1 Identification

· Product identifier
· Trade name: Haloacetic Acid Standard (1X1 mL)
· Part number: PHM-570-1
· Relevant identified uses of the substance or mixture and uses advised against
Reagents and Standards for Analytical Chemical Laboratory Use
· Details of the supplier of the safety data sheet
· Manufacturer/Supplier:
  Agilent Technologies Australia Pty Ltd
  679 Springvale Road
  Mulgrave
  Victoria 3170, Australia
· Further information obtainable from:
  Telephone: 1800 802 402
  e-mail: pdl-msds_author@agilent.com
· Emergency telephone number: CHEMTREC®: +(61) - 290372994

2 Hazard(s) Identification

· Classification of the substance or mixture

  Flammable

  Flamm. Liq. 2 H225 Highly flammable liquid and vapour.

  Poisoning

  Acute Tox. 3 H311 Toxic in contact with skin.

  Irritation

  Skin Irrit. 2 H315 Causes skin irritation.

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

  GHS02
  GHS06

· Signal word Danger
· Hazard-determining components of labelling:
  tert-butyl methyl ether
  chloroacetic acid
  bromoacetic acid
  dichloroacetic acid

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

- **Hazard statements**
  - Highly flammable liquid and vapour.
  - Toxic in contact with skin.
  - Causes skin irritation.

- **Precautionary statements**
  - If medical advice is needed, have product container or label at hand.
  - Keep out of reach of children.
  - Read label before use.
  - Keep away from heat/sparks/open flames/hot surfaces. No smoking.
  - Keep container tightly closed.
  - Ground/bond container and receiving equipment.
  - Use explosion-proof electrical/ventilating/lighting equipment.
  - Use only non-sparking tools.
  - Take precautionary measures against static discharge.
  - Wash thoroughly after handling.
  - Wear protective gloves/protective clothing/eye protection/face protection.
  - IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
  - Call a POISON CENTER/doctor if you feel unwell.
  - Specific measures (see on this label).
  - If skin irritation occurs: Get medical advice/attention.
  - Take off contaminated clothing and wash before reuse.
  - 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.

- **Other hazards**
  - Results of PBT and vPvB assessment
    - **PBT:** Not applicable.
    - **vPvB:** Not applicable.

### 3 Composition and Information on Ingredients

- **Chemical characterisation:** Mixtures
- **Description:** Mixture of substances listed below with nonhazardous additions.

#### Dangerous components:

<table>
<thead>
<tr>
<th>Component</th>
<th>Composition</th>
<th>Hazards</th>
</tr>
</thead>
<tbody>
<tr>
<td>tert-butyl methyl ether</td>
<td>98.378%</td>
<td>Flam. Liq. 2, H225; Acute Tox. 3, H311; Skin Irrit. 2, H315</td>
</tr>
<tr>
<td>bromoacetic acid</td>
<td>0.2703%</td>
<td>Acute Tox. 3, H301; Acute Tox. 3, H311; Acute Tox. 3, H331; Skin Corr. 1, H314; Skin Sens. 1, H317</td>
</tr>
</tbody>
</table>

- **Additional information:** For the wording of the listed hazard phrases refer to section 16.

### 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.
48.1.2 After inhalation: In case of unconsciousness place patient stably in side position for transportation.
48.1.3 After skin contact: Immediately wash with water and soap and rinse thoroughly.
48.1.4 After eye contact: Rinse opened eye for several minutes under running water. Then consult a doctor.
48.1.5 After swallowing: If symptoms persist consult doctor.

5 Fire Fighting Measures

· Extinguishing media
· Suitable extinguishing agents: CO2, 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 product to reach sewage system or any water course.
  Inform respective authorities in case of seepage into water course or sewage system.
  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.
  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: No special precautions are necessary if used correctly.
· Information about fire - and explosion protection:
  Keep ignition sources away - Do not smoke.
  Protect against electrostatic charges.
· 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 container tightly sealed.
8 Exposure controls and personal protection

· Additional information about design of technical facilities: No further data; see item 7.
· Control parameters
  · Ingredients with limit values that require monitoring at the workplace:
    | CAS Number | Substance | NES Short-term value | NES Long-term value | WES Short-term value | WES Long-term value |
    | 1634-04-4 | tert-butyl methyl ether | 275 mg/m³, 75 ppm | 92 mg/m³, 25 ppm | 275 mg/m³, 75 ppm | 92 mg/m³, 25 ppm |
· Additional information: The lists valid during the making 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.
    · Respiratory protection:
      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 11-13mil
    thickness are recommended for normal use. The breakthrough time is 1hr. For cleaning a spill where there is direct
    contact of the chemical, butyl rubber gloves are recommended 12-15mil 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
    - **Colour:** Colourless
  - **Odour:** Characteristic
  - **Odour threshold:** Not determined.
- **pH-value:** Not determined.
- **Change in condition**
  - **Melting point/freezing point:** Undetermined.
  - **Initial boiling point and boiling range:** 55.2 °C
- **Flash point:** 0 °C
- **Flammability (solid, gas):** Not applicable.
- **Ignition temperature:** 374 °C
- **Decomposition temperature:** Not determined.
- **Auto-ignition temperature:** Product is not selfigniting.
- **Explosive properties:**
  - **Product is not explosive. However, formation of explosive air/vapour mixtures are possible.**
- **Explosion limits:**
  - **Lower:** 1.6 Vol %
  - **Upper:** 8.4 Vol %
- **Vapour pressure at 20 °C:** 279 hPa
- **Density at 20 °C:** 0.75629 g/cm³
  - **Relative density:** Not determined.
  - **Vapour 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 %
  - **VOC (EC):** 98.38 %
- **Solids content:** 1.1 %
- **Other information**
  - No further relevant information available.

### 10 Stability and Reactivity

- **Reactivity** No further relevant information available.
48.1.26 · 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 relevant for classification:

<table>
<thead>
<tr>
<th></th>
<th>Oral LD50</th>
<th>Dermal LD50</th>
<th>Inhalative LC50/4 h</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATE (Acute Toxicity Estimates)</td>
<td>2,980 mg/kg (rat)</td>
<td>960 mg/kg</td>
<td>62.8 mg/L</td>
</tr>
</tbody>
</table>

1634-04-4 tert-butyl methyl ether

<table>
<thead>
<tr>
<th></th>
<th>Oral LD50</th>
<th>Dermal LD50</th>
<th>Inhalative LC50/4 h</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>4,000 mg/kg (rat)</td>
<td>1,000 mg/kg (rabbit)</td>
<td>23,576 mg/L (rat)</td>
</tr>
</tbody>
</table>

76-03-9 trichloroacetic acid

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

79-08-3 bromoacetic acid

<table>
<thead>
<tr>
<th></th>
<th>Oral LD50</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oral</td>
<td>50 mg/kg (rat)</td>
</tr>
</tbody>
</table>

· Primary irritant effect:
· Skin corrosion/irritation Irritant to skin and mucous membranes.
· Serious eye damage/irritation No irritating effect.
· Respiratory or skin sensitisation No sensitising effects known.
· Additional toxicological information:
The product shows the following dangers according to the calculation method of the General EU Classification Guidelines for Preparations as issued in the latest version:
Toxic
Irritant

12 Ecological Information

· Toxicity
· Aquatic toxicity: No further relevant information available.
· Persistence and degradability No further relevant information available.
· Behaviour 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 2 (German Regulation) (Self-assessment): hazardous for water
Do not allow product to reach ground water, water course or sewage system. Danger to drinking water if even small quantities leak into the ground.

· **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 together with household garbage. Do not allow product to reach sewage system.

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

### 14 Transport information

- **Not Regulated, De minimus Quantities**

- **UN-Number**
  - **ADG, IMDG, IATA** UN2350

- **UN proper shipping name**
  - **ADG**
  - **IMDG, IATA** BUTYL METHYL ETHER solution

- **Transport hazard class(es)**
  - **ADG, IMDG, IATA**

  - **Class** 3 Flammable liquids.
  - **Label** 3

- **Packing group**
  - **ADG, 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
  - **Stowage Code** SW2 Clear of living quarters.

- **Transport in bulk according to Annex II of Marpol and the IBC Code** Not applicable.
Safety Data Sheet
according to WHS Regulations

Trade name: Haloacetic Acid Standard (1X1 mL)

- Transport/Additional information:
  - ADG
  - 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
  - Transport category: 2
  - Tunnel restriction code: D/E

- 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 SOLUTION, 3, II

15 Regulatory information

- Safety, health and environmental regulations/legislation specific for the substance or mixture
  - Australian Inventory of Chemical Substances
    - 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
    - 75-99-0 2,2-dichloropropionic acid
  - Standard for the Uniform Scheduling of Medicines and Poisons
    - 76-03-9 trichloroacetic acid $4, S6

- Directive 2012/18/EU
- Named dangerous substances - ANNEX I None of the ingredients is listed.
- Seveso category P5c FLAMMABLE LIQUIDS
- Qualifying quantity (tonnes) for the application of lower-tier requirements 5,000 t
- Qualifying quantity (tonnes) for the application of upper-tier requirements 50,000 t
- 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.

- Relevant phrases
  - H225 Highly flammable liquid and vapour.
  - H301 Toxic if swallowed.
  - H311 Toxic in contact with skin.
  - H314 Causes severe skin burns and eye damage.
  - H315 Causes skin irritation.
H317 May cause an allergic skin reaction.
H331 Toxic if inhaled.

Abbreviations and acronyms:
ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
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)
VOC: Volatile Organic Compounds (USA, EU)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
Flam. Liq. 2: Flammable liquids – Category 2
Acute Tox. 3: Acute toxicity – Category 3
Skin Corr. 1: Skin corrosion/irritation – Category 1
Skin Irrit. 2: Skin corrosion/irritation – Category 2
Skin Sens. 1: Skin sensitisation – Category 1