Safety Data Sheet
acc. to OSHA HCS

Revision date 08/24/2024

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1 Identification

· **Product identifier**

· **Product Name: Haloacetic Acid Standard (1X1 mL)**

· **Part number:** PHM-540-1
· **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

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2 Hazard(s) identification

· **Classification of the substance or mixture**


GHS02 Flame

Flammable Liquids 2 H225 Highly flammable liquid and vapor.


GHS06 Skull and crossbones

Acute Toxicity - Dermal 3 H311 Toxic in contact with skin.


GHS08 Health hazard

Carcinogenicity 1B H350 May cause cancer.


GHS07

Skin Irritation 2 H315 Causes skin irritation.
Sensitization - Skin 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

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· **Hazard-determining components of labeling:**
tert-butyl methyl ether
tribromoacetic acid
bromoacetic acid
dibromochloroacetic acid

· **Hazard statements**
H225 Highly flammable liquid and vapor.
H311 Toxic in contact with skin.
H315 Causes skin irritation.
H317 May cause an allergic skin reaction.
H350 May cause cancer.

· **Precautionary statements**

P210	Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P241	Use explosion-proof electrical/ventilating/lighting/equipment.
P261	Avoid breathing dust/fume/gas/mist/vapors/spray
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P240	Ground/bond container and receiving equipment.
P233	Keep container tightly closed.
P242	Use only non-sparking tools.
P243	Take precautionary measures against static discharge.
P264	Wash thoroughly after handling.
P272	Contaminated work clothing must not be allowed out of the workplace.
P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P303+P361+P353	If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P321	Specific treatment (see on this label).
P312	Call a poison center/doctor if you feel unwell.
P308+P313	IF exposed or concerned: Get medical advice/attention.
P333+P313	If skin irritation or rash occurs: Get medical advice/attention.
P370+P378	In case of fire: Use CO2, powder or water spray to extinguish.
P361+P364	Take off immediately all contaminated clothing and wash it before reuse.
P405	Store locked up.
P403+P235	Store in a well-ventilated place. Keep cool.
P501	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

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

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· **vPvB:** Not applicable.

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3 Composition/information on ingredients

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

· **Dangerous components:**		
1634-04-4	tert-butyl methyl ether	97.5673%
75-96-7	tribromoacetic acid	0.2703%
76-03-9	trichloroacetic acid	0.2703%
79-08-3	bromoacetic acid	0.2703%
79-11-8	chloroacetic acid	0.2703%
79-43-6	dichloroacetic acid	0.2703%
631-64-1	dibromoacetic acid	0.2703%
5278-95-5	dibromochloroacetic acid	0.2703%
5589-96-8	bromochloroacetic acid	0.2703%
71133-14-7	bromodichloroacetic acid	0.2703%

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 Fire-fighting 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.

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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 section 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.
· **Protective Action Criteria for Chemicals**

· **PAC-1:**		
1634-04-4	tert-butyl methyl ether	50 ppm
76-03-9	trichloroacetic acid	1.5 ppm
79-08-3	bromoacetic acid	0.023 mg/m³
79-11-8	chloroacetic acid	1.5 ppm
79-43-6	dichloroacetic acid	1.5 ppm

· **PAC-2:**		
1634-04-4	tert-butyl methyl ether	570 ppm
76-03-9	trichloroacetic acid	16 ppm
79-08-3	bromoacetic acid	0.26 mg/m³
79-11-8	chloroacetic acid	6.6 ppm
79-43-6	dichloroacetic acid	93 mg/m3

· **PAC-3:**		
1634-04-4	tert-butyl methyl ether	5300* ppm
76-03-9	trichloroacetic acid	99 ppm
79-08-3	bromoacetic acid	1.5 mg/m³
79-11-8	chloroacetic acid	15 ppm
79-43-6	dichloroacetic acid	560 mg/m3

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.

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· **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.

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8 Exposure controls/personal protection

· **Additional information about design of technical systems:** No further data; see section 7.

· **Control parameters**
· **Components with limit values that require monitoring at the workplace:**
The following constituents are the only constituents of the product which have a PEL, TLV or other recommended exposure limit.
At this time, the other constituents have no known exposure limits.

1634-04-4 tert-butyl methyl ether	
TLV	Long-term value: 50 ppm A3
76-03-9 trichloroacetic acid	
REL	Long-term value: 7 mg/m³, 1 ppm
TLV	Long-term value: 0.5 ppm A3
79-11-8 chloroacetic acid	
TLV	Long-term value: 0.5* ppm Skin;*as inhalable fraction and vapor, A4
WEEL	Long-term value: 0.5 ppm Skin
79-43-6 dichloroacetic acid	
TLV	Long-term value: 0.5 ppm Skin, A3

· **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.

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· **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

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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 (131.4 °F)
· **Flash point:**	0 °C (32 °F)
· **Flammability (solid, gaseous):**	Highly flammable.
· **Auto igniting:**	374 °C (705.2 °F)
· **Decomposition temperature:**	Not determined.
· **Ignition temperature:**	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 (68 °F):**	279 hPa (209.3 mm Hg)
· **Density at 20 °C (68 °F):**	0.74 g/cm³ (6.1753 lbs/gal)
· **Relative density**	Not determined.
· **Vapor density**	Not determined.

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· **Evaporation rate**	Not determined.
· **Solubility in / Miscibility with**	
Water at 25 °C (77 °F):	51 g/l
· **Partition coefficient (n-octanol/water):**	Not determined.
· **Viscosity:**	
Dynamic at 20 °C (68 °F):	0.27 mPas
Kinematic:	Not determined.
· **Solvent content:**	
Organic solvents:	97.6 %
VOC content:	97.57 % 975.7 g/l / 8.14 lb/gal
Solids content:	1.9 %
· **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.

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11 Toxicological information

· **Information on toxicological effects**
· **Acute toxicity:**

· **LD/LC50 values that are relevant for classification:**		
ATE (Acute Toxicity Estimate)		
Oral	LD50	11,158 mg/kg (rat)
Dermal	LD50	968 mg/kg
Inhalative	LC50/4 h	49 mg/L
1634-04-4 tert-butyl methyl ether		
Oral	LD50	4,000 mg/kg (rat)
Dermal	LD50	1,000 mg/kg (rabbit)
Inhalative	LC50/4 h	23,576 mg/L (rat)
76-03-9 trichloroacetic acid		
Oral	LD50	3,320 mg/kg (rat)
79-08-3 bromoacetic acid		
Oral	LD50	50 mg/kg (rat)
Dermal	LD50	59.9 mg/kg (rabbit)

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79-11-8 chloroacetic acid		
Oral	LD50	76 mg/kg (rat)
Dermal	LD50	305 mg/kg (rat)
Inhalative	LC50/4 h	0.18 mg/L (rat)
79-43-6 dichloroacetic acid		
Oral	LD50	2,820 mg/kg (rat)
Dermal	LD50	799 mg/kg (rabbit)
631-64-1 dibromoacetic acid		
Oral	LD50	1,737 mg/kg (rat)

· **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
76-03-9	trichloroacetic acid	2B
79-43-6	dichloroacetic acid	2B
631-64-1	dibromoacetic acid	2B
5589-96-8	bromochloroacetic acid	2B

· **NTP (National Toxicology Program)**		
75-96-7	tribromoacetic acid	R
631-64-1	dibromoacetic acid	R
5278-95-5	dibromochloroacetic acid	R
5589-96-8	bromochloroacetic acid	R
71133-14-7	bromodichloroacetic acid	R

· **OSHA-Ca (Occupational Safety & Health Administration)**
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 2 (Self-assessment): hazardous for water

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

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

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14 Transport information

· **Not Regulated, De minimis Quantities**	-
· **UN-Number** · **DOT, IMDG, IATA**	UN2350
· **UN proper shipping name** · **DOT** · **IMDG, IATA**	Butyl methyl ether solution BUTYL METHYL ETHER solution
· **Transport hazard class(es)**	
· **DOT**	
· **Class** · **Label**	3 Flammable liquids 3
· **IMDG, IATA**	
· **Class** · **Label**	3 Flammable liquids 3
· **Packing group** · **DOT, IMDG, IATA**	II
· **Environmental hazards:**	Not applicable.
· **Special precautions for user** · **Hazard identification number (Kemler code):** · **EMS Number:**	Warning: Flammable liquids 33 F-E,S-D

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· **Stowage Category**	B
· **Stowage Code**	SW2 Clear of living quarters.
· **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
· **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

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15 Regulatory information

· **Safety, health and environmental regulations/legislation specific for the substance or mixture**
· **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	ACTIVE
75-96-7	tribromoacetic acid	ACTIVE
76-03-9	trichloroacetic acid	ACTIVE
79-08-3	bromoacetic acid	ACTIVE
79-11-8	chloroacetic acid	ACTIVE
79-43-6	dichloroacetic acid	ACTIVE
631-64-1	dibromoacetic acid	ACTIVE

· **Hazardous Air Pollutants**	
1634-04-4	tert-butyl methyl ether
79-11-8	chloroacetic acid

· **Proposition 65**

· **Chemicals known to cause cancer:**	
76-03-9	trichloroacetic acid
79-43-6	dichloroacetic acid
631-64-1	dibromoacetic acid
5589-96-8	bromochloroacetic acid

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71133-14-7	bromodichloroacetic acid

· **Chemicals known to cause reproductive toxicity for females:**

None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for males:**

79-43-6	dichloroacetic acid

· **Chemicals known to cause developmental toxicity:**

79-43-6	dichloroacetic acid

· **Carcinogenic categories**

· **EPA (Environmental Protection Agency)**

76-03-9	trichloroacetic acid	SC
79-43-6	dichloroacetic acid	L

· **TLV (Threshold Limit Value)**

1634-04-4	tert-butyl methyl ether	A3
76-03-9	trichloroacetic acid	A3
79-11-8	chloroacetic acid	A4
79-43-6	dichloroacetic acid	A3

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**

None of the ingredients is listed.

· **National regulations:**

· **Information about limitation of use:**
Workers are not allowed to be exposed to the hazardous carcinogenic materials contained in this preparation.
Exceptions can be made by the authorities in certain cases.
· **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.

· **Contact:**
· **Date of preparation / last revision** 08/24/2024 / 3
· **Abbreviations and acronyms:**
ADR: Accord relatif au transport international des marchandises dangereuses par route (European Agreement Concerning the International Carriage of Dangerous Goods by Road)
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)
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
NIOSH: National Institute for Occupational Safety
OSHA: Occupational Safety & Health
TLV: Threshold Limit Value

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PEL: Permissible Exposure Limit
REL: Recommended Exposure Limit
Flammable Liquids 2: Flammable liquids – Category 2
Acute Toxicity - Dermal 3: Acute toxicity – Category 3
Skin Irritation 2: Skin corrosion/irritation – Category 2
Sensitization - Skin 1: Skin sensitisation – Category 1
Carcinogenicity 1B: Carcinogenicity – Category 1B

· *** Data compared to the previous version altered.**