1 Identification

· Product identifier

· Trade name: Disinfection Byproducts Standard (1X1 mL)

· Part number: HCM-548-1

· 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-mds_author@agilent.com

· Emergency telephone number: CHEMTREC®: +(61) - 290372994

2 Hazard(s) Identification

· Classification of the substance or mixture

  flame

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

  Eye Irrit. 2A  H319  Causes serious eye irritation.

  STOT SE 3  H336  May cause drowsiness or dizziness.

· Label elements

  - GHS label elements The product is classified and labelled according to the Globally Harmonised System (GHS).

  - Hazard pictograms

  GHS02  GHS07

· Signal word Danger

· Hazard statements

  Highly flammable liquid and vapour.
  Causes serious eye irritation.
  May cause drowsiness or dizziness.

· 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.
  Ground/bond container and receiving equipment.

(Contd. on page 2)
Use explosion-proof electrical/ventilating/lighting equipment.
Use only non-sparking tools.
Take precautionary measures against static discharge.
Avoid breathing dust/fume/gas/mist/vapours/spray.
Wash thoroughly after handling.
Use only outdoors or in a well-ventilated area.
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.

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Call a POISON CENTER/doctor if you feel unwell.

If eye irritation persists: Get medical advice/attention.

In case of fire: Use for extinction: CO2, powder or water spray.

Store in a well-ventilated place. Keep container tightly closed.

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>Formula</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acetone</td>
<td>67-64-1</td>
<td>98.9888%</td>
</tr>
<tr>
<td>Dibromoadetonitrile</td>
<td>3252-43-5</td>
<td>0.126%</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.
- After inhalation: Supply fresh air; consult doctor in case of complaints.
- After skin contact: Immediately rinse with water.
- After eye contact:
  - Rinse opened eye for several minutes under running water. If symptoms persist, 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.
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 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
    - Ensure good ventilation/exhaustion at the workplace.
    - Prevent formation of aerosols.
  - 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.
      - Store in cool, dry conditions in well sealed receptacles.
    - Specific end use(s) No further relevant information available.
8 Exposure controls and personal protection

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

- Control parameters

<table>
<thead>
<tr>
<th>Ingredients with limit values that require monitoring at the workplace:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>67-64-1 acetone</td>
<td></td>
</tr>
</tbody>
</table>
| NES | Short-term value: 2375 mg/m³, 1000 ppm  
Long-term value: 1185 mg/m³, 500 ppm  |
| WES | Short-term value: 2375 mg/m³, 1000 ppm  
Long-term value: 1185 mg/m³, 500 ppm  |
| 3252-43-5 dibromoacetonitrile |  |
| NES | Long-term value: 5 mg/m³  
as CN, Sk  |
| WES | Long-term value: 5 mg/m³  
as CN, Sk  |

- 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.
  
  Avoid contact with the eyes.
  
  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
Trade name: Disinfection Byproducts Standard (1X1 mL)

9 Physical and Chemical Properties

- General Information
  - Appearance:
    - Form: Fluid
  - Odour: Characteristic
  - Odour threshold: Not determined.

- pH-value: Not determined.

- Change in condition
  - Melting point/freezing point: -94.7 °C
  - Initial boiling point and boiling range: 55.8-56.6 °C

- Flash point: -17 °C

- Flammability (solid, gas): Not applicable.

- Ignition temperature: 465 °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: 2.6 Vol %
  - Upper: 13 Vol %

- Vapour pressure at 20 °C: 245.3 hPa

- Density at 20 °C: 0.791 g/cm³
- Relative density Not determined.
- Vapour density Not determined.
- Evaporation rate Not determined.

- Solubility in / Miscibility with water: Not miscible or difficult to mix.

- Partition coefficient: n-octanol/water: Not determined.

- Viscosity:
  - Dynamic at 20 °C: 32 mPas
  - Kinematic: Not determined.

- Solvent content:
  - Organic solvents: 99.0 %
48.1.26

VOC (EC) 98.99 %

Solids content: 0.1 %

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 relevant for classification:

<table>
<thead>
<tr>
<th>ATE (Acute Toxicity Estimates)</th>
<th>Oral LD50</th>
<th>Dermal LD50</th>
<th>Inhalative LC50/4 h</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acetone</td>
<td>43,543 mg/kg</td>
<td>28,481 mg/kg</td>
<td>297 mg/L</td>
</tr>
<tr>
<td>67-64-1 acetone</td>
<td>5,800 mg/kg (rat)</td>
<td>20,000 mg/kg (rabbit)</td>
<td></td>
</tr>
<tr>
<td>76-06-2 trichloronitromethane</td>
<td>250 mg/kg (rat)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3252-43-5 dibromoacetonitrile</td>
<td>245 mg/kg (rat)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Primary irritant effect:
- Skin corrosion/irritation No irritant effect.
- Serious eye damage/irritation 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:
Irritant

12 Ecological Information

- Toxicity
- Aquatic toxicity: No further relevant information available.
- Persistence and degradability No further relevant information available.
Trade name: Disinfection Byproducts Standard (1X1 mL)

- 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 1 (German Regulation) (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.
- 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
  - UN, IMDG, IATA: UN1090
- UN proper shipping name
  - ADG: 1090 ACETONE solution
  - IMDG, IATA: ACETONE 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
  - Danger code (Kemler): Warning: Flammable liquids.
  - EMS Number: F-E-S-D

(Contd. of page 8)
Trade name: Disinfection Byproducts Standard (1X1 mL)

- **Stowage Category**: B
- **Transport in bulk according to Annex II of Marpol and the IBC Code**: Not applicable.

- **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 1090 ACETONE SOLUTION, 3, II

### 15 Regulatory information

- **Safety, health and environmental regulations/legislation specific for the substance or mixture**
  - **Australian Inventory of Chemical Substances**
    - 67-64-1 acetone
    - 76-06-2 trichloronitromethane
    - 513-88-2 1,1-dichloroacetone
    - 545-06-2 trichloroacetonitrile
    - 918-00-3 1,1,1-trichloro-2-propanone
    - 302-17-0 chloral hydrate
  - **Standard for the Uniform Scheduling of Medicines and Poisons**
    - 67-64-1 acetone S5
    - 76-06-2 trichloronitromethane S6, S7
    - 302-17-0 chloral hydrate S4
  - **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.
Trade name: Disinfection Byproducts Standard (1X1 mL)

- **Relevant phrases**
  - H225 Highly flammable liquid and vapour.
  - H226 Flammable liquid and vapour.
  - H301 Toxic if swallowed.
  - H310 Fatal in contact with skin.
  - H315 Causes skin irritation.
  - H319 Causes serious eye irritation.
  - H330 Fatal if inhaled.
  - H335 May cause respiratory irritation.
  - H336 May cause drowsiness or dizziness.
  - H351 Suspected of causing cancer.

- **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
  - Flam. Liq. 3: Flammable liquids – Category 3
  - Acute Tox. 3: Acute toxicity – Category 3
  - Acute Tox. 2: Acute toxicity – Category 2
  - Skin Irrit. 2: Skin corrosion/irritation – Category 2
  - Eye Irrit. 2: Serious eye damage/eye irritation – Category 2
  - Eye Irrit. 2A: Serious eye damage/eye irritation – Category 2A
  - Carc. 2: Carcinogenicity – Category 2
  - STOT SE 3: Specific target organ toxicity (single exposure) – Category 3