

Safety Data Sheet acc. to OSHA HCS

Date of issue: 01/08/2025

Revision date 01/08/2025

1 Identification

- **Product identifier**
- **Trade name:** **Morphine (sulfate hydrate)**
- **Synonym** (5 α ,6 α)-7,8-didehydro-4,5-epoxy-17-methyl-morphinan-3,6-diol, hemisulfate, hydrate
- **CAS Number:**
6211-15-0
- **Other means of identification**
- **Article number:** 25955
- **EC number:**
624-082-8
- **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**



GHS08 Health hazard

Sensitization - respiratory 1 H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.



GHS07

Acute toxicity - oral 4	H302 Harmful if swallowed.
Acute toxicity - inhalation 4	H332 Harmful if inhaled.
Sensitization - skin 1	H317 May cause an allergic skin reaction.

- **Label elements**

- **GHS label elements**

The substance is classified and labeled according to the Globally Harmonized System (GHS).

(Contd. on page 2)

Safety Data Sheet

acc. to OSHA HCS

Date of issue: 01/08/2025

Revision date 01/08/2025

Trade name: Morphine (sulfate hydrate)

(Contd. from page 1)

Hazard pictograms



GHS07 GHS08

Signal word Danger

Hazard statements

H302+H332 Harmful if swallowed or if inhaled.

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

H317 May cause an allergic skin reaction.

Precautionary statements

P261 Avoid breathing dust/fume/gas/mist/vapors/spray

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.

P280 Wear protective gloves.

P284 [In case of inadequate ventilation] wear respiratory protection.

P301+P312 If swallowed: Call a poison center/doctor if you feel unwell.

P330 Rinse mouth.

P302+P352 If on skin: Wash with plenty of water.

P304+P340 If inhaled: Remove person to fresh air and keep comfortable for breathing.

P362+P364 Take off contaminated clothing and wash it before reuse.

P333+P313 If skin irritation or rash occurs: Get medical advice/attention.

P321 Specific treatment (see on this label).

P342+P311 If experiencing respiratory symptoms: Call a poison center/doctor.

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 = 3

Fire = 0

Reactivity = 0

HMIS-ratings (scale 0 - 4)



Health = *2

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.

(Contd. on page 3)

Safety Data Sheet

acc. to OSHA HCS

Date of issue: 01/08/2025

Revision date 01/08/2025

Trade name: Morphine (sulfate hydrate)

(Contd. from page 2)

- **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: Substances**

- **CAS No. Description**

6211-15-0 Morphine (sulfate hydrate)

- **Identification number(s)**

- **EC number:** 624-082-8

4 First-aid measures

- **Description of first aid measures**

- **General information:**

Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.

- **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.

- **After swallowing:** Immediately call a 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** No further relevant information available.

- **Advice for firefighters**

- **Protective equipment:** Mouth respiratory protective device.

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures** Not required.

- **Environmental precautions:** Do not allow to enter sewers/ surface or ground water.

- **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:** Substance is not listed.

- **PAC-2:** Substance is not listed.

- **PAC-3:** Substance is not listed.

(Contd. on page 4)

Safety Data Sheet

acc. to OSHA HCS

Date of issue: 01/08/2025

Revision date 01/08/2025

Trade name: Morphine (sulfate hydrate)

(Contd. from page 3)

· 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

- Thorough dedusting.
- Ensure good ventilation/exhaustion at the workplace.

· Information about protection against explosions and fires: No special measures required.

· 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:** Not required.
- 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.

· 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:



Protective gloves

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.

· 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: 01/08/2025

Revision date 01/08/2025

Trade name: Morphine (sulfate hydrate)

· 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:

According to product specification

· Odor:

Characteristic

· Structural Formula

C₁₇H₁₉NO₃ · 0.5H₂SO₄ [2.5H₂O]

· Molecular Weight

758.8 g/mol

· Storage Buffer

· Odor threshold:

Not determined.

· Formulation

· Melting point/Melting range:

Undetermined.

· Boiling point/Boiling range:

Undetermined.

· Flammability:

Product is not flammable.

· Explosion limits:

· Lower:

Not determined.

· Upper:

Not determined.

· Flash point:

Not applicable.

· Decomposition temperature:

Not determined.

· pH-value:

Not applicable.

· Viscosity:

· Kinematic:

Not applicable.

· SOLUBILITY

DMSO: 5 mg/ml; PBS (pH 7.2): 10 mg/ml

· Dynamic:

Not applicable.

· Solubility in / Miscibility with

· Water:

Not determined.

· Partition coefficient (n-octanol/water):

Not determined.

· Vapor pressure:

Not applicable.

· Vapor pressure:

· Density:

Not determined.

· Relative density

Not determined.

· Vapor density

Not applicable.

· Particle characteristics

Not determined.

· Other information

· Appearance:

· Form:

Solid

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

· Ignition temperature:

Not determined.

· Danger of explosion:

Product does not present an explosion hazard.

· Change in condition

· Evaporation rate

Not applicable.

10 Stability and reactivity

· Reactivity No further relevant information available.

(Contd. on page 6)

US

Safety Data Sheet

acc. to OSHA HCS

Date of issue: 01/08/2025

Revision date 01/08/2025

Trade name: Morphine (sulfate hydrate)

(Contd. from page 5)

- **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:** strong oxidizing agents
- **Hazardous decomposition products:**
carbon dioxide, carbon monoxide, nitrogen oxides, sulfur oxides

11 Toxicological information

- **RTECS Number** QC8760000
- **Information on toxicological effects**
- **Acute toxicity:**

· **LD/LC50 values that are relevant for classification:**

Oral	LD50	973 mg/kg (rat)
	Intraperitoneal TDLO	1 mg/kg (mouse)
	Subcutaneous TDLO	5,009 µg/kg (mouse)

- **Primary irritant effect:**
- **on the skin:** No irritant effect.
- **on the eye:** No irritating effect.
- **Sensitization:**
Sensitization possible through inhalation.
Sensitization possible through skin contact.
- **Additional toxicological information:**
- **Interactive effects** No interactive effects between components are known.
- **Carcinogenic categories**
- **IARC (International Agency for Research on Cancer)** Substance is not listed.
- **NTP (National Toxicology Program)** Substance is not listed.
- **OSHA-Ca (Occupational Safety & Health Administration)** Substance is not 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 1 (Self-assessment): slightly hazardous for water

(Contd. on page 7)

US

Safety Data Sheet

acc. to OSHA HCS

Date of issue: 01/08/2025

Revision date 01/08/2025

Trade name: Morphine (sulfate hydrate)

(Contd. from page 6)

Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

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.

14 Transport information

- | | |
|--|-----------------|
| · UN-Number | |
| · DOT, IMDG, IATA | not regulated |
| · UN proper shipping name | |
| · DOT, IMDG, IATA | not regulated |
| · Transport hazard class(es) | |
| · DOT, ADN, IMDG, IATA | |
| · Class | not regulated |
| · Packing group | |
| · DOT, IMDG, IATA | not regulated |
| · Environmental hazards: | Not applicable. |
| · Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code | Not applicable. |
| · Special precautions for user | Not applicable. |
| · UN "Model Regulation": | not regulated |

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):** Substance is not listed.
- **Section 313 (Specific toxic chemical listings):** Substance is not listed.
- **TSCA (Toxic Substances Control Act):** Substance is not listed.
- **Hazardous Air Pollutants** Substance is not listed.
- **Chemicals known to cause cancer:** Substance is not listed.
- **Chemicals known to cause reproductive toxicity for females:** Substance is not listed.
- **Chemicals known to cause reproductive toxicity for males:** Substance is not listed.
- **Chemicals known to cause developmental toxicity:** Substance is not listed.
- **Carcinogenic categories**
- **EPA (Environmental Protection Agency)** Substance is not listed.
- **TLV (Threshold Limit Value)** Substance is not listed.

(Contd. on page 8)

Safety Data Sheet

acc. to OSHA HCS

Date of issue: 01/08/2025

Revision date 01/08/2025

Trade name: Morphine (sulfate hydrate)

(Contd. from page 7)

- **NIOSH-Ca (National Institute for Occupational Safety and Health)** Substance is not 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** 11/07/2022

- **Date of preparation** 01/08/2025

- **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

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

NIOSH: National Institute for Occupational Safety

OSHA: Occupational Safety & Health

TLV: Threshold Limit Value

PEL: Permissible Exposure Limit

REL: Recommended Exposure Limit

Acute toxicity - oral 4: Acute toxicity – Category 4

Sensitization - respiratory 1: Respiratory sensitisation – Category 1

Sensitization - skin 1: Skin sensitisation – Category 1

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

US