4'-(Hydroxy) Acetophenone Solution 1.0mM

**Part no.** : Not available.

**Validation date** : 5/26/2025

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

**Identified uses** : Reagents and Standards for Analytical Chemistry Laboratory Use  
1 x 3 ml vial

### 1.3 Details of the supplier of the safety data sheet

**Supplier/Manufacturer** : Agilent Technologies, Inc.  
5301 Stevens Creek Blvd  
Santa Clara, CA 95051, USA  
800-227-9770

### 1.4 Emergency telephone number

**In case of emergency** : CHEMTREC®: 1-800-424-9300

## Section 2. Hazards identification

### 2.1 Classification of the substance or mixture

**OSHA/HCS status** : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

### Classification of the substance or mixture

H360 TOXIC TO REPRODUCTION - Category 1B

### 2.2 GHS label elements

**Hazard pictograms** :



**Signal word** : Danger

**Hazard statements** : H360 - May damage fertility or the unborn child.

### Precautionary statements

**Prevention** : P201 - Obtain special instructions before use.  
P280 - Wear protective gloves, protective clothing and eye or face protection.

**Response** : P308 + P313 - IF exposed or concerned: Get medical advice or attention.

**Storage** : Not applicable.

**Disposal** : P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.

### 2.3 Other hazards

**Hazards not otherwise classified** : None known.

## Section 3. Composition/information on ingredients

**Substance/mixture** : Mixture

| Ingredient name                 | %  | Identifiers    |
|---------------------------------|----|----------------|
| Disodium tetraborate, anhydrous | ≤1 | CAS: 1330-43-4 |

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

**There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified and hence require reporting in this section.**

Occupational exposure limits, if available, are listed in Section 8.

## Section 4. First aid measures

### 4.1 Description of necessary first aid measures

- Eye contact** : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention if irritation occurs.
- Inhalation** : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
- Skin contact** : Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Get medical attention. Wash clothing before reuse. Clean shoes thoroughly before reuse.
- Ingestion** : Wash out mouth with water. Remove dentures if any. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

### 4.2 Most important symptoms/effects, acute and delayed

#### Potential acute health effects

- Eye contact** : No known significant effects or critical hazards.
- Inhalation** : No known significant effects or critical hazards.
- Skin contact** : No known significant effects or critical hazards.
- Ingestion** : No known significant effects or critical hazards.

#### Over-exposure signs/symptoms

- Eye contact** : No specific data.
- Inhalation** : Adverse symptoms may include the following:  
reduced fetal weight  
increase in fetal deaths  
skeletal malformations
- Skin contact** : Adverse symptoms may include the following:  
reduced fetal weight  
increase in fetal deaths  
skeletal malformations

## Section 4. First aid measures

- Ingestion** : Adverse symptoms may include the following:  
 reduced fetal weight  
 increase in fetal deaths  
 skeletal malformations

### 4.3 Indication of immediate medical attention and special treatment needed, if necessary

- Notes to physician** : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
- Specific treatments** : No specific treatment.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

See toxicological information (Section 11)

## Section 5. Fire-fighting measures

### 5.1 Extinguishing media

- Suitable extinguishing media** : Use an extinguishing agent suitable for the surrounding fire.
- Unsuitable extinguishing media** : None known.

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

- Specific hazards arising from the chemical** : In a fire or if heated, a pressure increase will occur and the container may burst.
- Hazardous thermal decomposition products** : No specific data.

### 5.3 Advice for firefighters

- Special protective actions for fire-fighters** : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
- Special protective equipment for fire-fighters** : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

## Section 6. Accidental release measures

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

- For non-emergency personnel** : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
- For emergency responders** : If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

- 6.2 Environmental precautions** : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

## Section 6. Accidental release measures

### 6.3 Methods and materials for containment and cleaning up

- Methods for cleaning up** : Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

## Section 7. Handling and storage

### 7.1 Precautions for safe handling

- Protective measures** : Put on appropriate personal protective equipment (see Section 8). Avoid exposure - obtain special instructions before use. Avoid exposure during pregnancy. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not ingest. Avoid breathing vapor or mist. If during normal use the material presents a respiratory hazard, use only with adequate ventilation or wear appropriate respirator. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.

- Advice on general occupational hygiene** : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

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

- : Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

### 7.3 Specific end use(s)

- Recommendations** : Industrial applications, Professional applications.
- Industrial sector specific solutions** : Not available.

## Section 8. Exposure controls/personal protection

### 8.1 Control parameters

#### Occupational exposure limits

| Ingredient name                 | Exposure limits   |
|---------------------------------|---|
| Disodium tetraborate, anhydrous | <p><b>NIOSH REL (United States, 10/2020)</b><br/>TWA 10 hours: 1 mg/m<sup>3</sup>.</p> <p><b>CAL OSHA PEL (United States, 5/2018)</b><br/><b>[borates, tetra, sodium salts, anhydrous]</b><br/>TWA 8 hours: 5 mg/m<sup>3</sup>.</p> <p><b>OSHA PEL 1989 (United States, 3/1989)</b><br/>TWA 8 hours: 10 mg/m<sup>3</sup>.</p> <p><b>ACGIH TLV (United States, 1/2024) [Borate compounds, Inorganic] A4.</b><br/>TWA 8 hours: 2 mg/m<sup>3</sup>. Form: Inhalable fraction.<br/>STEL 15 minutes: 6 mg/m<sup>3</sup>. Form: Inhalable fraction.</p> |

## Section 8. Exposure controls/personal protection

### Biological exposure indices

No exposure indices known.

### 8.2 Exposure controls

- Appropriate engineering controls** : If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.
- Environmental exposure controls** : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

### Individual protection measures

- Hygiene measures** : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.
- Eye/face protection** : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields.
- Skin protection**
- Hand protection** : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.
- Body protection** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Other skin protection** : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Respiratory protection** : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

## Section 9. Physical and chemical properties and safety characteristics

The conditions of measurement of all properties are at standard temperature and pressure unless otherwise indicated.

### Appearance

- Physical state** : Liquid. [Clear.]
- Color** : Colorless.
- Odor** : Jasmine-like.
- Odor threshold** : Not available.
- pH** : Not available.
- Melting point/freezing point** : 0°C (32°F)

## Section 9. Physical and chemical properties and safety characteristics

**Boiling point or initial boiling point and boiling range** : 100°C (212°F)

**Flash point** : Not available.

**Evaporation rate** : Not available.

**Flammability** : Not applicable.

**Lower and upper explosion limit/flammability limit** : Not available.

| Vapor pressure | Vapor Pressure at 20°C |     |        | Vapor pressure at 50°C |      |        |
|----------------|------------------------|-----|--------|------------------------|------|--------|
|                | mm Hg                  | kPa | Method | mm Hg                  | kPa  | Method |
| water          | 17.5                   | 2.3 | -      | 92.258                 | 12.3 | -      |

**Relative vapor density** : Not available.

**Relative density** : Not available.

| Solubility(ies) | Media | Result  |
|-----------------|-------|---------|
|                 | Water | Soluble |

**Miscible with water** : Yes.

**Partition coefficient: n-octanol/water** : Not applicable.

**Auto-ignition temperature** : Not available.

**Decomposition temperature** : Not available.

**Viscosity** : Dynamic (room temperature): Not available.  
Kinematic (room temperature): Not available.  
Kinematic (40°C (104°F)): Not available.

### Particle characteristics

**Median particle size** : Not applicable.

## Section 10. Stability and reactivity

**10.1 Reactivity** : No specific test data related to reactivity available for this product or its ingredients.

**10.2 Chemical stability** : The product is stable.

**10.3 Possibility of hazardous reactions** : Under normal conditions of storage and use, hazardous reactions will not occur.

**10.4 Conditions to avoid** : No specific data.

**10.5 Incompatible materials** : May react or be incompatible with oxidizing materials.

**10.6 Hazardous decomposition products** : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

## Section 11. Toxicological information

### 11.1 Information on toxicological effects

#### Acute toxicity

**Conclusion/Summary** : Not available.  
**[Product]**

#### Skin corrosion/irritation

**Conclusion/Summary** : Not available.  
**[Product]**

#### Serious eye damage/eye irritation

**Conclusion/Summary** : Not available.  
**[Product]**

#### Respiratory corrosion/irritation

**Conclusion/Summary** : Not available.  
**[Product]**

#### Respiratory or skin sensitization

##### **Skin**

**Conclusion/Summary** : Not available.  
**[Product]**

##### **Respiratory**

**Conclusion/Summary** : Not available.  
**[Product]**

#### Germ cell mutagenicity

**Conclusion/Summary** : Not available.  
**[Product]**

#### Carcinogenicity

Not available.

**Conclusion/Summary** : Not available.  
**[Product]**

#### Reproductive toxicity

**Conclusion/Summary** : Not available.  
**[Product]**

#### Specific target organ toxicity (single exposure)

Not available.

#### Specific target organ toxicity (repeated exposure)

Not available.

#### Aspiration hazard

Not available.

## Section 11. Toxicological information

**Information on the likely routes of exposure** : Routes of entry anticipated: Oral, Dermal, Inhalation, Eyes.

### Potential acute health effects

**Eye contact** : No known significant effects or critical hazards.  
**Inhalation** : No known significant effects or critical hazards.  
**Skin contact** : No known significant effects or critical hazards.  
**Ingestion** : No known significant effects or critical hazards.

### Symptoms related to the physical, chemical and toxicological characteristics

**Eye contact** : No specific data.  
**Inhalation** : Adverse symptoms may include the following:  
 reduced fetal weight  
 increase in fetal deaths  
 skeletal malformations  
**Skin contact** : Adverse symptoms may include the following:  
 reduced fetal weight  
 increase in fetal deaths  
 skeletal malformations  
**Ingestion** : Adverse symptoms may include the following:  
 reduced fetal weight  
 increase in fetal deaths  
 skeletal malformations

### Delayed and immediate effects and also chronic effects from short and long term exposure

#### **Short term exposure**

**Potential immediate effects** : Not available.  
**Potential delayed effects** : Not available.

#### **Long term exposure**

**Potential immediate effects** : Not available.  
**Potential delayed effects** : Not available.

### Potential chronic health effects

**Conclusion/Summary [Product]** : Not available.  
**General** : No known significant effects or critical hazards.  
**Carcinogenicity** : No known significant effects or critical hazards.  
**Mutagenicity** : No known significant effects or critical hazards.  
**Reproductive toxicity** : May damage fertility or the unborn child.

### Numerical measures of toxicity

#### Acute toxicity estimates

N/A

## Section 12. Ecological information

### 12.1 Toxicity

| Product/ingredient name         | Result                     |                      |
|---------------------------------|----------------------------|----------------------|
| Disodium tetraborate, anhydrous | Acute - LC50 - Fresh water | 141 mg/l [48 hours]  |
|                                 | Acute - LC50 - Fresh water | 1900 mg/l [96 hours] |
|                                 | Acute - EC50 - Fresh water | 15.4 mg/l [96 hours] |

**Conclusion/Summary [Product]** : Not available.

### 12.2 Persistence and degradability

**Conclusion/Summary [Product]** : Not available.

### 12.3 Bioaccumulative potential

| Product/ingredient name         | LogP <sub>ow</sub> | BCF | Potential |
|---------------------------------|--------------------|-----|-----------|
| Disodium tetraborate, anhydrous | -1.53              | -   | Low       |

### 12.4 Mobility in soil

**Soil/Water partition coefficient** : Not available.

**12.5 Other adverse effects** : No known significant effects or critical hazards.

## Section 13. Disposal considerations

### 13.1 Waste treatment methods

**Disposal methods** : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Disposal should be in accordance with applicable regional, national and local laws and regulations. Local regulations may be more stringent than regional or national requirements.

The information presented below only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations.

Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees.

## Section 14. Transport information

**DOT / TDG / Mexico / IMDG / IATA** : Not regulated.

**Special precautions for user** : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

**Transport in bulk according to IMO instruments** : Not available.

## Section 15. Regulatory information

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

#### U.S. Federal regulations

##### TSCA 12(b) - Chemical export notification

Not applicable.

**Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs)** : Not listed

**Clean Air Act Section 602 Class I Substances** : Not listed

**Clean Air Act Section 602 Class II Substances** : Not listed

**DEA List I Chemicals (Precursor Chemicals)** : Not listed

**DEA List II Chemicals (Essential Chemicals)** : Not listed

##### SARA 302/304

##### Composition/information on ingredients

No products were found.

**SARA 304 RQ** : Not applicable.

##### SARA 311/312

**Classification** : TOXIC TO REPRODUCTION - Category 1B

##### Composition/information on ingredients

| Name                            | %  | Classification  |
|---------------------------------|----|---|
| Disodium tetraborate, anhydrous | ≤1 | EYE IRRITATION - Category 2A<br>TOXIC TO REPRODUCTION - Category 1B |

#### State regulations

**Massachusetts** : None of the components are listed.

**New York** : None of the components are listed.

**New Jersey** : None of the components are listed.

**Pennsylvania** : None of the components are listed.

##### California Prop. 65

This product does not require a Safe Harbor warning under California Prop. 65.

#### International regulations

##### Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

## Section 15. Regulatory information

### Montreal Protocol

Not listed.

### Stockholm Convention on Persistent Organic Pollutants

Not listed.

### Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

### UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

### Inventory list

|                          |  |
|--------------------------|--|
| <b>Australia</b>         | : All components are listed or exempted.   |
| <b>Canada</b>            | : All components are listed or exempted.   |
| <b>China</b>             | : All components are listed or exempted.   |
| <b>Japan</b>             | : <b>Japan inventory (CSCL)</b> : All components are listed or exempted.<br><b>Japan inventory (ISHL)</b> : All components are listed or exempted. |
| <b>New Zealand</b>       | : All components are listed or exempted.   |
| <b>Philippines</b>       | : All components are listed or exempted.   |
| <b>Republic of Korea</b> | : All components are listed or exempted.   |
| <b>Taiwan</b>            | : All components are listed or exempted.   |
| <b>Thailand</b>          | : Not determined.  |
| <b>Turkey</b>            | : Not determined.  |
| <b>United States</b>     | : All components are active or exempted.   |
| <b>Viet Nam</b>          | : All components are listed or exempted.   |

## Section 16. Other information

### Procedure used to derive the classification

| Classification                      | Justification      |
|-------------------------------------|--------------------|
| TOXIC TO REPRODUCTION - Category 1B | Calculation method |

### History

**Date of issue/Date of revision** : 05/26/2025

**Date of previous issue** : 05/02/2025

**Version** : 1.1

**Key to abbreviations** :

- ATE = Acute Toxicity Estimate
- BCF = Bioconcentration Factor
- DOT = Department of Transportation
- GHS = Globally Harmonized System of Classification and Labelling of Chemicals
- IATA = International Air Transport Association
- IBC = Intermediate Bulk Container
- IMDG = International Maritime Dangerous Goods
- IMO = International Maritime Organization
- LogPow = logarithm of the octanol/water partition coefficient
- MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
- N/A = Not available
- SGG = Segregation Group
- TDG = Transportation of Dangerous Goods
- UN = United Nations

Indicates information that has changed from previously issued version.

## Section 16. Other information

### [Notice to reader](#)

**Disclaimer:** The information contained in this document is based on Agilent's state of knowledge at the time of preparation. No warranty as to its accurateness, completeness or suitability for a particular purpose is expressed or implied.

# SAFETY DATA SHEET

4'-(Hydroxy) Acetophenone Solution 5.0mM

## Section 1. Identification

### 1.1 Product identifier

**Product name** : 4'-(Hydroxy) Acetophenone Solution 5.0mM

**Part no.** : Not available.

**Validation date** : 5/26/2025

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

**Identified uses** : Reagents and Standards for Analytical Chemistry Laboratory Use  
1 x 3 ml vial

### 1.3 Details of the supplier of the safety data sheet

**Supplier/Manufacturer** : Agilent Technologies, Inc.  
5301 Stevens Creek Blvd  
Santa Clara, CA 95051, USA  
800-227-9770

### 1.4 Emergency telephone number

**In case of emergency** : CHEMTREC®: 1-800-424-9300

## Section 2. Hazards identification

### 2.1 Classification of the substance or mixture

**OSHA/HCS status** : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

### Classification of the substance or mixture

H360 TOXIC TO REPRODUCTION - Category 1B

### 2.2 GHS label elements

**Hazard pictograms** :



**Signal word** : Danger

**Hazard statements** : H360 - May damage fertility or the unborn child.

### Precautionary statements

**Prevention** : P201 - Obtain special instructions before use.  
P280 - Wear protective gloves, protective clothing and eye or face protection.

**Response** : P308 + P313 - IF exposed or concerned: Get medical advice or attention.

**Storage** : Not applicable.

**Disposal** : P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.

### 2.3 Other hazards

**Hazards not otherwise classified** : None known.

## Section 3. Composition/information on ingredients

**Substance/mixture** : Mixture

| Ingredient name                 | %  | Identifiers    |
|---------------------------------|----|----------------|
| Disodium tetraborate, anhydrous | ≤1 | CAS: 1330-43-4 |

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

**There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified and hence require reporting in this section.**

Occupational exposure limits, if available, are listed in Section 8.

## Section 4. First aid measures

### 4.1 Description of necessary first aid measures

- Eye contact** : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention if irritation occurs.
- Inhalation** : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
- Skin contact** : Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Get medical attention. Wash clothing before reuse. Clean shoes thoroughly before reuse.
- Ingestion** : Wash out mouth with water. Remove dentures if any. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

### 4.2 Most important symptoms/effects, acute and delayed

#### Potential acute health effects

- Eye contact** : No known significant effects or critical hazards.
- Inhalation** : No known significant effects or critical hazards.
- Skin contact** : No known significant effects or critical hazards.
- Ingestion** : No known significant effects or critical hazards.

#### Over-exposure signs/symptoms

- Eye contact** : No specific data.
- Inhalation** : Adverse symptoms may include the following:  
reduced fetal weight  
increase in fetal deaths  
skeletal malformations
- Skin contact** : Adverse symptoms may include the following:  
reduced fetal weight  
increase in fetal deaths  
skeletal malformations

## Section 4. First aid measures

- Ingestion** : Adverse symptoms may include the following:  
 reduced fetal weight  
 increase in fetal deaths  
 skeletal malformations

### 4.3 Indication of immediate medical attention and special treatment needed, if necessary

- Notes to physician** : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
- Specific treatments** : No specific treatment.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

See toxicological information (Section 11)

## Section 5. Fire-fighting measures

### 5.1 Extinguishing media

- Suitable extinguishing media** : Use an extinguishing agent suitable for the surrounding fire.
- Unsuitable extinguishing media** : None known.

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

- Specific hazards arising from the chemical** : In a fire or if heated, a pressure increase will occur and the container may burst.
- Hazardous thermal decomposition products** : No specific data.

### 5.3 Advice for firefighters

- Special protective actions for fire-fighters** : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
- Special protective equipment for fire-fighters** : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

## Section 6. Accidental release measures

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

- For non-emergency personnel** : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
- For emergency responders** : If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

- 6.2 Environmental precautions** : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

## Section 6. Accidental release measures

### 6.3 Methods and materials for containment and cleaning up

- Methods for cleaning up** : Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

## Section 7. Handling and storage

### 7.1 Precautions for safe handling

- Protective measures** : Put on appropriate personal protective equipment (see Section 8). Avoid exposure - obtain special instructions before use. Avoid exposure during pregnancy. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not ingest. Avoid breathing vapor or mist. If during normal use the material presents a respiratory hazard, use only with adequate ventilation or wear appropriate respirator. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.

- Advice on general occupational hygiene** : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

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

- : Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

### 7.3 Specific end use(s)

- Recommendations** : Industrial applications, Professional applications.

- Industrial sector specific solutions** : Not available.

## Section 8. Exposure controls/personal protection

### 8.1 Control parameters

#### Occupational exposure limits

| Ingredient name                 | Exposure limits   |
|---------------------------------|---|
| Disodium tetraborate, anhydrous | <p><b>NIOSH REL (United States, 10/2020)</b><br/>TWA 10 hours: 1 mg/m<sup>3</sup>.</p> <p><b>CAL OSHA PEL (United States, 5/2018)</b><br/><b>[borates, tetra, sodium salts, anhydrous]</b><br/>TWA 8 hours: 5 mg/m<sup>3</sup>.</p> <p><b>OSHA PEL 1989 (United States, 3/1989)</b><br/>TWA 8 hours: 10 mg/m<sup>3</sup>.</p> <p><b>ACGIH TLV (United States, 1/2024) [Borate compounds, Inorganic] A4.</b><br/>TWA 8 hours: 2 mg/m<sup>3</sup>. Form: Inhalable fraction.<br/>STEL 15 minutes: 6 mg/m<sup>3</sup>. Form: Inhalable fraction.</p> |

## Section 8. Exposure controls/personal protection

### Biological exposure indices

No exposure indices known.

### 8.2 Exposure controls

- Appropriate engineering controls** : If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.
- Environmental exposure controls** : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

### Individual protection measures

- Hygiene measures** : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.
- Eye/face protection** : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields.
- Skin protection**
- Hand protection** : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.
- Body protection** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Other skin protection** : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Respiratory protection** : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

## Section 9. Physical and chemical properties and safety characteristics

The conditions of measurement of all properties are at standard temperature and pressure unless otherwise indicated.

### Appearance

- Physical state** : Liquid. [Clear.]
- Color** : Colorless.
- Odor** : Jasmine-like.
- Odor threshold** : Not available.
- pH** : Not available.
- Melting point/freezing point** : 0°C (32°F)

## Section 9. Physical and chemical properties and safety characteristics

**Boiling point or initial boiling point and boiling range** : 100°C (212°F)

**Flash point** : Not available.

**Evaporation rate** : Not available.

**Flammability** : Not applicable.

**Lower and upper explosion limit/flammability limit** : Not available.

| Ingredient name | Vapor Pressure at 20°C |     |        | Vapor pressure at 50°C |      |        |
|-----------------|------------------------|-----|--------|------------------------|------|--------|
|                 | mm Hg                  | kPa | Method | mm Hg                  | kPa  | Method |
| water           | 17.5                   | 2.3 | -      | 92.258                 | 12.3 | -      |

**Relative vapor density** : Not available.

**Relative density** : Not available.

| Media | Result  |
|-------|---------|
| Water | Soluble |

**Miscible with water** : Yes.

**Partition coefficient: n-octanol/water** : Not applicable.

**Auto-ignition temperature** : Not available.

**Decomposition temperature** : Not available.

**Viscosity** : Dynamic (room temperature): Not available.  
Kinematic (room temperature): Not available.  
Kinematic (40°C (104°F)): Not available.

### Particle characteristics

**Median particle size** : Not applicable.

## Section 10. Stability and reactivity

**10.1 Reactivity** : No specific test data related to reactivity available for this product or its ingredients.

**10.2 Chemical stability** : The product is stable.

**10.3 Possibility of hazardous reactions** : Under normal conditions of storage and use, hazardous reactions will not occur.

**10.4 Conditions to avoid** : No specific data.

**10.5 Incompatible materials** : May react or be incompatible with oxidizing materials.

**10.6 Hazardous decomposition products** : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

## Section 11. Toxicological information

### 11.1 Information on toxicological effects

#### Acute toxicity

**Conclusion/Summary** : Not available.  
**[Product]**

#### Skin corrosion/irritation

**Conclusion/Summary** : Not available.  
**[Product]**

#### Serious eye damage/eye irritation

**Conclusion/Summary** : Not available.  
**[Product]**

#### Respiratory corrosion/irritation

**Conclusion/Summary** : Not available.  
**[Product]**

#### Respiratory or skin sensitization

##### **Skin**

**Conclusion/Summary** : Not available.  
**[Product]**

##### **Respiratory**

**Conclusion/Summary** : Not available.  
**[Product]**

#### Germ cell mutagenicity

**Conclusion/Summary** : Not available.  
**[Product]**

#### Carcinogenicity

Not available.

**Conclusion/Summary** : Not available.  
**[Product]**

#### Reproductive toxicity

**Conclusion/Summary** : Not available.  
**[Product]**

#### Specific target organ toxicity (single exposure)

Not available.

#### Specific target organ toxicity (repeated exposure)

Not available.

#### Aspiration hazard

Not available.

## Section 11. Toxicological information

**Information on the likely routes of exposure** : Routes of entry anticipated: Oral, Dermal, Inhalation, Eyes.

### Potential acute health effects

**Eye contact** : No known significant effects or critical hazards.  
**Inhalation** : No known significant effects or critical hazards.  
**Skin contact** : No known significant effects or critical hazards.  
**Ingestion** : No known significant effects or critical hazards.

### Symptoms related to the physical, chemical and toxicological characteristics

**Eye contact** : No specific data.  
**Inhalation** : Adverse symptoms may include the following:  
 reduced fetal weight  
 increase in fetal deaths  
 skeletal malformations  
**Skin contact** : Adverse symptoms may include the following:  
 reduced fetal weight  
 increase in fetal deaths  
 skeletal malformations  
**Ingestion** : Adverse symptoms may include the following:  
 reduced fetal weight  
 increase in fetal deaths  
 skeletal malformations

### Delayed and immediate effects and also chronic effects from short and long term exposure

#### Short term exposure

**Potential immediate effects** : Not available.  
**Potential delayed effects** : Not available.

#### Long term exposure

**Potential immediate effects** : Not available.  
**Potential delayed effects** : Not available.

### Potential chronic health effects

**Conclusion/Summary [Product]** : Not available.  
**General** : No known significant effects or critical hazards.  
**Carcinogenicity** : No known significant effects or critical hazards.  
**Mutagenicity** : No known significant effects or critical hazards.  
**Reproductive toxicity** : May damage fertility or the unborn child.

### Numerical measures of toxicity

#### Acute toxicity estimates

N/A

## Section 12. Ecological information

### 12.1 Toxicity

| Product/ingredient name         | Result                     |                      |
|---------------------------------|----------------------------|----------------------|
| Disodium tetraborate, anhydrous | Acute - LC50 - Fresh water | 141 mg/l [48 hours]  |
|                                 | Acute - LC50 - Fresh water | 1900 mg/l [96 hours] |
|                                 | Acute - EC50 - Fresh water | 15.4 mg/l [96 hours] |

**Conclusion/Summary [Product]** : Not available.

### 12.2 Persistence and degradability

**Conclusion/Summary [Product]** : Not available.

### 12.3 Bioaccumulative potential

| Product/ingredient name         | LogP <sub>ow</sub> | BCF | Potential |
|---------------------------------|--------------------|-----|-----------|
| Disodium tetraborate, anhydrous | -1.53              | -   | Low       |

### 12.4 Mobility in soil

**Soil/Water partition coefficient** : Not available.

**12.5 Other adverse effects** : No known significant effects or critical hazards.

## Section 13. Disposal considerations

### 13.1 Waste treatment methods

**Disposal methods** : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Disposal should be in accordance with applicable regional, national and local laws and regulations. Local regulations may be more stringent than regional or national requirements.

The information presented below only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations.

Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees.

## Section 14. Transport information

**DOT / TDG / Mexico / IMDG / IATA** : Not regulated.

**Special precautions for user** : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

**Transport in bulk according to IMO instruments** : Not available.

## Section 15. Regulatory information

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

#### U.S. Federal regulations

##### TSCA 12(b) - Chemical export notification

Not applicable.

**Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs)** : Not listed

**Clean Air Act Section 602 Class I Substances** : Not listed

**Clean Air Act Section 602 Class II Substances** : Not listed

**DEA List I Chemicals (Precursor Chemicals)** : Not listed

**DEA List II Chemicals (Essential Chemicals)** : Not listed

##### SARA 302/304

##### Composition/information on ingredients

No products were found.

**SARA 304 RQ** : Not applicable.

##### SARA 311/312

**Classification** : TOXIC TO REPRODUCTION - Category 1B

##### Composition/information on ingredients

| Name                            | %  | Classification  |
|---------------------------------|----|---|
| Disodium tetraborate, anhydrous | ≤1 | EYE IRRITATION - Category 2A<br>TOXIC TO REPRODUCTION - Category 1B |

#### State regulations

**Massachusetts** : None of the components are listed.

**New York** : None of the components are listed.

**New Jersey** : None of the components are listed.

**Pennsylvania** : None of the components are listed.

##### California Prop. 65

This product does not require a Safe Harbor warning under California Prop. 65.

#### International regulations

##### Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

## Section 15. Regulatory information

### Montreal Protocol

Not listed.

### Stockholm Convention on Persistent Organic Pollutants

Not listed.

### Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

### UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

### Inventory list

|                          |  |
|--------------------------|--|
| <b>Australia</b>         | : All components are listed or exempted.   |
| <b>Canada</b>            | : All components are listed or exempted.   |
| <b>China</b>             | : All components are listed or exempted.   |
| <b>Japan</b>             | : <b>Japan inventory (CSCL)</b> : All components are listed or exempted.<br><b>Japan inventory (ISHL)</b> : All components are listed or exempted. |
| <b>New Zealand</b>       | : All components are listed or exempted.   |
| <b>Philippines</b>       | : All components are listed or exempted.   |
| <b>Republic of Korea</b> | : All components are listed or exempted.   |
| <b>Taiwan</b>            | : All components are listed or exempted.   |
| <b>Thailand</b>          | : Not determined.  |
| <b>Turkey</b>            | : Not determined.  |
| <b>United States</b>     | : All components are active or exempted.   |
| <b>Viet Nam</b>          | : All components are listed or exempted.   |

## Section 16. Other information

### Procedure used to derive the classification

| Classification                      | Justification      |
|-------------------------------------|--------------------|
| TOXIC TO REPRODUCTION - Category 1B | Calculation method |

### History

**Date of issue/Date of revision** : 05/26/2025

**Date of previous issue** : 05/02/2025

**Version** : 1.1

**Key to abbreviations** :

- ATE = Acute Toxicity Estimate
- BCF = Bioconcentration Factor
- DOT = Department of Transportation
- GHS = Globally Harmonized System of Classification and Labelling of Chemicals
- IATA = International Air Transport Association
- IBC = Intermediate Bulk Container
- IMDG = International Maritime Dangerous Goods
- IMO = International Maritime Organization
- LogPow = logarithm of the octanol/water partition coefficient
- MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
- N/A = Not available
- SGG = Segregation Group
- TDG = Transportation of Dangerous Goods
- UN = United Nations

Indicates information that has changed from previously issued version.

## Section 16. Other information

### [Notice to reader](#)

**Disclaimer:** The information contained in this document is based on Agilent's state of knowledge at the time of preparation. No warranty as to its accurateness, completeness or suitability for a particular purpose is expressed or implied.

# SAFETY DATA SHEET

20 mM Borate Buffer - pH9.3

## Section 1. Identification

### 1.1 Product identifier

**Product name** : 20 mM Borate Buffer - pH9.3  
**Part no.** : Not available.  
**Validation date** : 5/2/2025

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

**Identified uses** : Reagents and Standards for Analytical Chemistry Laboratory Use  
 1 x 100 ml Bottle

### 1.3 Details of the supplier of the safety data sheet

**Supplier/Manufacturer** : Agilent Technologies, Inc.  
 5301 Stevens Creek Blvd  
 Santa Clara, CA 95051, USA  
 800-227-9770

### 1.4 Emergency telephone number

**In case of emergency** : CHEMTREC®: 1-800-424-9300

## Section 2. Hazards identification

### 2.1 Classification of the substance or mixture

**OSHA/HCS status** : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

### Classification of the substance or mixture

H360 TOXIC TO REPRODUCTION - Category 1B

### 2.2 GHS label elements

**Hazard pictograms** :



**Signal word** : Danger  
**Hazard statements** : H360 - May damage fertility or the unborn child.

### Precautionary statements

**Prevention** : P201 - Obtain special instructions before use.  
 P280 - Wear protective gloves, protective clothing and eye or face protection.  
**Response** : P308 + P313 - IF exposed or concerned: Get medical advice or attention.  
**Storage** : Not applicable.  
**Disposal** : P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.

### 2.3 Other hazards

**Hazards not otherwise classified** : None known.

## Section 3. Composition/information on ingredients

**Substance/mixture** : Mixture

| Ingredient name                 | %  | Identifiers    |
|---------------------------------|----|----------------|
| Disodium tetraborate, anhydrous | ≤1 | CAS: 1330-43-4 |

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

**There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified and hence require reporting in this section.**

Occupational exposure limits, if available, are listed in Section 8.

## Section 4. First aid measures

### 4.1 Description of necessary first aid measures

- Eye contact** : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention if irritation occurs.
- Inhalation** : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
- Skin contact** : Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Get medical attention. Wash clothing before reuse. Clean shoes thoroughly before reuse.
- Ingestion** : Wash out mouth with water. Remove dentures if any. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

### 4.2 Most important symptoms/effects, acute and delayed

#### Potential acute health effects

- Eye contact** : No known significant effects or critical hazards.
- Inhalation** : No known significant effects or critical hazards.
- Skin contact** : No known significant effects or critical hazards.
- Ingestion** : No known significant effects or critical hazards.

#### Over-exposure signs/symptoms

- Eye contact** : No specific data.
- Inhalation** : Adverse symptoms may include the following:  
reduced fetal weight  
increase in fetal deaths  
skeletal malformations
- Skin contact** : Adverse symptoms may include the following:  
reduced fetal weight  
increase in fetal deaths  
skeletal malformations

## Section 4. First aid measures

- Ingestion** : Adverse symptoms may include the following:  
reduced fetal weight  
increase in fetal deaths  
skeletal malformations

### 4.3 Indication of immediate medical attention and special treatment needed, if necessary

- Notes to physician** : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
- Specific treatments** : No specific treatment.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

See toxicological information (Section 11)

## Section 5. Fire-fighting measures

### 5.1 Extinguishing media

- Suitable extinguishing media** : Use an extinguishing agent suitable for the surrounding fire.
- Unsuitable extinguishing media** : None known.

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

- Specific hazards arising from the chemical** : In a fire or if heated, a pressure increase will occur and the container may burst.
- Hazardous thermal decomposition products** : No specific data.

### 5.3 Advice for firefighters

- Special protective actions for fire-fighters** : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
- Special protective equipment for fire-fighters** : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

## Section 6. Accidental release measures

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

- For non-emergency personnel** : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
- For emergency responders** : If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

- 6.2 Environmental precautions** : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

## Section 6. Accidental release measures

### 6.3 Methods and materials for containment and cleaning up

- Methods for cleaning up** : Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

## Section 7. Handling and storage

### 7.1 Precautions for safe handling

- Protective measures** : Put on appropriate personal protective equipment (see Section 8). Avoid exposure - obtain special instructions before use. Avoid exposure during pregnancy. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not ingest. Avoid breathing vapor or mist. If during normal use the material presents a respiratory hazard, use only with adequate ventilation or wear appropriate respirator. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.
- Advice on general occupational hygiene** : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

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

- : Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

### 7.3 Specific end use(s)

- Recommendations** : Industrial applications, Professional applications.
- Industrial sector specific solutions** : Not available.

## Section 8. Exposure controls/personal protection

### 8.1 Control parameters

#### Occupational exposure limits

| Ingredient name                 | Exposure limits   |
|---------------------------------|---|
| Disodium tetraborate, anhydrous | <p><b>NIOSH REL (United States, 10/2020)</b><br/>TWA 10 hours: 1 mg/m<sup>3</sup>.</p> <p><b>CAL OSHA PEL (United States, 5/2018)</b><br/><b>[borates, tetra, sodium salts, anhydrous]</b><br/>TWA 8 hours: 5 mg/m<sup>3</sup>.</p> <p><b>OSHA PEL 1989 (United States, 3/1989)</b><br/>TWA 8 hours: 10 mg/m<sup>3</sup>.</p> <p><b>ACGIH TLV (United States, 1/2024) [Borate compounds, Inorganic] A4.</b><br/>TWA 8 hours: 2 mg/m<sup>3</sup>. Form: Inhalable fraction.<br/>STEL 15 minutes: 6 mg/m<sup>3</sup>. Form: Inhalable fraction.</p> |

## Section 8. Exposure controls/personal protection

### Biological exposure indices

No exposure indices known.

### 8.2 Exposure controls

- Appropriate engineering controls** : If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.
- Environmental exposure controls** : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

### Individual protection measures

- Hygiene measures** : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.
- Eye/face protection** : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields.
- Skin protection**
- Hand protection** : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.
- Body protection** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Other skin protection** : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Respiratory protection** : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

## Section 9. Physical and chemical properties and safety characteristics

The conditions of measurement of all properties are at standard temperature and pressure unless otherwise indicated.

### Appearance

- Physical state** : Liquid.
- Color** : Yellow. [Light]
- Odor** : Not available.
- Odor threshold** : Not available.
- pH** : 9.3
- Melting point/freezing point** : 0°C (32°F)

## Section 9. Physical and chemical properties and safety characteristics

**Boiling point or initial boiling point and boiling range** : 100°C (212°F)

**Flash point** : Not available.

**Evaporation rate** : <1 (butyl acetate = 1)

**Flammability** : Not applicable.

**Lower and upper explosion limit/flammability limit** : Not available.

| Ingredient name | Vapor Pressure at 20°C |     |        | Vapor pressure at 50°C |      |        |
|-----------------|------------------------|-----|--------|------------------------|------|--------|
|                 | mm Hg                  | kPa | Method | mm Hg                  | kPa  | Method |
| water           | 17.5                   | 2.3 | -      | 92.258                 | 12.3 | -      |

**Relative vapor density** : Not available.

**Relative density** : 1

**Density** : 1 g/cm<sup>3</sup>

| Media | Result  |
|-------|---------|
| water | Soluble |

**Miscible with water** : Yes.

**Partition coefficient: n-octanol/water** : Not applicable.

**Auto-ignition temperature** : Not available.

**Decomposition temperature** : Not available.

**Viscosity** : Dynamic (room temperature): Not available.  
Kinematic (room temperature): Not available.  
Kinematic (40°C (104°F)): Not available.

### Particle characteristics

**Median particle size** : Not applicable.

## Section 10. Stability and reactivity

**10.1 Reactivity** : No specific test data related to reactivity available for this product or its ingredients.

**10.2 Chemical stability** : The product is stable.

**10.3 Possibility of hazardous reactions** : Under normal conditions of storage and use, hazardous reactions will not occur.

**10.4 Conditions to avoid** : No specific data.

**10.5 Incompatible materials** : May react or be incompatible with oxidizing materials.  
Reactive or incompatible with the following materials: reducing materials.

**10.6 Hazardous decomposition products** : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

## Section 11. Toxicological information

### 11.1 Information on toxicological effects

#### Acute toxicity

**Conclusion/Summary** : Not available.  
**[Product]**

#### Skin corrosion/irritation

**Conclusion/Summary** : Not available.  
**[Product]**

#### Serious eye damage/eye irritation

**Conclusion/Summary** : Not available.  
**[Product]**

#### Respiratory corrosion/irritation

**Conclusion/Summary** : Not available.  
**[Product]**

#### Respiratory or skin sensitization

##### **Skin**

**Conclusion/Summary** : Not available.  
**[Product]**

##### **Respiratory**

**Conclusion/Summary** : Not available.  
**[Product]**

#### Germ cell mutagenicity

**Conclusion/Summary** : Not available.  
**[Product]**

#### Carcinogenicity

Not available.

**Conclusion/Summary** : Not available.  
**[Product]**

#### Reproductive toxicity

**Conclusion/Summary** : Not available.  
**[Product]**

#### Specific target organ toxicity (single exposure)

Not available.

#### Specific target organ toxicity (repeated exposure)

Not available.

#### Aspiration hazard

Not available.

## Section 11. Toxicological information

**Information on the likely routes of exposure** : Routes of entry anticipated: Oral, Dermal, Inhalation, Eyes.

### Potential acute health effects

**Eye contact** : No known significant effects or critical hazards.  
**Inhalation** : No known significant effects or critical hazards.  
**Skin contact** : No known significant effects or critical hazards.  
**Ingestion** : No known significant effects or critical hazards.

### Symptoms related to the physical, chemical and toxicological characteristics

**Eye contact** : No specific data.  
**Inhalation** : Adverse symptoms may include the following:  
reduced fetal weight  
increase in fetal deaths  
skeletal malformations  
**Skin contact** : Adverse symptoms may include the following:  
reduced fetal weight  
increase in fetal deaths  
skeletal malformations  
**Ingestion** : Adverse symptoms may include the following:  
reduced fetal weight  
increase in fetal deaths  
skeletal malformations

### Delayed and immediate effects and also chronic effects from short and long term exposure

#### Short term exposure

**Potential immediate effects** : Not available.  
**Potential delayed effects** : Not available.

#### Long term exposure

**Potential immediate effects** : Not available.  
**Potential delayed effects** : Not available.

### Potential chronic health effects

**Conclusion/Summary [Product]** : Not available.  
**General** : No known significant effects or critical hazards.  
**Carcinogenicity** : No known significant effects or critical hazards.  
**Mutagenicity** : No known significant effects or critical hazards.  
**Reproductive toxicity** : May damage fertility or the unborn child.

### Numerical measures of toxicity

#### Acute toxicity estimates

N/A

## Section 12. Ecological information

### 12.1 Toxicity

| Product/ingredient name         | Result                     |                      |
|---------------------------------|----------------------------|----------------------|
| Disodium tetraborate, anhydrous | Acute - LC50 - Fresh water | 141 mg/l [48 hours]  |
|                                 | Acute - LC50 - Fresh water | 1900 mg/l [96 hours] |
|                                 | Acute - EC50 - Fresh water | 15.4 mg/l [96 hours] |

**Conclusion/Summary [Product]** : Not available.

### 12.2 Persistence and degradability

**Conclusion/Summary [Product]** : Not available.

### 12.3 Bioaccumulative potential

| Product/ingredient name         | LogP <sub>ow</sub> | BCF | Potential |
|---------------------------------|--------------------|-----|-----------|
| Disodium tetraborate, anhydrous | -1.53              | -   | Low       |

### 12.4 Mobility in soil

**Soil/Water partition coefficient** : Not available.

**12.5 Other adverse effects** : No known significant effects or critical hazards.

## Section 13. Disposal considerations

### 13.1 Waste treatment methods

**Disposal methods** : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Disposal should be in accordance with applicable regional, national and local laws and regulations. Local regulations may be more stringent than regional or national requirements.

The information presented below only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations.

Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees.

## Section 14. Transport information

**DOT / TDG / Mexico / IMDG / IATA** : Not regulated.

**Special precautions for user** : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

**Transport in bulk according to IMO instruments** : Not available.

## Section 15. Regulatory information

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

#### U.S. Federal regulations

##### TSCA 12(b) - Chemical export notification

Not applicable.

**Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs)** : Not listed

**Clean Air Act Section 602 Class I Substances** : Not listed

**Clean Air Act Section 602 Class II Substances** : Not listed

**DEA List I Chemicals (Precursor Chemicals)** : Not listed

**DEA List II Chemicals (Essential Chemicals)** : Not listed

##### SARA 302/304

##### Composition/information on ingredients

No products were found.

**SARA 304 RQ** : Not applicable.

##### SARA 311/312

**Classification** : TOXIC TO REPRODUCTION - Category 1B

##### Composition/information on ingredients

| Name                            | %  | Classification  |
|---------------------------------|----|---|
| Disodium tetraborate, anhydrous | ≤1 | EYE IRRITATION - Category 2A<br>TOXIC TO REPRODUCTION - Category 1B |

#### State regulations

**Massachusetts** : None of the components are listed.

**New York** : None of the components are listed.

**New Jersey** : None of the components are listed.

**Pennsylvania** : None of the components are listed.

##### California Prop. 65

This product does not require a Safe Harbor warning under California Prop. 65.

#### International regulations

##### Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

## Section 15. Regulatory information

### Montreal Protocol

Not listed.

### Stockholm Convention on Persistent Organic Pollutants

Not listed.

### Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

### UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

### Inventory list

|                          |  |
|--------------------------|--|
| <b>Australia</b>         | : All components are listed or exempted.   |
| <b>Canada</b>            | : All components are listed or exempted.   |
| <b>China</b>             | : All components are listed or exempted.   |
| <b>Japan</b>             | : <b>Japan inventory (CSCL)</b> : All components are listed or exempted.<br><b>Japan inventory (ISHL)</b> : All components are listed or exempted. |
| <b>New Zealand</b>       | : All components are listed or exempted.   |
| <b>Philippines</b>       | : All components are listed or exempted.   |
| <b>Republic of Korea</b> | : All components are listed or exempted.   |
| <b>Taiwan</b>            | : All components are listed or exempted.   |
| <b>Thailand</b>          | : All components are listed or exempted.   |
| <b>Turkey</b>            | : All components are listed or exempted.   |
| <b>United States</b>     | : All components are active or exempted.   |
| <b>Viet Nam</b>          | : All components are listed or exempted.   |

## Section 16. Other information

### Procedure used to derive the classification

| Classification                      | Justification      |
|-------------------------------------|--------------------|
| TOXIC TO REPRODUCTION - Category 1B | Calculation method |

### History

|                                       |  |
|---------------------------------------|--|
| <b>Date of issue/Date of revision</b> | : 05/02/2025   |
| <b>Date of previous issue</b>         | : No previous validation   |
| <b>Version</b>                        | : 1  |
| <b>Key to abbreviations</b>           | : ATE = Acute Toxicity Estimate<br>BCF = Bioconcentration Factor<br>DOT = Department of Transportation<br>GHS = Globally Harmonized System of Classification and Labelling of Chemicals<br>IATA = International Air Transport Association<br>IBC = Intermediate Bulk Container<br>IMDG = International Maritime Dangerous Goods<br>IMO = International Maritime Organization<br>LogPow = logarithm of the octanol/water partition coefficient<br>MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)<br>N/A = Not available<br>SGG = Segregation Group<br>TDG = Transportation of Dangerous Goods<br>UN = United Nations |

Indicates information that has changed from previously issued version.

## Section 16. Other information

### [Notice to reader](#)

**Disclaimer:** The information contained in this document is based on Agilent's state of knowledge at the time of preparation. No warranty as to its accurateness, completeness or suitability for a particular purpose is expressed or implied.

# SAFETY DATA SHEET

Sodium Hydroxide Solution 1.0N for HPCE

## Section 1. Identification

### 1.1 Product identifier

**Product name** : Sodium Hydroxide Solution 1.0N for HPCE  
**Part no.** : Not available.  
**Validation date** : 5/26/2025

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

**Identified uses** : Reagents and Standards for Analytical Chemistry Laboratory Use  
 1 x 250 ml Bottle

### 1.3 Details of the supplier of the safety data sheet

**Supplier/Manufacturer** : Agilent Technologies, Inc.  
 5301 Stevens Creek Blvd  
 Santa Clara, CA 95051, USA  
 800-227-9770

### 1.4 Emergency telephone number

**In case of emergency** : CHEMTREC®: 1-800-424-9300

## Section 2. Hazards identification

### 2.1 Classification of the substance or mixture

**OSHA/HCS status** : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

### Classification of the substance or mixture

H290 CORROSIVE TO METALS - Category 1  
 H314 SKIN CORROSION - Category 1B  
 H318 SERIOUS EYE DAMAGE - Category 1

### 2.2 GHS label elements

**Hazard pictograms** :



**Signal word** : Danger

**Hazard statements** : H290 - May be corrosive to metals.  
 H314 - Causes severe skin burns and eye damage.

### Precautionary statements

**Prevention** : P280 - Wear protective gloves, protective clothing and eye or face protection.  
 P234 - Keep only in original packaging.

**Response** : P390 - Absorb spillage to prevent material damage.  
 P304 + P310 - IF INHALED: Immediately call a POISON CENTER or doctor.  
 P301 + P310, P330, P331 - IF SWALLOWED: Immediately call a POISON CENTER or doctor. Rinse mouth. Do NOT induce vomiting.  
 P303 + P361 + P353, P310 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water. Immediately call a POISON CENTER or doctor.  
 P363 - Wash contaminated clothing before reuse.  
 P305 + P351 + P338, P310 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

## Section 2. Hazards identification

- Immediately call a POISON CENTER or doctor.
- Storage** : Not applicable.
- Disposal** : P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.
- Supplemental label elements** : Keep container tightly closed. Do not breathe vapor or spray. Do not taste or swallow. Use only with adequate ventilation. Wash thoroughly after handling.
- 2.3 Other hazards**
- Hazards not otherwise classified** : Causes respiratory tract burns. Causes severe digestive tract burns.

## Section 3. Composition/information on ingredients

**Substance/mixture** : Mixture

| Ingredient name  | %  | Identifiers    |
|------------------|----|----------------|
| Sodium hydroxide | ≤5 | CAS: 1310-73-2 |

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

**There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified and hence require reporting in this section.**

Occupational exposure limits, if available, are listed in Section 8.

## Section 4. First aid measures

### 4.1 Description of necessary first aid measures

- Eye contact** : Get medical attention immediately. Call a poison center or physician. Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Chemical burns must be treated promptly by a physician.
- Inhalation** : Get medical attention immediately. Call a poison center or physician. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
- Skin contact** : Get medical attention immediately. Call a poison center or physician. Wash contaminated skin with soap and water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Chemical burns must be treated promptly by a physician. Wash clothing before reuse. Clean shoes thoroughly before reuse.
- Ingestion** : Get medical attention immediately. Call a poison center or physician. Wash out mouth with water. Remove dentures if any. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Chemical burns must be treated promptly by a physician. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

### 4.2 Most important symptoms/effects, acute and delayed

#### Potential acute health effects

## Section 4. First aid measures

- Eye contact** : Causes serious eye damage.
- Inhalation** : Corrosive to the respiratory system.
- Skin contact** : Causes severe burns.
- Ingestion** : Severely corrosive to the digestive tract. Causes severe burns. May cause burns to mouth, throat and stomach.

### Over-exposure signs/symptoms

- Eye contact** : Adverse symptoms may include the following:  
pain  
watering  
redness
- Inhalation** : Adverse symptoms may include the following:  
respiratory tract irritation  
coughing
- Skin contact** : Adverse symptoms may include the following:  
pain or irritation  
redness  
blistering may occur
- Ingestion** : Adverse symptoms may include the following:  
stomach pains

### 4.3 Indication of immediate medical attention and special treatment needed, if necessary

- Notes to physician** : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
- Specific treatments** : No specific treatment.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

See toxicological information (Section 11)

## Section 5. Fire-fighting measures

### 5.1 Extinguishing media

- Suitable extinguishing media** : Use an extinguishing agent suitable for the surrounding fire.
- Unsuitable extinguishing media** : None known.

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

- Specific hazards arising from the chemical** : In a fire or if heated, a pressure increase will occur and the container may burst.
- Hazardous thermal decomposition products** : Decomposition products may include the following materials:  
metal oxide/oxides

### 5.3 Advice for firefighters

- Special protective actions for fire-fighters** : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
- Special protective equipment for fire-fighters** : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

## Section 6. Accidental release measures

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

- For non-emergency personnel** : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Do not breathe vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
- For emergency responders** : If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

- 6.2 Environmental precautions** : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

### 6.3 Methods and materials for containment and cleaning up

- Methods for cleaning up** : Stop leak if without risk. Move containers from spill area. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations. Absorb spillage to prevent material damage. Dispose of via a licensed waste disposal contractor.

## Section 7. Handling and storage

### 7.1 Precautions for safe handling

- Protective measures** : Put on appropriate personal protective equipment (see Section 8). Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not ingest. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Keep away from acids. Empty containers retain product residue and can be hazardous. Do not reuse container. Absorb spillage to prevent material damage.
- Advice on general occupational hygiene** : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

- 7.2 Conditions for safe storage, including any incompatibilities** : Store between the following temperatures: 15 to 25°C (59 to 77°F). Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store in a corrosion resistant container with a resistant inner liner. Store locked up. Separate from acids. Keep away from metals. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

### 7.3 Specific end use(s)

- Recommendations** : Industrial applications, Professional applications.
- Industrial sector specific solutions** : Not available.

## Section 8. Exposure controls/personal protection

### 8.1 Control parameters

#### Occupational exposure limits

| Ingredient name  | Exposure limits   |
|------------------|---|
| Sodium hydroxide | <b>NIOSH REL (United States, 10/2020)</b><br>CEIL: 2 mg/m <sup>3</sup> .<br><b>CAL OSHA PEL (United States, 5/2018)</b><br>C: 2 mg/m <sup>3</sup> .<br><b>OSHA PEL (United States, 5/2018)</b><br>TWA 8 hours: 2 mg/m <sup>3</sup> .<br><b>OSHA PEL 1989 (United States, 3/1989)</b><br>CEIL: 2 mg/m <sup>3</sup> .<br><b>ACGIH TLV (United States, 1/2024)</b><br>C: 2 mg/m <sup>3</sup> . |

#### Biological exposure indices

No exposure indices known.

### 8.2 Exposure controls

#### Appropriate engineering controls

: Use only with adequate ventilation. If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

#### Environmental exposure controls

: Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

#### Individual protection measures

##### Hygiene measures

: Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

##### Eye/face protection

: Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles and/or face shield. If inhalation hazards exist, a full-face respirator may be required instead.

#### Skin protection

##### Hand protection

: Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

##### Body protection

: Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

##### Other skin protection

: Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

## Section 8. Exposure controls/personal protection

- Respiratory protection** : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

## Section 9. Physical and chemical properties and safety characteristics

The conditions of measurement of all properties are at standard temperature and pressure unless otherwise indicated.

### Appearance

- Physical state** : Liquid.
- Color** : Colorless.
- Odor** : Not available.
- Odor threshold** : Not available.
- pH** : >11.5
- Melting point/freezing point** : 0°C (32°F)
- Boiling point or initial boiling point and boiling range** : 100°C (212°F)
- Flash point** : Not available.
- Evaporation rate** : Not available.
- Flammability** : Not applicable.
- Lower and upper explosion limit/flammability limit** : Not available.
- Vapor pressure** : <2.4 kPa (<18 mm Hg)
- Relative vapor density** : >1 [Air = 1]
- Relative density** : Not available.
- Solubility(ies)** :
- | Media | Result  |
|-------|---------|
| water | Soluble |
- Miscible with water** : Yes.
- Partition coefficient: n-octanol/water** : Not applicable.
- Auto-ignition temperature** : Not available.
- Decomposition temperature** : Not available.
- Viscosity** : Dynamic (room temperature): Not available.  
Kinematic (room temperature): Not available.  
Kinematic (40°C (104°F)): Not available.

### Particle characteristics

- Median particle size** : Not applicable.

## Section 10. Stability and reactivity

- 10.1 Reactivity** : No specific test data related to reactivity available for this product or its ingredients.
- 10.2 Chemical stability** : The product is stable.
- 10.3 Possibility of hazardous reactions** : Under normal conditions of storage and use, hazardous reactions will not occur.
- 10.4 Conditions to avoid** : No specific data.

## Section 10. Stability and reactivity

**10.5 Incompatible materials** : Reactive or incompatible with the following materials:  
acids  
metals

**10.6 Hazardous decomposition products** : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

## Section 11. Toxicological information

### 11.1 Information on toxicological effects

#### Acute toxicity

**Conclusion/Summary [Product]** : Not available.

#### Skin corrosion/irritation

##### **Product/ingredient name**

Sodium hydroxide

##### **Result**

Rabbit - Skin - Severe irritant

Duration of treatment/  
exposure: 24 hours

**Conclusion/Summary [Product]** : Not available.

#### Serious eye damage/eye irritation

Sodium hydroxide

##### **Result**

Rabbit - Eyes - Severe irritant

Duration of treatment/  
exposure: 24 hours

Rabbit - Eyes - Severe irritant

Rabbit - Eyes - Severe irritant

-  
Duration of treatment/  
exposure: 24 hours

Rabbit - Eyes - Severe irritant

Duration of treatment/  
exposure: 0.5 minutes

**Conclusion/Summary [Product]** : Not available.

#### Respiratory corrosion/irritation

##### **Product/ingredient name**

**Conclusion/Summary [Product]** : Not available.

#### Respiratory or skin sensitization

##### **Skin**

**Conclusion/Summary [Product]** : Not available.

##### **Respiratory**

**Conclusion/Summary [Product]** : Not available.

#### Germ cell mutagenicity

**Conclusion/Summary [Product]** : Not available.

#### Carcinogenicity

## Section 11. Toxicological information

Not available.

**Conclusion/Summary [Product]** : Not available.

### Reproductive toxicity

**Conclusion/Summary [Product]** : Not available.

### Specific target organ toxicity (single exposure)

| <b>Product/ingredient name</b> | <b>Result</b>  |
|--------------------------------|--|
| Sodium hydroxide               | SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3 |

### Specific target organ toxicity (repeated exposure)

Not available.

### Aspiration hazard

Not available.

**Information on the likely routes of exposure** : Routes of entry anticipated: Oral, Dermal, Inhalation, Eyes.

### Potential acute health effects

**Eye contact** : Causes serious eye damage.

**Inhalation** : Corrosive to the respiratory system.

**Skin contact** : Causes severe burns.

**Ingestion** : Severely corrosive to the digestive tract. Causes severe burns. May cause burns to mouth, throat and stomach.

### Symptoms related to the physical, chemical and toxicological characteristics

**Eye contact** : Adverse symptoms may include the following:  
pain  
watering  
redness

**Inhalation** : Adverse symptoms may include the following:  
respiratory tract irritation  
coughing

**Skin contact** : Adverse symptoms may include the following:  
pain or irritation  
redness  
blistering may occur

**Ingestion** : Adverse symptoms may include the following:  
stomach pains

### Delayed and immediate effects and also chronic effects from short and long term exposure

#### Short term exposure

**Potential immediate effects** : Not available.

**Potential delayed effects** : Not available.

#### Long term exposure

## Section 11. Toxicological information

**Potential immediate effects** : Not available.

**Potential delayed effects** : Not available.

### Potential chronic health effects

**Conclusion/Summary [Product]** : Not available.

**General** : No known significant effects or critical hazards.

**Carcinogenicity** : No known significant effects or critical hazards.

**Mutagenicity** : No known significant effects or critical hazards.

**Reproductive toxicity** : No known significant effects or critical hazards.

### Numerical measures of toxicity

#### Acute toxicity estimates

N/A

## Section 12. Ecological information

### 12.1 Toxicity

| Product/ingredient name | Result                     |                       |
|-------------------------|----------------------------|-----------------------|
| Sodium hydroxide        | Acute - LC50 - Fresh water | 125 ppm [96 hours]    |
|                         | Acute - EC50 - Fresh water | 40.38 mg/l [48 hours] |

**Conclusion/Summary [Product]** : Not available.

### 12.2 Persistence and degradability

**Conclusion/Summary [Product]** : Not available.

| Product/ingredient name | Aquatic half-life | Photolysis | Biodegradability |
|-------------------------|-------------------|------------|------------------|
| Sodium hydroxide        | -                 | -          | Readily          |

### 12.3 Bioaccumulative potential

Not available.

### 12.4 Mobility in soil

**Soil/Water partition coefficient** : Not available.

**12.5 Other adverse effects** : No known significant effects or critical hazards.

## Section 13. Disposal considerations

### 13.1 Waste treatment methods

## Section 13. Disposal considerations






**Disposal methods** : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Disposal should be in accordance with applicable regional, national and local laws and regulations. Local regulations may be more stringent than regional or national requirements.

The information presented below only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations.

Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees.

## Section 14. Transport information

|                                   | DOT<br>Classification  | TDG<br>Classification  | Mexico<br>Classification   | IMDG   | IATA   |
|-----------------------------------|--|--|--|--|--|
| <b>UN number</b>                  | UN1824   | UN1824   | UN1824   | UN1824   | UN1824   |
| <b>UN proper shipping name</b>    | Sodium hydroxide solution  | SODIUM HYDROXIDE SOLUTION  | HIDRÓXIDO DE SODIO EN SOLUCIÓN   | SODIUM HYDROXIDE SOLUTION  | Sodium hydroxide solution  |
| <b>Transport hazard class(es)</b> | 8<br> | 8<br> | 8<br> | 8<br> | 8<br> |
| <b>Packing group</b>              | II   | II   | II   | II   | II   |
| <b>Environmental hazards</b>      | No.  | No.  | No.  | No.  | No.  |

### Additional information

- DOT Classification** : **Reportable quantity** 25000 lbs / 11350 kg. Package sizes shipped in quantities less than the product reportable quantity are not subject to the RQ (reportable quantity) transportation requirements.  
**Limited quantity** Yes.  
**Packaging instruction** Exceptions: 154. Non-bulk: 202. Bulk: 242.  
**Quantity limitation** Passenger aircraft/rail: 1 L. Cargo aircraft: 30 L.  
**Special provisions** B2, IB2, N34, T7, TP2
- TDG Classification** : Product classified as per the following sections of the Transportation of Dangerous Goods Regulations: 2.40-2.42 (Class 8).  
**Explosive Limit and Limited Quantity Index** 1  
**Passenger Carrying Road or Rail Index** 1
- IMDG** : **Emergency schedules** F-A, S-B

## Section 14. Transport information

**IATA** : **Quantity limitation** Passenger and Cargo Aircraft: 1 L. Packaging instructions: 851. Cargo Aircraft Only: 30 L. Packaging instructions: 855. Limited Quantities - Passenger Aircraft: 0.5 L. Packaging instructions: Y840.  
**Special provisions** A3, A803

**Special precautions for user** : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

**Transport in bulk according to IMO instruments** : Not available.

## Section 15. Regulatory information

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

**U.S. Federal regulations** : **Clean Water Act (CWA) 311:** Sodium hydroxide

#### TSCA 12(b) - Chemical export notification

Not applicable.

**Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs)** : Not listed

**Clean Air Act Section 602 Class I Substances** : Not listed

**Clean Air Act Section 602 Class II Substances** : Not listed

**DEA List I Chemicals (Precursor Chemicals)** : Not listed

**DEA List II Chemicals (Essential Chemicals)** : Not listed

#### SARA 302/304

##### Composition/information on ingredients

No products were found.

**SARA 304 RQ** : Not applicable.

#### SARA 311/312

**Classification** : CORROSIVE TO METALS - Category 1  
SKIN CORROSION - Category 1B  
SERIOUS EYE DAMAGE - Category 1  
HNOC - Corrosive to digestive tract [severe]  
HNOC - Corrosive to respiratory tract

##### Composition/information on ingredients

| Name             | %  | Classification  |
|------------------|----|---|
| Sodium hydroxide | ≤5 | CORROSIVE TO METALS - Category 1<br>SKIN CORROSION - Category 1A<br>SERIOUS EYE DAMAGE - Category 1<br>SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3<br>HNOC - Corrosive to digestive tract [severe] |

#### State regulations

**Massachusetts** : The following components are listed: SODIUM HYDROXIDE

**New York** : The following components are listed: Sodium hydroxide

## Section 15. Regulatory information

- New Jersey** : The following components are listed: SODIUM HYDROXIDE
- Pennsylvania** : The following components are listed: SODIUM HYDROXIDE
- California Prop. 65**

This product does not require a Safe Harbor warning under California Prop. 65.

### International regulations

#### Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

#### Montreal Protocol

Not listed.

#### Stockholm Convention on Persistent Organic Pollutants

Not listed.

#### Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

#### UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

### Inventory list

- Australia** : All components are listed or exempted.
- Canada** : All components are listed or exempted.
- China** : All components are listed or exempted.
- Japan** : **Japan inventory (CSCL)**: All components are listed or exempted.  
**Japan inventory (ISHL)**: All components are listed or exempted.
- New Zealand** : All components are listed or exempted.
- Philippines** : All components are listed or exempted.
- Republic of Korea** : All components are listed or exempted.
- Taiwan** : All components are listed or exempted.
- Thailand** : All components are listed or exempted.
- Turkey** : All components are listed or exempted.
- United States** : All components are active or exempted.
- Viet Nam** : All components are listed or exempted.

## Section 16. Other information

### Procedure used to derive the classification

| Classification                   | Justification         |
|----------------------------------|-----------------------|
| CORROSIVE TO METALS - Category 1 | Expert judgment       |
| SKIN CORROSION - Category 1B     | Expert judgment       |
| SERIOUS EYE DAMAGE - Category 1  | On basis of test data |

### History

- Date of issue/Date of revision** : 05/26/2025
- Date of previous issue** : No previous validation
- Version** : 1

## Section 16. Other information

### Key to abbreviations

: ATE = Acute Toxicity Estimate  
BCF = Bioconcentration Factor  
DOT = Department of Transportation  
GHS = Globally Harmonized System of Classification and Labelling of Chemicals  
IATA = International Air Transport Association  
IBC = Intermediate Bulk Container  
IMDG = International Maritime Dangerous Goods  
IMO = International Maritime Organization  
LogPow = logarithm of the octanol/water partition coefficient  
MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)  
N/A = Not available  
SGG = Segregation Group  
TDG = Transportation of Dangerous Goods  
UN = United Nations

📌 Indicates information that has changed from previously issued version.

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