

Safety Data Sheet

according to HPR, Schedule 1

Date of issue 01/28/2026

Revision: 01/28/2026

1 Identification

- **Product identifier**
- **Product Name:** Chlorinated Herbicides Standard (1 x 1 mL)
- **Part no. :** HBM-545-1
- **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 (Oral) - Category 3

H301 Toxic if swallowed.

Acute Toxicity (Dermal) – Category 3

H311 Toxic in contact with skin.

Acute Toxicity (Inhalation) - Category 3

H331 Toxic if inhaled.



GHS08 Health hazard

Sensitization - respiratory – Category 1

H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.

Carcinogenicity – Category 2

H351 Suspected of causing cancer.

Reproductive Toxicity - Category 1B

H360 May damage fertility or the unborn child.

Specific target organ toxicity (single exposure) – Category 1

H370 Causes damage to the central nervous system and the visual organs.



GHS07

Skin Irritation - Category 2

H315 Causes skin irritation.

Eye damage/irritation – Category 2A

H319 Causes serious eye irritation.

Sensitization - skin – 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).

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· Hazard pictograms

· Signal word Danger
· Hazard-determining components of labeling:

methanol
2-(4-chloro-2-methylphenoxy)propionic acid
dinoseb
2,4-DB
2,4-D (ISO)

· Hazard statements

H225 Highly flammable liquid and vapour.
H301+H311+H331 Toxic if swallowed, in contact with skin or if inhaled.
H315 Causes skin irritation.
H319 Causes serious eye irritation.
H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H317 May cause an allergic skin reaction.
H351 Suspected of causing cancer.
H360 May damage fertility or the unborn child.
H370 Causes damage to the central nervous system and the visual organs.

· Precautionary statements

P101 If medical advice is needed, have product container or label at hand.
P102 Keep out of reach of children.
P103 Read carefully and follow all instructions.
P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P260 Do not breathe vapors.
P284 [In case of inadequate ventilation] wear respiratory protection.
P241 Use explosion-proof [electrical/ventilating/lighting] equipment.
P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection.
P240 Ground and bond container and receiving equipment.
P242 Use non-sparking tools.
P243 Take action to prevent static discharges.
P264 Wash thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P271 Use only outdoors or in a well-ventilated area.
P272 Contaminated work clothing should 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.
P301+P310 IF SWALLOWED: Immediately call a POISON CENTER/doctor.
P308+P313 IF exposed or concerned: Get medical advice/attention.
P321 Specific treatment (see on this label).
P342+P311 If experiencing respiratory symptoms: Call a POISON CENTER/doctor.
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P312 Call a POISON CENTER/doctor if you feel unwell.
P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].
P333+P313 If skin irritation or rash occurs: Get medical advice/attention.
P337+P313 If eye irritation persists: Get medical advice/attention.

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P330 Rinse mouth.
P370+P378 In case of fire: Use CO₂, powder or water spray to extinguish.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P361+P364 Take off immediately all contaminated clothing and wash it before reuse.
P403+P233 Store in a well-ventilated place. Keep container tightly closed.
P403+P235 Store in a well-ventilated place. Keep cool.
P405 Store locked up.
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

· **Information pertaining to particular dangers for man and environment:**

· **Classification system:**

· **NFPA ratings (scale 0 - 4)**



· **HMIS-ratings (scale 0 - 4)**



3 Composition/Information on ingredients

· **Chemical characterization: Mixtures**

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

· **Dangerous components:**

67-56-1	methanol	96.4604% w/w
93-65-2	2-(4-chloro-2-methylphenoxy)propionic acid	1.2642% w/w
94-74-6	MCPA (ISO)	1.2642% w/w
88-85-7	dinoseb	0.1264% w/w
93-76-5	2,4,5-T (ISO)	0.1264% w/w
94-75-7	2,4-D (ISO)	0.1264% w/w
94-82-6	2,4-DB	0.1264% w/w

4 First-aid measures

· **Description of first aid measures**

· **General information:**

Immediately remove any clothing soiled by the product.

Remove breathing apparatus only after contaminated clothing have been completely removed.

In case of irregular breathing or respiratory arrest provide artificial respiration.

· **After inhalation:**

Supply fresh air or oxygen; call for 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.

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- **After eye contact:**
Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
- **After swallowing:** Do not induce vomiting; immediately call for medical help.
- **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**
During heating or in case of fire poisonous gases are produced.
- **Advice for firefighters**
- **Protective equipment:** Mouth respiratory protective device.

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**
Mount respiratory protective device.
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.

7 Handling and storage

- **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.

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- Store in cool, dry conditions in well sealed receptacles.
- **Specific end use(s)** No further relevant information available.

8 Exposure controls/ Personal protection

· Control parameters

· Components with limit values that require monitoring at the workplace:

67-56-1 methanol

EL	STEL: 250 ppm TWA: 200 ppm Skin
EV	STEL: 325 mg/m ³ , 250 ppm TWA: 260 mg/m ³ , 200 ppm Skin

94-75-7 2,4-D (ISO)

EL	STEL: 20 mg/m ³ TWA: 10 mg/m ³ IARC 2B
EV	TWA: 10 mg/m ³

- **Additional information:** The lists that were valid during the creation were used as basis.

· Exposure controls

- **Appropriate engineering controls** No further data; see section 7.

· 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.
- Do not inhale gases / fumes / aerosols.
- 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

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· Eye protection:



Tightly sealed goggles

9 Physical and chemical properties

· Information on basic physical and chemical properties

· General Information

· Physical state

Liquid

· Color:

Colorless

· Odor:

Alcohol-like

· Odor threshold:

Not determined

· Melting point/Melting range:

-98 °C

· Boiling point/Boiling range:

64.7 °C

· Flammability:

Highly flammable.

· Explosion limits:

· Lower:

5.5 Vol %

· Upper:

44 Vol %

· Flash point:

9 °C

· Auto igniting:

455 °C

· Decomposition temperature:

Not determined

· pH-value:

Not determined

· Viscosity:

· Kinematic:

Not determined

· Dynamic:

Not determined

· Solubility in / Miscibility with

· Water:

Not miscible or difficult to mix.

· Partition coefficient (n-octanol/water):

Not determined

· Vapor pressure at 20 °C:

100 hPa

· Vapor pressure:

· Density at 20 °C:

0.8 g/cm³

· Relative density

Not determined

· Vapor density

Not determined

· Particle characteristics

Not applicable

· Other information

· Appearance:

· Form:

Fluid

· Important information on protection of health and environment, and on safety.

· Ignition temperature:

Product is not selfigniting.

· Danger of explosion:

Product is not explosive. However, formation of explosive air/vapor mixtures are possible.

· Solvent content:

· Organic solvents:

96.5 %

· Solids content:

3.4 %

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- | | |
|---|----------------|
| <ul style="list-style-type: none"> · Change in condition · Evaporation rate | Not determined |
|---|----------------|

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	LD50	102 mg/kg
Dermal	LD50	309 mg/kg
Inhalative	LC50/4 h	2.88 mg/L

67-56-1 methanol

Oral	LD50	5,628 mg/kg (rat)
Dermal	LD50	15,800 mg/kg (rabbit)

93-65-2 2-(4-chloro-2-methylphenoxy)propionic acid

Oral	LD50	650 mg/kg (rat)
Dermal	LD50	900 mg/kg (rabbit)

94-74-6 MCPA (ISO)

Oral	LD50	700 mg/kg (rat)
Dermal	LD50	>2,000 mg/kg (rabbit)

88-85-7 dinoseb

Oral	LD50	27 mg/kg (rat)
Dermal	LD50	217.5 mg/kg (rat)

93-76-5 2,4,5-T (ISO)

Oral	LD50	300 mg/kg (rat)
Dermal	LD50	1,535 mg/kg (rat)

94-75-7 2,4-D (ISO)

Oral	LD50	375 mg/kg (rat)
Dermal	LD50	1,500 mg/kg (rat) 1,400 mg/kg (rabbit)

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94-82-6 2,4-DB

Oral	LD50	700 mg/kg (rat)
Dermal	LD50	800 mg/kg (rat)
		>10,000 mg/kg (rabbit)

- **Primary irritant effect:**
- **on the skin:** Irritant to skin and mucous membranes.
- **on the eye:** Irritating effect.
- **Sensitization:**
Sensitization possible through inhalation.
Sensitization possible through skin contact.
- **Additional toxicological information:**
The product shows the following dangers according to internally approved calculation methods for preparations:
Toxic
Harmful
Irritant

· **Carcinogenic categories**

· **IARC (International Agency for Research on Cancer)**

93-76-5	2,4,5-T (ISO)	2B
94-75-7	2,4-D (ISO)	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.
- **Bioaccumulative potential** No further relevant information available.
- **Mobility in soil** No further relevant information available.
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable
- **vPvB:** Not applicable
- **Other adverse effects**
- **Additional ecological information:**
- **General notes:**
Water hazard class 2 (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.

13 Disposal considerations

- **Waste treatment methods**
- **Recommendation:**
Dispose of contents/container in accordance with local/regional/national/international regulations.
Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

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

14 Transport information

- **Not Regulated, De minimis Quantities** -
- **UN-Number**
- **DOT/TDG, ADR, IMDG, IATA** UN1230
- **UN proper shipping name**
- **DOT/TDG** Methanol
- **ADR** 1230 Methanol, ENVIRONMENTALLY HAZARDOUS
- **IMDG, IATA** METHANOL
- **Transport hazard class(es)**
- **DOT/TDG (Transport dangerous goods):**




 - **Class** 3 Flammable liquids
 - **Label** 3, 6.1
- **ADR**





 - **Class** 3 Flammable liquids
 - **Label** 3+6.1
- **IMDG**





 - **Class** 3 Flammable liquids
 - **Label** 3/6.1
- **IATA**




 - **Class** 3 Flammable liquids
 - **Label** 3 (6.1)
- **Packing group**
- **DOT/TDG, ADR, IMDG, IATA** II

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· Environmental hazards:	
· Marine pollutant:	Symbol (fish and tree)
· Special marking (ADR):	Symbol (fish and tree)
· Transport in bulk according to Annex II of MARPOL/73/78 and the IBC Code	Not applicable
· Transport/Additional information:	
· DOT/TDG	
· Quantity limitations	On passenger aircraft/rail: 1 L On cargo aircraft only: 60 L
· Hazardous substance:	5000 lbs, 2270 kg
· ADR	
· 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
· Special precautions for user	Warning: Flammable liquids
· Hazard identification number (Kemler code):	336
· EMS Number:	F-E,S-D
· Stowage Category	B
· Stowage Code	SW2 Clear of living quarters.
· UN "Model Regulation":	UN 1230 METHANOL, 3 (6.1), II, ENVIRONMENTALLY HAZARDOUS

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15 Regulatory information

· **Safety, health and environmental regulations/legislation specific for the substance or mixture**
No further relevant information available.

· **Sara**

· **Section 355 (extremely hazardous substances):**

88-85-7	dinoseb
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· **Section 313 (Specific toxic chemical listings):**

67-56-1	methanol
93-65-2	2-(4-chloro-2-methylphenoxy)propionic acid
94-74-6	MCPA (ISO)
88-85-7	dinoseb
94-75-7	2,4-D (ISO)
94-82-6	2,4-DB
120-36-5	dichlorprop (ISO)
1918-00-9	dicamba(ISO)

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· TSCA (Toxic Substances Control Act):

67-56-1	methanol	ACTIVE
93-65-2	2-(4-chloro-2-methylphenoxy)propionic acid	ACTIVE
94-74-6	MCPA (ISO)	ACTIVE
75-99-0	2,2-dichloropropionic acid	ACTIVE
88-85-7	dinoseb	ACTIVE
93-76-5	2,4,5-T (ISO)	ACTIVE
94-75-7	2,4-D (ISO)	ACTIVE
120-36-5	dichlorprop (ISO)	ACTIVE

· Canadian substance listings:
· Canadian Domestic Substances List (DSL)

67-56-1	methanol
93-65-2	2-(4-chloro-2-methylphenoxy)propionic acid
88-85-7	dinoseb

· Canadian Non-Domestic Substances List (NDSL)

94-74-6	MCPA (ISO)
75-99-0	2,2-dichloropropionic acid

· Canadian Ingredient Disclosure list (limit 0.1%)

None of the ingredients is listed.

· Canadian Ingredient Disclosure list (limit 1%)

67-56-1	methanol
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· Per- and polyfluoroalkyl substances (PFAS)

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 previous version 05/31/2021

· Version number of previous version: 2

· Date of preparation 01/28/2026

· 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.