

according to Regulation (EC) No. 1907/2006 as amended by (EC) No. 1272/2008

Section 1. Identification of the Substance/Mixture and of the Company/Undertaking

- 1.1 Product Code:** LS-H89-1, LS-H89-5, LS-H89-10
Product Name: 1-hydroxy Vitamin D3
Synonyms: 5-[2E-[(3aS)-1R-[1R,5-dimethylhexyl]octahydro-7aR-methyl-4H-inden-4-ylidene]ethylidene]-4-methylene-1R,3R-cyclohexanediol; 1-Hydroxycholecalciferol; Alfacalcidol; Bondiol; Etalpa; Oxydevit; Tevabone;
- 1.2 Relevant identified uses of the substance or mixture and uses advised against:**
Relevant identified uses: For research use only, not for human or veterinary use.
- 1.3 Details of the supplier of the Safety Data Sheet:**
MANUFACTURER: LifeSpan BioSciences, Inc.
ADDRESS: 2401 - 4th Avenue, Suite 900, Seattle, WA 98121
PHONE: 1-206-464-1554
FAX: 1-206-577-4565
WEBSITE: www.LSBio.com
- 1.4 Emergency contact and telephone number:**
CHEMTEL EMERGENCY 1-800-255-3924 (United States, Canada, Puerto Rico, and the U.S. Virgin Islands)
PHONES: 1-813-248-0585 (Other locations)
CHEMTEL CONTRACT ID: MIS2559905

Section 2. Hazards Identification

- 2.1 Classification of the Substance or Mixture:**
2.1.1 Classification according to Regulation (EC) No 1272/2008 [CLP]:
Acute Toxicity: Inhalation, Category 2
Acute Toxicity: Oral, Category 1
Acute Toxicity: Skin, Category 2
2.1.2 Classification according to Directive 1999/45/EC:
T+: Very Toxic
Risk Phrases: R26/27/28
For full text of R- phrases: see SECTION 15.
- 2.2 Label Elements:**
2.2.1 Labeling according to Regulation (EC) No 1272/2008 [CLP]:



GHS Signal Word: **Danger**

GHS Hazard Phrases:

H330: Fatal if inhaled.
H300: Fatal if swallowed.
H310: Fatal in contact with skin.

GHS Precaution Phrases:

P260: Do not breathe {dust/fume/gas/mist/vapours/spray}.
P284: {In case of inadequate ventilation, }wear respiratory protection { }.
P264: Wash {hands} thoroughly after handling.
P262: Do not get in eyes, on skin, or on clothing.
P280: Wear {protective gloves/protective clothing/eye protection/face protection}.
P361+364: Take off immediately all contaminated clothing and wash it before reuse.

GHS Response Phrases:

P304+340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P310: Immediately call a {POISON CENTER/doctor/...}.

P301+310: IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.

P330: Rinse mouth.

P361: Take off immediately all contaminated clothing.

P302+350: IF ON SKIN: Gently wash with plenty of soap and water.

P321: Specific treatment {see ... on this label}.

GHS Storage and Disposal Phrases:

Please refer to Section 7 for Storage and Section 13 for Disposal information.

2.2.2 Labeling according to Directive 1999/45/EC:



T+

2.3 Adverse Human Health Fatal if inhaled.

Effects and Symptoms: Fatal if swallowed.

Fatal in contact with skin.

Material may be irritating to the mucous membranes and upper respiratory tract.

May cause eye, skin, or respiratory system irritation.

To the best of our knowledge, the toxicological properties have not been thoroughly investigated.

Section 3. Composition/Information on Ingredients

CAS # / RTECS #	Hazardous Components (Chemical Name)/ REACH Registration No.	Concentration	EC No./ EC Index No.	Risk Phrases/ GHS Classification
41294-56-8 VS2851000	1-hydroxy Vitamin D3	100.0 %	255-297-1 NA	T+; R26/27/28 Acute Tox.(O) 1: H300 Acute Tox.(D) 2: H310 Acute Tox.(I) 2: H330

Section 4. First Aid Measures

4.1 Description of First Aid

Measures:

In Case of Inhalation: Remove to fresh air. If not breathing, give artificial respiration or give oxygen by trained personnel. Get immediate medical attention.

In Case of Skin Contact: Immediately wash skin with soap and plenty of water for at least 15 minutes. Remove contaminated clothing. Get medical attention if symptoms occur. Wash clothing before reuse.

In Case of Eye Contact: Hold eyelids apart and flush eyes with plenty of water for at least 15 minutes. Have eyes examined and tested by medical personnel.

In Case of Ingestion: Wash out mouth with water provided person is conscious. Never give anything by mouth to an unconscious person. Get medical attention. Do NOT induce vomiting unless directed to do so by medical personnel.

Section 5. Fire Fighting Measures

- 5.1 Suitable Extinguishing Media:** Use alcohol-resistant foam, carbon dioxide, water, or dry chemical spray.
Media: Use water spray to cool fire-exposed containers.
Unsuitable Extinguishing Media: A solid water stream may be inefficient.
- 5.2 Flammable Properties and Hazards:** No data available.
Flash Pt: No data.
Explosive Limits: LEL: No data. UEL: No data.
Autoignition Pt: No data.
- 5.3 Fire Fighting Instructions:** As in any fire, wear self-contained breathing apparatus pressure-demand (NIOSH approved or equivalent), and full protective gear to prevent contact with skin and eyes.

Section 6. Accidental Release Measures

- 6.1 Protective Precautions, Protective Equipment and Emergency Procedures:** Avoid raising and breathing dust, and provide adequate ventilation. As conditions warrant, wear a NIOSH approved self-contained breathing apparatus, or respirator, and appropriate personal protection (rubber boots, safety goggles, and heavy rubber gloves).
- 6.2 Environmental Precautions:** Take steps to avoid release into the environment, if safe to do so.
- 6.3 Methods and Material For Containment and Cleaning Up:** Contain spill and collect, as appropriate. Transfer to a chemical waste container for disposal in accordance with local regulations.

Section 7. Handling and Storage

- 7.1 Precautions To Be Taken in Handling:** Avoid breathing dust/fume/gas/mist/vapours/spray. Avoid prolonged or repeated exposure.
- 7.2 Precautions To Be Taken in Storing:** Keep container tightly closed. Store in accordance with information listed on the product insert.

Section 8. Exposure Controls/Personal Protection

8.1 Exposure Parameters:

CAS #	Partial Chemical Name	Britain EH40	France VL	Europe
41294-56-8	1-hydroxy Vitamin D3	No data.	No data.	No data.
CAS #	Partial Chemical Name	OSHA TWA	ACGIH TWA	Other Limits
41294-56-8	1-hydroxy Vitamin D3	No data.	No data.	No data.

8.2 Exposure Controls:

- 8.2.1 Engineering Controls (Ventilation etc.):** Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits.
- 8.2.2 Personal protection equipment:**
- Eye Protection:** Safety glasses
- Protective Gloves:** Compatible chemical-resistant gloves
- Other Protective Clothing:** Lab coat
- Respiratory Equipment (Specify Type):** NIOSH approved respirator, as conditions warrant.
- Work/Hygienic/Maintenance Practices:** Do not take internally. Facilities storing or utilizing this material should be equipped with an eyewash and a

safety shower.
Wash thoroughly after handling.

Section 9. Physical and Chemical Properties

9.1 Information on Basic Physical and Chemical Properties

Physical States: [] Gas [] Liquid [X] Solid
Appearance and Odor: A crystalline solid
Melting Point: No data.
Boiling Point: No data.
Flash Pt: No data.
Evaporation Rate: No data.
Explosive Limits: LEL: No data. UEL: No data.
Vapor Pressure (vs. Air or mm Hg): No data.
Vapor Density (vs. Air = 1): No data.
Specific Gravity (Water = 1): No data.
Solubility in Water: No data.
Solubility Notes: ~0.3 mg/ml in 1:1 EtOH:PBS (pH 7.2); ~20 mg/ml in EtOH & DMF;
Autoignition Pt: No data.

9.2 Other Information

Percent Volatile: No data.
Molecular Formula & Weight: C₂₇H₄₄O₂ 400.6

Section 10. Stability and Reactivity

10.1 Reactivity: No data available.
10.2 Stability: Unstable [] Stable [X]
10.3 Stability Note(s): Stable if stored in accordance with information listed on the product insert.
Polymerization: Will occur [] Will not occur [X]
10.4 Conditions To Avoid: No data available.
10.5 Incompatibility - Materials To Avoid: No data available.
10.6 Hazardous Decomposition Or Byproducts: No data available.

Section 11. Toxicological Information

11.1 Information on Toxicological Effects: The toxicological effects of this product have not been thoroughly studied.
1-hydroxy Vitamin D3 - Toxicity Data: Oral LD50 (rat): 0.340 mg/kg; Oral LD50 (mouse): 0.440 mg/kg; Subcutaneous LD50 (rat): 40 µg/kg; Subcutaneous LD50 (mouse): 55 µg/kg; Intravenous LD50 (rat): 0.101 mg/kg; Intravenous LD50 (mouse): 56 µg/kg; Oral LD50 (dog): 0.500 mg/kg; Intravenous LD50 (dog): 0.200 mg/kg; Oral TDLO (rat): 50 µg/kg/5D (intermittent);

Chronic Toxicological Effects: 1-hydroxy Vitamin D3 - Investigated as a reproductive effector.
Only select Registry of Toxic Effects of Chemical Substances (RTECS) data is presented here. See actual entry in RTECS for complete information.
1-hydroxy Vitamin D3 RTECS Number: VS2851000

Carcinogenicity: NTP? No IARC Monographs? No OSHA Regulated? No

Section 12. Ecological Information

12.1 Toxicity: Avoid release into the environment.
Runoff from fire control or dilution water may cause pollution.

Section 13. Disposal Considerations

13.1 Waste Disposal Method: Dispose in accordance with local, state, and federal regulations.

Section 14. Transport Information

14.1 LAND TRANSPORT (US DOT):

DOT Proper Shipping Name: Toxic solid, organic, n.o.s. (1-hydroxy Vitamin D3)
DOT Hazard Class: 6.1 POISON
UN/NA Number: 2811 **Packing Group:** I



14.1 LAND TRANSPORT (European ADR/RID):

ADR/RID Shipping Name: Toxic solid, organic, n.o.s. (1-hydroxy Vitamin D3)
UN Number: 2811 **Packing Group:** I
Hazard Class: 6.1 - POISON

14.3 AIR TRANSPORT (ICAO/IATA):

ICAO/IATA Shipping Name: Toxic solid, organic, n.o.s. (1-hydroxy Vitamin D3)
UN Number: 2811 **Packing Group:** I
Hazard Class: 6.1 - POISON **IATA Classification:** 6.1

Additional Transport Information: Transport in accordance with local, state, and federal regulations.
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.

Section 15. Regulatory Information

EPA SARA (Superfund Amendments and Reauthorization Act of 1986) Lists

CAS #	Hazardous Components (Chemical Name)	S. 302 (EHS)	S. 304 RQ	S. 313 (TRI)
41294-56-8	1-hydroxy Vitamin D3	No	No	No

CAS #	Hazardous Components (Chemical Name)	Other US EPA or State Lists
41294-56-8	1-hydroxy Vitamin D3	CAA HAP,ODC: No; CWA NPDES: No; TSCA: No; CA PROP.65: No

European Community Hazard Symbol codes:



T+

European Community Risk and Safety Phrases:

- R26/27/28 Very toxic by inhalation, in contact with skin and if swallowed.
- S22 Do not breathe dust.
- S24/25 Avoid contact with skin and eyes.
- S36/37/39 Wear suitable protective clothing, gloves and eye/face protection.
- S45 In case of accident or if you feel unwell, seek medical advice immediately (show the label whenever possible.)

Regulatory Information Statement: This SDS was prepared in accordance with Regulation (EC) No.1272/2008 and European Directive 67/548/EEC as amended.

Section 16. Other Information

Revision Date: 12/02/2013
Additional Information About This Product: No data available.

Company Policy or Disclaimer: **DISCLAIMER:** This information is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes.

N.A.=Not available, N.P.=Not applicable, N.D.=Not determined, N.E.=Not established, N.R.=Not required