

## Safety Data Sheet acc. to OSHA HCS

Date of issue: 05/22/2026

Revision date 05/22/2026

### 1 Identification

- **Product identifier**
- **Trade name:** Diphtheria Toxin (unnicked) from *Corynebacterium diphtheriae*
- **Other means of identification**
- **Article number:** 19657
- **Application of the substance / the mixture**  
This product is for research use - Not for human or veterinary diagnostic or therapeutic use.
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**  
Cayman Chemical Co.  
1180 E. Ellsworth Rd.  
Ann Arbor, MI 48108  
USA
- **Information department:** Product safety department
- **Emergency telephone number:**  
During normal opening times: +1 (734) 971-3335  
US/CANADA: 800-424-9300  
Outside US/CANADA: 703-741-5970

### 2 Hazard(s) identification

- **Classification of the substance or mixture**



GHS06 Skull and crossbones

Acute toxicity - oral 1 H300 Fatal if swallowed.

Acute toxicity - inhalation 1 H330 Fatal if inhaled.

- **Label elements**
- **GHS label elements**  
The product is classified and labeled according to the Globally Harmonized System (GHS).
- **Hazard pictograms**



GHS06

- **Signal word** Danger
- **Hazard statements**  
H300+H330 Fatal if swallowed or if inhaled.
- **Precautionary statements**  
P260 Do not breathe dust/fume/gas/mist/vapors/spray.

(Contd. on page 2)

US

# Safety Data Sheet

## acc. to OSHA HCS

Date of issue: 05/22/2026

Revision date 05/22/2026

**Trade name: Diphtheria Toxin (unnicked) from Corynebacterium diphtheriae**

(Contd. from page 1)

- 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.  
 P284 [In case of inadequate ventilation] wear respiratory protection.  
 P301+P310 If swallowed: Immediately call a poison center/doctor.  
 P330 Rinse mouth.  
 P304+P340 If inhaled: Remove person to fresh air and keep comfortable for breathing.  
 P320 Specific treatment is urgent (see on this label).  
 P403+P233 Store in a well-ventilated place. Keep container tightly closed.  
 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)**



Health = 4  
 Fire = 0  
 Reactivity = 0

· **HMIS-ratings (scale 0 - 4)**



Health = 4  
 Fire = 0  
 Reactivity = 0

· **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:** None

· **Other ingredients**

|                                    |                                                              |        |
|------------------------------------|--------------------------------------------------------------|--------|
| CAS: 7732-18-5<br>RTECS: ZC0110000 | Water                                                        | 99.75% |
|                                    | Trade Secret                                                 | ≤2.5%  |
|                                    | Diphtheria Toxin (unnicked) from Corynebacterium diphtheriae | 0.1%   |
| CAS: 60-00-4<br>RTECS: AH4025000   | EDTA                                                         | 0.03%  |

· **Additional information:**

The specific chemical identity of composition and exact percentage is being withheld as a trade secret. The specific chemical identity and exact percentage is made available to health professionals, employees, and designated representatives in accordance with the applicable provisions of paragraph §1910.1200.

US

(Contd. on page 3)

# Safety Data Sheet

acc. to OSHA HCS

Date of issue: 05/22/2026

Revision date 05/22/2026

Trade name: Diphtheria Toxin (unnicked) from *Corynebacterium diphtheriae*

(Contd. from page 2)

## 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. Then consult a doctor.
- **After swallowing:** If symptoms persist consult 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:**  
Use fire fighting measures that suit the environment.  
A solid water stream may be inefficient.
- **Special hazards arising from the substance or mixture**  
67-56-1 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.
- **Environmental precautions:** No special measures required.
- **Methods and material for containment and cleaning up:**  
Dispose contaminated material as waste according to section 13.  
Ensure adequate ventilation.
- **Protective Action Criteria for Chemicals**

### · PAC-1:

|         |              |                       |
|---------|--------------|-----------------------|
|         | Trade Secret | 18 mg/m <sup>3</sup>  |
| 60-00-4 | EDTA         | 4.1 mg/m <sup>3</sup> |

### · PAC-2:

|         |              |                       |
|---------|--------------|-----------------------|
|         | Trade Secret | 190 mg/m <sup>3</sup> |
| 60-00-4 | EDTA         | 45 mg/m <sup>3</sup>  |

### · PAC-3:

|         |              |                         |
|---------|--------------|-------------------------|
|         | Trade Secret | 1,200 mg/m <sup>3</sup> |
| 60-00-4 | EDTA         | 200 mg/m <sup>3</sup>   |

### · **Reference to other sections**

See Section 7 for information on safe handling.

(Contd. on page 4)

# Safety Data Sheet

## acc. to OSHA HCS

Date of issue: 05/22/2026

Revision date 05/22/2026

**Trade name: Diphtheria Toxin (unnicked) from Corynebacterium diphtheriae**

See Section 8 for information on personal protection equipment.  
See Section 13 for disposal information.

(Contd. from page 3)

### 7 Handling and storage

- **Precautions for safe handling**  
Thorough dedusting.  
Ensure good ventilation/exhaustion at the workplace.  
Open and handle receptacle with care.
- **Information about protection against explosions and fires:**  
Keep respiratory protective device available.
- **Conditions for safe storage, including any incompatibilities**
- **Storage:** Store in accordance with information listed on the product insert.
- **Requirements to be met by storerooms and receptacles:** No special requirements.
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:** Keep receptacle tightly sealed.
- **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 product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.
- **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.
- **Breathing equipment:**  
In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.
- **Protection of hands:**  
The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.  
Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.  
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation
- **Material of gloves**  
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.
- **Penetration time of glove material**  
The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

(Contd. on page 5)

# Safety Data Sheet

acc. to OSHA HCS

Date of issue: 05/22/2026

Revision date 05/22/2026

Trade name: Diphtheria Toxin (unnicked) from *Corynebacterium diphtheriae*

· Eye protection: Not required.

(Contd. from page 4)

## 9 Physical and chemical properties

### · Information on basic physical and chemical properties

#### · General Information

|                                            |                                                                                                                                          |
|--------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|
| · Physical state                           | Solid                                                                                                                                    |
| · Color:                                   | Not determined.                                                                                                                          |
| · Odor:                                    | Odorless                                                                                                                                 |
| · Structural Formula                       | H <sub>2</sub> O                                                                                                                         |
| · Molecular Weight                         | 18 g/mol                                                                                                                                 |
| · Storage Buffer                           |                                                                                                                                          |
| · Odor threshold:                          | Not determined.                                                                                                                          |
| · Formulation                              | Each vial, when reconstituted to 0.5 ml with water, contains 1 mg of unnicked diphtheria toxin in 0.01 M Tris and 0.001 M EDTA at pH 7.5 |
| · Melting point/Melting range:             | 0 °C (32 °F)                                                                                                                             |
| · Boiling point/Boiling range:             | 100 °C (212 °F)                                                                                                                          |
| · Flammability:                            | Not determined.                                                                                                                          |
| · Explosion limits:                        |                                                                                                                                          |
| · Lower:                                   | Not determined.                                                                                                                          |
| · Upper:                                   | Not determined.                                                                                                                          |
| · Flash point:                             | Not applicable.                                                                                                                          |
| · Decomposition temperature:               | Not determined.                                                                                                                          |
| · pH-value at 20 °C (68 °F):               | 7.5                                                                                                                                      |
| · Viscosity:                               |                                                                                                                                          |
| · Kinematic:                               | Not applicable.                                                                                                                          |
| · SOLUBILITY                               | Water: soluble                                                                                                                           |
| · Dynamic at 20 °C (68 °F):                | 0.952 mPas                                                                                                                               |
| · Solubility in / Miscibility with         |                                                                                                                                          |
| · Water:                                   | Soluble.                                                                                                                                 |
| · Partition coefficient (n-octanol/water): | Not determined.                                                                                                                          |
| · Vapor pressure at 20 °C (68 °F):         | 23 hPa (17.3 mm Hg)                                                                                                                      |
| · Vapor pressure:                          |                                                                                                                                          |
| · Density at 20 °C (68 °F):                | 1 g/cm <sup>3</sup> (8.345 lbs/gal)                                                                                                      |
| · Relative density                         | Not determined.                                                                                                                          |
| · Vapor density                            | Not applicable.                                                                                                                          |
| · Particle characteristics                 | Not determined.                                                                                                                          |

### · Other information

#### · Appearance:

· Form: Liquid

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

|                         |                                               |
|-------------------------|-----------------------------------------------|
| · Ignition temperature: | Product is not selfigniting.                  |
| · Danger of explosion:  | Product does not present an explosion hazard. |
| · Solvent content:      |                                               |
| · Water:                | 99.8 %                                        |
| · VOC content:          | 0.00 %                                        |

(Contd. on page 6)

US

# Safety Data Sheet

## acc. to OSHA HCS

Date of issue: 05/22/2026

Revision date 05/22/2026

Trade name: Diphtheria Toxin (unnicked) from *Corynebacterium diphtheriae*

(Contd. from page 5)

- **Change in condition**
- **Evaporation rate** Not applicable.

## 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:**
- **Primary irritant effect:**
- **on the skin:** No irritant effect.
- **on the eye:** No irritating effect.
- **Sensitization:** No sensitizing effects known.
- **Additional toxicological information:**  
The product shows the following dangers according to internally approved calculation methods for preparations:  
Very toxic
- **Interactive effects** No interactive effects between components are known.
- **Carcinogenic categories**
- **IARC (International Agency for Research on Cancer)**  
None of the ingredients is listed.
- **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.

(Contd. on page 7)

US

# Safety Data Sheet

acc. to OSHA HCS

Date of issue: 05/22/2026

Revision date 05/22/2026

**Trade name: Diphtheria Toxin (unnicked) from Corynebacterium diphtheriae**

(Contd. from page 6)

- **Other adverse effects**
- **Additional ecological information:**
- **General notes:** Not hazardous for water.

## 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.
- **Recommended cleansing agent:** Water, if necessary with cleansing agents.

## 14 Transport information

|                                                                                     |                                                      |
|-------------------------------------------------------------------------------------|------------------------------------------------------|
| · <b>UN-Number</b>                                                                  | UN3462                                               |
| · <b>DOT, IMDG, IATA</b>                                                            |                                                      |
| · <b>UN proper shipping name</b>                                                    | Toxins, extracted from living sources, solid, n.o.s. |
| · <b>DOT, IATA</b>                                                                  | TOXINS, EXTRACTED FROM LIVING SOURCES,               |
| · <b>IMDG</b>                                                                       | SOLID, N.O.S.                                        |
| · <b>Transport hazard class(es)</b>                                                 |                                                      |
| · <b>DOT</b>                                                                        |                                                      |
|  |                                                      |
| · <b>Class</b>                                                                      | 6.1 Toxic substances                                 |
| · <b>Label</b>                                                                      | 6.1                                                  |
| · <b>IMDG, IATA</b>                                                                 |                                                      |
|  |                                                      |
| · <b>Class</b>                                                                      | 6.1 Toxic substances                                 |
| · <b>Label</b>                                                                      | 6.1                                                  |
| · <b>Packing group</b>                                                              | I                                                    |
| · <b>DOT, IMDG, IATA</b>                                                            |                                                      |
| · <b>Environmental hazards:</b>                                                     | Not applicable.                                      |
| · <b>Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code</b>    | Not applicable.                                      |

(Contd. on page 8)

US

# Safety Data Sheet

acc. to OSHA HCS

Date of issue: 05/22/2026

Revision date 05/22/2026

Trade name: Diphtheria Toxin (unnicked) from *Corynebacterium diphtheriae*

(Contd. from page 7)

- **Transport/Additional information:**

- **DOT**

- **Quantity limitations**

On passenger aircraft/rail: 5 kg

On cargo aircraft only: 50 kg

- **IMDG**

- **Limited quantities (LQ)**

0

- **Excepted quantities (EQ)**

Code: E5

Maximum net quantity per inner packaging: 1 g

Maximum net quantity per outer packaging: 300 g

- **IATA**

- **Remarks:**

When sold in quantities of less than or equal to 1 mL, or 1 g, with an Excepted Quantity Code of E1, E2, E4, or E5, this item meets the De Minimis Quantities exemption, per IATA 2.6.10.

Therefore packaging does not have to be labeled as Dangerous Goods/Excepted Quantity.

- **Special precautions for user**

Warning: Toxic substances

- **Hazard identification number (Kemler code):** 66

- **EMS Number:**

F-A,S-A

- **Stowage Category**

B

- **UN "Model Regulation":**

UN 3462 TOXINS, EXTRACTED FROM LIVING SOURCES, SOLID, N.O.S. 6.1, I

## 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):**

None of the ingredients is listed.

- **Section 313 (Specific toxic chemical listings):**

None of the ingredients is listed.

- **TSCA (Toxic Substances Control Act):**

|           |              |        |
|-----------|--------------|--------|
| 7732-18-5 | Water        | ACTIVE |
|           | Trade Secret | ACTIVE |
| 60-00-4   | EDTA         | ACTIVE |

- **Hazardous Air Pollutants**

None of the ingredients is listed.

- **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:**

None of the ingredients is listed.

(Contd. on page 9)



# Safety Data Sheet

## acc. to OSHA HCS

Date of issue: 05/22/2026

Revision date 05/22/2026

Trade name: Diphtheria Toxin (unnicked) from *Corynebacterium diphtheriae*

(Contd. from page 8)

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

None of the ingredients is listed.

- **Carcinogenic categories**

- **EPA (Environmental Protection Agency)**

None of the ingredients is listed.

- **TLV (Threshold Limit Value)**

None of the ingredients is listed.

- **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

All chemicals may pose unknown hazards and should be used with caution. This SDS applies only to the material as packaged. If this product is combined with other materials, deteriorates, or becomes contaminated, it may pose hazards not mentioned in this SDS. Cayman Chemical Company assumes no responsibility for incidental or consequential damages, including lost profits, arising from the use of these data. It shall be the user's responsibility to develop proper methods of handling and personal protection based on the actual conditions of use. While this SDS is based on technical data judged to be reliable, Cayman Chemical Company assumes no responsibility for the completeness or accuracy of the information contained herein.

- **Department issuing SDS:** Environment protection department.

- **Contact:** -

- **Date of previous version** 05/06/2026

- **Date of preparation** 05/22/2026

- **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)

VOC: Volatile Organic Compounds (USA, EU)

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

NIOSH: National Institute for Occupational Safety

OSHA: Occupational Safety &amp; Health

TLV: Threshold Limit Value

PEL: Permissible Exposure Limit

REL: Recommended Exposure Limit

Acute toxicity - oral 1: Acute toxicity – Category 1

- **\* Data compared to the previous version altered.**

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