1 Identification

· Product identifier
· Trade name: Haloacetic Acid Standard (1X1 mL)
· Part number: PHM-580-1
· Application of the substance / the mixture: Reagents and Standards for Analytical Chemical Laboratory Use

· Details of the supplier of the safety data sheet
· Manufacturer/Supplier:
  Agilent Technologies, Inc.
  5301 Stevens Creek Blvd.
  Santa Clara, CA  95051  USA
· Information department:
  Telephone: 800-227-9770
  e-mail: pdl-msds_author@agilent.com
· Emergency telephone number: CHEMTREC®: 1-800-424-9300

2 Hazard identification

· Classification of the substance or mixture

  GHS02 Flame
  Flammable Liquids - Category 2 H225  Highly flammable liquid and vapour.

  GHS06 Skull and crossbones
  Acute Toxicity (Dermal) – Category 3 H311  Toxic in contact with skin.

  GHS08 Health hazard
  Carcinogenicity – Category 2 H351  Suspected of causing cancer.

  GHS07
  Skin Irritation - Category 2 H315  Causes skin irritation.
  Skin Sensitizer - Category 1 H317  May cause an allergic skin reaction.

· Label elements
  GHS label elements: The product is classified and labeled according to the Globally Harmonized System (GHS).
  Hazard pictograms

  GHS02  GHS06  GHS07  GHS08

· Signal word: Danger

(Contd. on page 2)
Trade name: Haloacetic Acid Standard (1X1 mL)

- **Hazard-determining components of labeling:**
  - tert-butyl methyl ether
  - chloroacetic acid
  - bromoacetic acid
  - dichloroacetic acid

- **Hazard statements**
  - Highly flammable liquid and vapour.
  - Toxic in contact with skin.
  - Causes skin irritation.
  - May cause an allergic skin reaction.
  - Suspected of causing cancer.

- **Precautionary statements**
  - If medical advice is needed, have product container or label at hand.
  - Keep out of reach of children.
  - Read label before use.
  - Obtain special instructions before use.
  - Do not handle until all safety precautions have been read and understood.
  - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
  - Keep container tightly closed.
  - Ground and bond container and receiving equipment.
  - Use explosion-proof [electrical/ventilating/lighting] equipment.
  - Use non-sparking tools.
  - Take actions to prevent static discharges.
  - Avoid breathing dust/fume/gas/mist/vapours/spray.
  - Wash thoroughly after handling.
  - Contaminated work clothing should not be allowed out of the workplace.
  - Wear protective gloves/protective clothing/eye protection/face protection.
  - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].
  - IF exposed or concerned: Get medical advice/attention.
  - Call a poison center/doctor if you feel unwell.
  - Take off contaminated clothing and wash it before reuse.
  - Specific measures (see on this label).
  - If skin irritation or rash occurs: Get medical advice/attention.
  - Wash contaminated clothing before reuse.
  - In case of fire: Use for extinction: CO2, powder or water spray.
  - Store in a well-ventilated place. Keep cool.
  - Store locked up.
  - Dispose of contents/container in accordance with local/regional/national/international regulations.

- **Classification system:**
  - **NFPA ratings (scale 0 - 4)**
    - Health = 2
    - Fire = 3
    - Reactivity = 0
  - **HMIS-ratings (scale 0 - 4)**
    - Health = 2
    - Fire = 3
    - Reactivity = 0
3 Composition/Information on ingredients

- Chemical characterization: Mixtures
- Description: Mixture of the substances listed below with nonhazardous additions.

### Dangerous components:

<table>
<thead>
<tr>
<th>CAS Number</th>
<th>Substance</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>1634-04-4</td>
<td>tert-butyl methyl ether</td>
<td>98.378% w/w</td>
</tr>
<tr>
<td>79-43-6</td>
<td>dichloroacetic acid</td>
<td>0.2703% w/w</td>
</tr>
<tr>
<td>76-03-9</td>
<td>trichloroacetic acid</td>
<td>0.2703% w/w</td>
</tr>
<tr>
<td>79-08-3</td>
<td>bromoacetic acid</td>
<td>0.2703% w/w</td>
</tr>
<tr>
<td>631-64-1</td>
<td>dibromoacetic acid</td>
<td>0.2703% w/w</td>
</tr>
<tr>
<td>5589-96-8</td>
<td>bromochloroacetic acid</td>
<td>0.2703% w/w</td>
</tr>
</tbody>
</table>

4 First aid measures

- Description of first aid measures
- General information:
  - Immediately remove any clothing soiled by the product.
  - In case of irregular breathing or respiratory arrest provide artificial respiration.
- After inhalation:
  - Supply fresh air and to be sure call for a doctor.
  - In case of unconsciousness place patient stably in side position for transportation.
- After skin contact:
  - Immediately wash with water and soap and rinse thoroughly.
- After eye contact:
  - Rinse opened eye for several minutes under running water. Then consult a doctor.
- After swallowing:
  - If symptoms persist consult doctor.
- Information for doctor:
  - Most important symptoms and effects, both acute and delayed: No further relevant information available.
  - Indication of any immediate medical attention and special treatment needed: No further relevant information available.

5 Firefighting measures

- Extinguishing media
- Suitable extinguishing agents:
  - CO2, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- For safety reasons unsuitable extinguishing agents: Water with full jet
- Special hazards arising from the substance or mixture: No further relevant information available.
- Advice for firefighters
- Protective equipment: No special measures required.

6 Accidental release measures

- Personal precautions, protective equipment and emergency procedures
  - Wear protective equipment. Keep unprotected persons away.
- Environmental precautions: Do not allow to enter sewers/ surface or ground water.
- Methods and material for containment and cleaning up:
  - Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
  - Dispose contaminated material as waste according to item 13.
Trade name: Haloacetic Acid Standard (1X1 mL)

Ensure adequate ventilation.

Reference to other sections
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

7 Handling and storage

Handling:

Precautions for safe handling
Ensure good ventilation/exhaustion at the workplace.
Open and handle receptacle with care.
Prevent formation of aerosols.

Information about protection against explosions and fires:
Keep ignition sources away - Do not smoke.
Protect against electrostatic charges.
Keep respiratory protective device available.

Conditions for safe storage, including any incompatibilities

Storage:

Requirements to be met by storerooms and receptacles: Store in a cool location.
Information about storage in one common storage facility: Not required.
Further information about storage conditions:
Keep receptacle tightly sealed.
Store in cool, dry conditions in well sealed receptacles.
Specific end use(s) No further relevant information available.

8 Exposure controls/ Personal protection

Additional information about design of technical systems: No further data; see item 7.

Control parameters

Components with limit values that require monitoring at the workplace:

<table>
<thead>
<tr>
<th>CAS Number</th>
<th>Chemical Name</th>
<th>EL Long-term value</th>
<th>R</th>
<th>EV Long-term value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1634-04-4</td>
<td>tert-butyl methyl ether</td>
<td>50 ppm</td>
<td></td>
<td>40 ppm</td>
</tr>
<tr>
<td>79-43-6</td>
<td>dichloroacetic acid</td>
<td>0.5 ppm</td>
<td></td>
<td>0.5 ppm</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Skin; IARC 2B; R</td>
<td></td>
<td></td>
</tr>
<tr>
<td>76-03-9</td>
<td>trichloroacetic acid</td>
<td>0.5 ppm</td>
<td></td>
<td>6.7 mg/m³; 1 ppm</td>
</tr>
<tr>
<td></td>
<td></td>
<td>IARC 2B</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Additional information: The lists that were valid during the creation were used as basis.
· **Exposure controls**
  · Personal protective equipment:
  · General protective and hygienic measures:
    Keep away from foodstuffs, beverages and feed.
    Immediately remove all soiled and contaminated clothing.
    Wash hands before breaks and at the end of work.
    Store protective clothing separately.
    Avoid contact with the skin.
    Avoid contact with the eyes and skin.

· **Breathing equipment:**
  When used as intended with Agilent instruments, the use of the product under normal laboratory conditions and with standard practices does not result in significant airborne exposures and therefore respiratory protection is not needed.
  Under an emergency condition where a respirator is deemed necessary, use a NIOSH or equivalent approved device/equipment with appropriate organic or acid gas cartridge.

· **Protection of hands:**
  Although not recommended for constant contact with the chemicals or for clean-up, nitrile gloves 11-13 mil thickness are recommended for normal use. The breakthrough time is 1 hr. For cleaning a spill where there is direct contact of the chemical, butyl rubber gloves are recommended 12-15 mil thickness with breakthrough times exceeding 4 hrs. Supplier recommendations should be followed.

· **Material of gloves**
  For normal use: nitrile rubber, 11-13 mil thickness
  For direct contact with the chemical: butyl rubber, 12-15 mil thickness

· **Penetration time of glove material**
  For normal use: nitrile rubber: 1 hour
  For direct contact with the chemical: butyl rubber: >4 hours

· **Eye protection:**
  Tightly sealed goggles

### 9 Physical and chemical properties

| · **Information on basic physical and chemical properties** |
| · **General Information** |
| · Appearance: |
| · Form: Fluid |
| · Color: Colorless |
| · Odor: Characteristic |
| · Odor threshold: Not determined. |
| · pH-value: Not determined. |

| · **Change in condition** |
| · Melting point/Melting range: Undetermined. |
| · Boiling point/Boiling range: 55.2 °C |

| · **Flammability (solid, gaseous):** |
| · Flash point: 0 °C |
| · Not applicable. |

(Contd. on page 6)
### 48.1.26

- **Ignition temperature:** 374 °C
- **Decomposition temperature:** Not determined.
- **Auto igniting:** Product is not selfigniting.
- **Danger of explosion:** Product is not explosive. However, formation of explosive air/vapor mixtures are possible.
  - **Explosion limits:**
    - Lower: 1.6 Vol %
    - Upper: 8.4 Vol %
  - **Vapor pressure at 20 °C:** 279 hPa
  - **Density at 20 °C:** 0.7579 g/cm³
  - **Relative density** Not determined.
  - **Vapor density** Not determined.
  - **Evaporation rate** Not determined.
- **Solubility in / Miscibility with**
  - Water at 25 °C: 51 g/l
- **Partition coefficient (n-octanol/water):** Not determined.
- **Viscosity:**
  - Dynamic at 20 °C: 0.27 mPas
  - Kinematic: Not determined.
- **Solvent content:**
  - Organic solvents: 98.4 %
- **Solids content:** 0.0 %
- **Other information** No further relevant information available.

### 10 Stability and reactivity

- **Reactivity** No further relevant information available.
- **Chemical stability**
  - **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
  - **Possibility of hazardous reactions** No dangerous reactions known.
  - **Conditions to avoid** No further relevant information available.
  - **Incompatible materials:** No further relevant information available.
  - **Hazardous decomposition products:** No dangerous decomposition products known.

### 11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:**
  - **LD/LC50 values that are relevant for classification:**
    | ATE (Acute Toxicity Estimate) | Oral    | Dermal | Inhalative |
    |-----------------------------|---------|--------|------------|
    | LD50                        | 2,980 mg/kg (rat) | 960 mg/kg | 62.8 mg/L |
    | LC50/4 h                    |         |        |            |
### 48.1.26 1634-04-4 tert-butyl methyl ether

<table>
<thead>
<tr>
<th>Route</th>
<th>LD50</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oral</td>
<td>4,000 mg/kg (rat)</td>
<td></td>
</tr>
<tr>
<td>Dermal</td>
<td>1,000 mg/kg (rabbit)</td>
<td></td>
</tr>
<tr>
<td>Inhalative</td>
<td>23,576 mg/L (rat)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Route</th>
<th>LD50</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oral</td>
<td>2,820 mg/kg (rat)</td>
<td></td>
</tr>
<tr>
<td>Dermal</td>
<td>799 mg/kg (rabbit)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Route</th>
<th>LD50</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oral</td>
<td>3,320 mg/kg (rat)</td>
<td></td>
</tr>
</tbody>
</table>

### 79-43-6 dichloroacetic acid

<table>
<thead>
<tr>
<th>Route</th>
<th>LD50</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oral</td>
<td>50 mg/kg (rat)</td>
<td></td>
</tr>
<tr>
<td>Dermal</td>
<td>59.9 mg/kg (rabbit)</td>
<td></td>
</tr>
</tbody>
</table>

### 76-03-9 trichloroacetic acid

<table>
<thead>
<tr>
<th>Route</th>
<th>LD50</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oral</td>
<td>3,320 mg/kg (rat)</td>
<td></td>
</tr>
</tbody>
</table>

### 79-08-3 bromoacetic acid

<table>
<thead>
<tr>
<th>Route</th>
<th>LD50</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oral</td>
<td>50 mg/kg (rat)</td>
<td></td>
</tr>
<tr>
<td>Dermal</td>
<td>59.9 mg/kg (rabbit)</td>
<td></td>
</tr>
</tbody>
</table>

### 631-64-1 dibromoacetic acid

<table>
<thead>
<tr>
<th>Route</th>
<th>LD50</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oral</td>
<td>1,737 mg/kg (rat)</td>
<td></td>
</tr>
</tbody>
</table>

- **Primary irritant effect:**
  - **on the skin:** Irritant to skin and mucous membranes.
  - **on the eye:** No irritating effect.
  - **Sensitization:** Sensitization possible through skin contact.
  - **Additional toxicological information:** The product shows the following dangers according to internally approved calculation methods for preparations:
  - Toxic
  - Irritant

### Carcinogenic categories

- **IARC (International Agency for Research on Cancer)**
  - 1634-04-4 tert-butyl methyl ether 3
  - 79-43-6 dichloroacetic acid 2B
  - 76-03-9 trichloroacetic acid 2B
  - 631-64-1 dibromoacetic acid 2B
  - 5589-96-8 bromochloroacetic acid 2B

### NTP (National Toxicology Program)

None of the ingredients is listed.

---

### 12 Ecological information

- **Toxicity**
  - **Aquatic toxicity:** No further relevant information available.
  - **Persistence and degradability** No further relevant information available.
  - **Behavior in environmental systems:**
  - **Bioaccumulative potential** No further relevant information available.
  - **Mobility in soil** No further relevant information available.
  - **Additional ecological information:**
  - **General notes:**
    - Water hazard class 1 (Self-assessment): slightly hazardous for water
    - Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

(Contd. on page 8)
Safety Data Sheet
according to HPR, Schedule 1

Trade name: Haloacetic Acid Standard (1X1 mL)

Results of PBT and vPvB assessment
- PBT: Not applicable.
- vPvB: Not applicable.
- Other adverse effects: No further relevant information available.

13 Disposal considerations

- Waste treatment methods
  - Recommendation:
    Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

- Uncleaned packagings:
  - Recommendation: Disposal must be made according to official regulations.

14 Transport information

- Not Regulated, De minimus Quantities

- UN-Number
  - DOT, TDG, IMDG, IATA: UN2350

- UN proper shipping name
  - DOT: Butyl methyl ether
  - TDG: 2350 BUTYL METHYL ETHER
  - IMDG, IATA: BUTYL METHYL ETHER

- Transport hazard class(es)
  - DOT, TDG, IMDG, IATA
    - Class: 3 Flammable liquids
    - Label: 3
    - Packing group
      - DOT, TDG, IMDG, IATA: II
    - Environmental hazards: Not applicable.

- Special precautions for user
  - Warning: Flammable liquids
  - Danger code (Kemler): 33
  - EMS Number: F-E,S-D
  - Stowage Category: B

- Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code
  - Not applicable.

- Transport/Additional information:
  - DOT
  - Quantity limitations
    - On passenger aircraft/rail: 5 L
    - On cargo aircraft only: 60 L

(Contd. on page 9)
## 48.1.26 TDG
- **Excepted quantities (EQ)**
  - Code: E2
  - Maximum net quantity per inner packaging: 30 ml
  - Maximum net quantity per outer packaging: 500 ml

## IMDG
- **Limited quantities (LQ)**
  - 1L
- **Excepted quantities (EQ)**
  - Code: E2
  - Maximum net quantity per inner packaging: 30 ml
  - Maximum net quantity per outer packaging: 500 ml

## UN "Model Regulation"
- UN 2350 BUTYL METHYL ETHER, 3, II

### 15 Regulatory information

- **Sara**
  - **Section 355 (extremely hazardous substances):**
    - 79-11-8 chloroacetic acid
  - **Section 313 (Specific toxic chemical listings):**
    - 1634-04-4 tert-butyl methyl ether
    - 79-11-8 chloroacetic acid
  - **TSCA (Toxic Substances Control Act):**
    - 1634-04-4 tert-butyl methyl ether
    - 79-11-8 chloroacetic acid
    - 79-43-6 dichloroacetic acid
    - 76-03-9 trichloroacetic acid
    - 79-08-3 bromoacetic acid
    - 631-64-1 dibromoacetic acid

- **Canadian substance listings:**
  - **Canadian Domestic Substances List (DSL)**
    - 1634-04-4 tert-butyl methyl ether
    - 79-11-8 chloroacetic acid
    - 79-43-6 dichloroacetic acid
    - 76-03-9 trichloroacetic acid
  - **Canadian Ingredient Disclosure list (limit 0.1%)**
    - None of the ingredients is listed.
  - **Canadian Ingredient Disclosure list (limit 1%)**
    - None of the ingredients is listed.
  - **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.
16 Other information

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.

- Date of the latest revision of the safety data sheet 03/29/2019 / 2
- Abbreviations and acronyms:
  - IMDG: International Maritime Code for Dangerous Goods
  - DOT: US Department of Transportation
  - IATA: International Air Transport Association
  - EINECS: European Inventory of Existing Commercial Chemical Substances
  - ELINCS: European List of Notified Chemical Substances
  - CAS: Chemical Abstracts Service (division of the American Chemical Society)
  - NFPA: National Fire Protection Association (USA)
  - HMIS: Hazardous Materials Identification System (USA)
  - LC50: Lethal concentration, 50 percent
  - LD50: Lethal dose, 50 percent
  - PBT: Persistent, Bioaccumulative and Toxic
  - vPvB: very Persistent and very Bioaccumulative
- * Data compared to the previous version altered.