

Safety Data Sheet

acc. to OSHA HCS

Revision date: 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(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 - oral 3

H301 Toxic if swallowed.

Acute toxicity - dermal 3

H311 Toxic in contact with skin.

Acute toxicity - inhalation 3

H331 Toxic if inhaled.



GHS08 Health hazard

Sensitization - respiratory 1

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

Carcinogenicity 2

H351 Suspected of causing cancer.

Reproductive toxicity 1B

H360 May damage fertility or the unborn child.

Specific target organ toxicity (single exposure) 1

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



GHS07

Skin irritation 2

H315 Causes skin irritation.

Eye irritation 2A

H319 Causes serious eye 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).

(Contd. on page 2)

Safety Data Sheet acc. to OSHA HCS

Revision date: 01/28/2026

Product Name: Chlorinated Herbicides Standard (1 x 1 mL)

(Contd. of page 1)

· 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 vapor.
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

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 / bond container and receiving equipment.
P242 Use non-sparking tools.
P243 Take action to prevent static discharge.
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 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.
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.
P330 Rinse mouth.
P370+P378 In case of fire: Use CO₂, powder or water spray to extinguish.

(Contd. on page 3)

Safety Data Sheet acc. to OSHA HCS

Revision date: 01/28/2026

Product Name: Chlorinated Herbicides Standard (1 x 1 mL)

(Contd. of page 2)

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)**



· **Other hazards**

· **Results of PBT and vPvB assessment**

· **PBT:** Not applicable

· **vPvB:** Not applicable

· **Classification according to (d)(1)(ii) of § 1910.1200**

The SDS issuer does not object to the classifications provided by importers or manufacturers of precursor products.

· **Hazards not otherwise classified**

There are no adverse physical or health effects known that are not covered by the hazard classes of the Hazard Communications Standard.

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

(Contd. on page 4)

Safety Data Sheet acc. to OSHA HCS

Revision date: 01/28/2026

Product Name: Chlorinated Herbicides Standard (1 x 1 mL)

(Contd. of page 3)

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.
- **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.
- **Protective Action Criteria for Chemicals**

· PAC-1:

67-56-1	methanol	530 ppm
88-85-7	dinoseb	0.41 mg/m ³
93-72-1	silvex (2,4,5-TP)	2.0 mg/m ³
93-76-5	2,4,5-T (ISO)	4 mg/m ³
94-75-7	2,4-D (ISO)	2.0 mg/m ³

(Contd. on page 5)

Safety Data Sheet acc. to OSHA HCS

Revision date: 01/28/2026

Product Name: Chlorinated Herbicides Standard (1 x 1 mL)

(Contd. of page 4)

· PAC-2:

67-56-1	methanol	2100 ppm
88-85-7	dinoseb	4.5 mg/m3
93-72-1	silvex (2,4,5-TP)	21 mg/m3
93-76-5	2,4,5-T (ISO)	42 mg/m3
94-75-7	2,4-D (ISO)	94 mg/m3

· PAC-3:

67-56-1	methanol	7200 ppm
88-85-7	dinoseb	4.8 mg/m3
93-72-1	silvex (2,4,5-TP)	130 mg/m3
93-76-5	2,4,5-T (ISO)	250 mg/m3
94-75-7	2,4-D (ISO)	500 mg/m3

· 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.

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:

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.

(Contd. on page 6)

US

Safety Data Sheet

acc. to OSHA HCS

Revision date: 01/28/2026

Product Name: Chlorinated Herbicides Standard (1 x 1 mL)

(Contd. of page 5)

67-56-1 methanol

PEL	Long-term value: 260 mg/m ³ , 200 ppm
REL	Short-term value: 325 mg/m ³ , 250 ppm Long-term value: 260 mg/m ³ , 200 ppm Skin
TLV	Short-term value: 328 mg/m ³ , 250 ppm Long-term value: 262 mg/m ³ , 200 ppm Skin; BEI

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

PEL	Long-term value: 10 mg/m ³
REL	Long-term value: 10 mg/m ³
TLV	Long-term value: 10* mg/m ³ *as inhalable fraction, A4

· Ingredients with biological limit values:
67-56-1 methanol

BEI	15 mg/L Medium: urine Time: end of shift Parameter: Methanol (background, nonspecific)
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· **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

(Contd. on page 7)

Safety Data Sheet acc. to OSHA HCS

Revision date: 01/28/2026

Product Name: Chlorinated Herbicides Standard (1 x 1 mL)

(Contd. of page 6)

· 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 (-144.4 °F)

· Boiling point/Boiling range:

64.7 °C (148.5 °F)

· Flammability:

Highly flammable.

· Explosion limits:

· Lower:

5.5 Vol %

· Upper:

44 Vol %

· Flash point:

9 °C (48.2 °F)

· Auto igniting:

455 °C (851 °F)

· 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 (68 °F):

100 hPa (75 mm Hg)

· Vapor pressure:

· Density at 20 °C (68 °F):

0.8 g/cm³ (6.676 lbs/gal)

· 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 %

· VOC content:

96.46 %

964.6 g/l / 8.05 lb/gal

· Solids content:

3.4 %

(Contd. on page 8)

US

Safety Data Sheet acc. to OSHA HCS

Revision date: 01/28/2026

Product Name: Chlorinated Herbicides Standard (1 x 1 mL)

(Contd. of page 7)

- **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)

(Contd. on page 9)

Safety Data Sheet acc. to OSHA HCS

Revision date: 01/28/2026

Product Name: Chlorinated Herbicides Standard (1 x 1 mL)

(Contd. of page 8)

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
- **Interactive effects** No interactive effects between components are known.
- **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.

· OSHA-Ca (Occupational Safety & Health Administration)

None of the ingredients is listed.

· Alternative sources for toxicological information

No non-standard sources for toxicological information where used.

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.

US

(Contd. on page 10)

Safety Data Sheet

acc. to OSHA HCS

Revision date: 01/28/2026

Product Name: Chlorinated Herbicides Standard (1 x 1 mL)

(Contd. of page 9)

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

14 Transport information

· Not Regulated, De minimis Quantities	-
· UN-Number · DOT, IMDG, IATA	UN1230
· UN proper shipping name · DOT · IMDG, IATA	Methanol METHANOL
· Transport hazard class(es) · DOT	 
· Class · Label	3 Flammable liquids 3, 6.1
· IMDG	  
· Class · Label	3 Flammable liquids 3/6.1
· IATA	 
· Class · Label	3 Flammable liquids 3 (6.1)
· Packing group · DOT, IMDG, IATA	II

(Contd. on page 11)

Safety Data Sheet

acc. to OSHA HCS

Revision date: 01/28/2026

Product Name: Chlorinated Herbicides Standard (1 x 1 mL)

(Contd. of page 10)

· Environmental hazards:	
· Marine pollutant:	Symbol (fish and tree)
· 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: 1 L On cargo aircraft only: 60 L
· Hazardous substance:	5000 lbs, 2270 kg
· 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

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

· **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)

· **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

(Contd. on page 12)

Safety Data Sheet acc. to OSHA HCS

Revision date: 01/28/2026

Product Name: Chlorinated Herbicides Standard (1 x 1 mL)

(Contd. of page 11)

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

· Hazardous Air Pollutants

67-56-1	methanol
94-75-7	2,4-D (ISO)

· Proposition 65
· Chemicals known to cause cancer:

None of the ingredients is listed.

· Chemicals known to cause reproductive toxicity for females:

None of the ingredients is listed.

· Chemicals known to cause reproductive toxicity for males:

88-85-7	dinoseb
94-82-6	2,4-DB

· Chemicals known to cause developmental toxicity:

67-56-1	methanol
88-85-7	dinoseb

· Carcinogenic categories
· EPA (Environmental Protection Agency)

88-85-7	dinoseb	D
93-72-1	silvex (2,4,5-TP)	D

· TLV (Threshold Limit Value)

75-99-0	2,2-dichloropropionic acid	A4
93-76-5	2,4,5-T (ISO)	A4
94-75-7	2,4-D (ISO)	A4

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

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 03/29/2025

· Version number of previous version: 2

· Date of preparation 01/28/2026

· 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

(Contd. on page 13)

Safety Data Sheet

acc. to OSHA HCS

Revision date: 01/28/2026

Product Name: Chlorinated Herbicides Standard (1 x 1 mL)

(Contd. of page 12)

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
PEL: Permissible Exposure Limit
REL: Recommended Exposure Limit
BEI: Biological Exposure Limit
Flammable liquids 2: Flammable liquids – Category 2
Acute toxicity - oral 3: Acute toxicity – Category 3
Skin irritation 2: Skin corrosion/irritation – Category 2
Eye irritation 2A: Serious eye damage/eye irritation – Category 2A
Sensitization - respiratory 1: Respiratory sensitisation – Category 1
Sensitization - skin 1: Skin sensitisation – Category 1
Carcinogenicity 2: Carcinogenicity – Category 2
Reproductive toxicity 1B: Reproductive toxicity – Category 1B
Specific target organ toxicity (single exposure) 1: Specific target organ toxicity (single exposure) – Category 1

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

US