## 1 Identification

- **Product identifier**
  - **Trade name:** Vitamin D2
  - **Article number:** 11791
  - **CAS Number:** 50-14-6
  - **EC number:** 200-014-9
  - **Index number:** 603-179-00-9

- **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 3**
      - H301 Toxic if swallowed.
    - **Acute Toxicity - Dermal 3**
      - H311 Toxic in contact with skin.
    - **Acute Toxicity - Inhalation 2**
      - H330 Fatal if inhaled.

  - **GHS08 Health hazard**
    - **Specific Target Organ Toxicity - Repeated Exposure 1**
      - H372 Causes damage to organs through prolonged or repeated exposure.

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Safety Data Sheet
acc. to OSHA HCS

Printing date 10/26/2022
Revision date 10/07/2022

Trade name: Vitamin D2

(Contd. from page 1)

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

GHS06  GHS08

· Signal word Danger
· Hazard statements
  H301+H311 Toxic if swallowed or in contact with skin.
  H330  Fatal if inhaled.
  H372  Causes damage to organs through prolonged or repeated exposure.
· Precautionary statements
  P260  Do not breathe 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.
  P280  Wear protective gloves / protective clothing.
  P284  [In case of inadequate ventilation] wear respiratory protection.
  P301+P310 If swallowed: Immediately call a poison center/doctor.
  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.
  P312  Call a poison center/doctor if you feel unwell.
  P314  Get medical advice/attention if you feel unwell.
  P320  Specific treatment is urgent (see on this label).
  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.
  P405  Store locked up.
  P501  Dispose of contents/container in accordance with local/regional/national/international regulations.
· Classification system:
· NFPA ratings (scale 0 - 4)

Health = 4
Fire = 0
Reactivity = 0

· HMIS-ratings (scale 0 - 4)

HEALTH 4
FIRE 0
REACTIVITY 0

Health = 4
Fire = 0
Reactivity = 0

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

(Contd. on page 3)
3 Composition/information on ingredients

- Chemical characterization: Substances
- CAS No. Description
  50-14-6 Vitamin D2
- Identification number(s)
  - EC number: 200-014-9
  - Index number: 603-179-00-9

4 First-aid measures

- Description of first aid measures
- General information:
  Immediately remove any clothing soiled by the product.
  Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.
  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:
  Do not induce vomiting; immediately call for medical help.
- Information for doctor:
  Most important symptoms and effects, both acute and delayed
  May cause anemia, cough, CNS depression, drowsiness, headache, heart damage, lassitude (weakness, exhaustion), liver damage, narcosis, reproductive effects, teratogenic effects.
  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 item 13.
  Ensure adequate ventilation.
- Reference to other sections
  See Section 7 for information on safe handling.
7 Handling and storage

· Handling:
  · 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

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

· 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
  · 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 eyes and skin.
    · 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 breakthrough time has to be found out by the manufacturer of the protective gloves and has to be observed.

Eye protection:
Tightly sealed goggles

### 9 Physical and chemical properties

<table>
<thead>
<tr>
<th>Information on basic physical and chemical properties</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>General Information</strong></td>
</tr>
<tr>
<td><strong>Appearance:</strong></td>
</tr>
<tr>
<td><em>Form:</em> Solid</td>
</tr>
<tr>
<td><em>Color:</em> Not determined.</td>
</tr>
<tr>
<td><em>Odor:</em> Characteristic</td>
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<tr>
<td><em>Structural Formula:</em> C28H44O</td>
</tr>
<tr>
<td><em>Molecular Weight:</em> 396.7 g/mol</td>
</tr>
<tr>
<td><em>Odor threshold:</em> Not determined.</td>
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<tr>
<td><em>pH-value:</em> Not applicable.</td>
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<tr>
<th>Change in condition</th>
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<tbody>
<tr>
<td><em>Melting point/Melting range:</em> 115–119 °C (239–246.2 °F)</td>
</tr>
<tr>
<td><em>Boiling point/Boiling range:</em> Undetermined.</td>
</tr>
</tbody>
</table>

| Flammability (solid, gaseous): Product is not flammable. |

<table>
<thead>
<tr>
<th>Decomposition temperature: Not determined.</th>
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<tr>
<td>Auto igniting: Not determined.</td>
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<tr>
<td>Danger of explosion: Product does not present an explosion hazard.</td>
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</table>

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<tr>
<th>Explosion limits:</th>
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<tbody>
<tr>
<td><em>Lower:</em> Not determined.</td>
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<tr>
<td><em>Upper:</em> Not determined.</td>
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<tr>
<th>Vapor pressure: Not applicable.</th>
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<tbody>
<tr>
<td>Density: Not determined.</td>
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<tr>
<td>Relative density: Not determined.</td>
</tr>
<tr>
<td>Vapor density: Not applicable.</td>
</tr>
<tr>
<td>Evaporation rate: Not applicable.</td>
</tr>
</tbody>
</table>

| Solubility in / Miscibility with Water: Not determined. |

| Partition coefficient (n-octanol/water): Not determined. |

| Viscosity: Dynamic: Not applicable.                    |

(Contd. on page 6)
Trade name: Vitamin D2

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: strong acids, oxidizing agents, strong bases
- Hazardous decomposition products: carbon dioxide, carbon monoxide

11 Toxicological information

- RTECS Number: KQ6300000
- Information on toxicological effects
- Acute toxicity:
  - LD/LC50 values that are relevant for classification:
    - Oral LD50: 56 mg/kg (rat)
  - Primary irritant effect:
    - on the skin: No irritant effect.
    - on the eye: No irritating effect.
  - Sensitization: No sensitizing effects known.
- Additional toxicological information:
  - 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.

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
  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.
Trade name: Vitamin D2

13 Disposal considerations

- **Other adverse effects** No further relevant information available.

14 Transport information

- **UN-Number**
  - DOT, IMDG, IATA: UN2811

- **UN proper shipping name**
  - DOT: Toxic solids, organic, n.o.s. (Vitamin D2)
  - IMDG: TOXIC SOLID, ORGANIC, N.O.S. (Vitamin D2)
  - IATA: Toxic solid, organic, n.o.s. (Vitamin D2)

- **Transport hazard class(es)**
  - **DOT**
    - Class: 6.1 Toxic substances
    - Label: 6.1
  - **IMDG, IATA**
    - Class: 6.1 Toxic substances
    - Label: 6.1

- **Packing group**
  - DOT, IMDG, IATA: I

- **Environmental hazards:** Not applicable.

- **Special precautions for user**
  - Warning: Toxic substances
  - Hazard identification number (Kemler code): 66
  - EMS Number: F-A,S-A
  - Stowage Category: B

- **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code** Not applicable.
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 listed.
- Section 313 (Specific toxic chemical listings): Substance is not listed.
- TSCA (Toxic Substances Control Act): ACTIVE
- Hazardous Air Pollutants Substance is not listed.
- Proposition 65
- 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.
- 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.

(Contd. on page 9)
(Contd. from page 8)

- **Department issuing SDS:** Environment protection department.
- **Contact:** -
- **Date of preparation / last revision:** 10/07/2022
- **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 3: Acute toxicity – Category 3
  - Acute Toxicity - Inhalation 2: Acute toxicity – Category 2
  - Specific Target Organ Toxicity - Repeated Exposure 1: Specific target organ toxicity (repeated exposure) – Category 1