Safety Data Sheet

CALCITRIOL

1 Product and Company Identification

1.1 Product Name: Calcitriol

1.2 Product Identifier: Calcitriol

1.3 Catalog Number: 72412

1.4 Synonyms: 1α,25-dihydroxy Vitamin D3; 9,10-secocholesta-5Z,7E,10(19)-triene-1α,3β,25-triol

1.5 Product Use: Laboratory Chemical

1.6 Manufacturer/Supplier: STEMCELL Technologies
Suite 500-1618 Station Street
Vancouver, British Columbia V6A 1B6 Canada

1.7 In Case of Emergency Call: 1-800-667-0322

2 Hazards Identification

2.1 Classification of the substance or mixture

Acute Toxicity: Inhalation, Category 1
Acute Toxicity: Oral, Category 1
Acute Toxicity: Skin, Category 2
Toxic To Reproduction, Category 2
Aquatic Toxicity (Chronic), Category 3

2.2 Label elements

Pictogram

Signal word Danger

Hazard statement(s)

H330 Fatal if inhaled.
H300 Fatal if swallowed.
H310 Fatal in contact with skin.
H361 Suspected of damaging fertility or the unborn child.
H412 Harmful to aquatic life with long lasting effects.

Precautionary statement(s)

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}.
P270 Do not eat, drink or smoke when using this product.
Calcitriol

P361 Take off immediately all contaminated clothing and wash it before reuse.
P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P281 Use personal protective equipment as required.
P273 Avoid release to the environment.
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}.
P308+313 IF exposed or concerned: Get medical attention/advice.

2.3 Other hazards
No data available

3 Composition / Information on Ingredients

<table>
<thead>
<tr>
<th>Hazardous Components (Chemical Name)</th>
<th>CAS #</th>
<th>Concentration</th>
<th>EC #</th>
</tr>
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<tbody>
<tr>
<td>Calcitriol</td>
<td>32222-06-3</td>
<td>100%</td>
<td>250-963-8</td>
</tr>
</tbody>
</table>

4 First Aid Measures

4.1 Description of first aid measures

4.1.1 If inhaled
Remove to fresh air. If not breathing, give artificial respiration or give oxygen by trained personnel. Get immediate medical attention.

4.1.2 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.

4.1.3 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.

4.1.4 If swallowed
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.

4.2 Most important symptoms and effects, both acute and delayed
Exposure may cause: burning sensation, coughing, headache, laryngitis, shortness of breath, nausea, wheezing, and vomiting.
The toxicological properties of this product have not been fully evaluated.

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5 Fire Fighting Measures

5.1 Extinguishing Media

5.1.1 Suitable Extinguishing Media
Use alcohol-resistant foam, carbon dioxide, water, or dry chemical spray.
Use water spray to cool fire-exposed containers.

5.1.2 Unsuitable Extinguishing Media
A solid water stream may be inefficient.

5.2 Special hazards arising from the substance or mixture

5.2.1 Flammable Properties and Hazards
No data available

5.2.2 Flash Pt
No data available

5.2.3 Autoignition Pt
No data available

5.2.4 Explosive Limits
LEL: No data available
UEL: No data available

5.2.5 Hazardous Combustion Products
No data available

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.

6 Accidental Release Measures

6.1 Personal precautions, protective equipment and emergency procedures
Avoid raising and breathing dust, and provide adequate ventilation.
As conditions warrant, wear a NIOSH approved (or equivalent) 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 materials for containment and cleaning up
Contain spill and collect, as appropriate.
Transfer to a chemical waste container for disposal in accordance with local regulations.
7 Handling and Storage

7.1 Precautions for safe handling
Avoid breathing dust/fume/gas/mist/vapours/spray.
Avoid prolonged or repeated exposure.

7.2 Conditions for safe storage
Keep container tightly closed.
Store in accordance with information listed on the product insert.

8 Exposure Controls/Personal Protection

8.1 Exposure limits

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS #</th>
<th>Value</th>
<th>Control parameters</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calcitriol</td>
<td>32222-06-3</td>
<td>No data available</td>
<td>No data available</td>
</tr>
</tbody>
</table>

8.2 Engineering controls
Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits.

8.3 Personal protective equipment

8.3.1 Eye/face protection
Safety glasses

8.3.2 Skin protection
Compatible chemical-resistant gloves
Lab coat

8.3.3 Respiratory protection
NIOSH (US) or CEN (EU) approved respirator, as conditions warrant.

8.3.4 General hygiene considerations
Do not take internally.
Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.
Wash thoroughly after handling.

8.3.5 Environmental exposure controls
No data available

9 Physical and Chemical Properties

9.1 Information on basic physical and chemical properties
Appearance
A crystalline solid
Odour
No data available
Odour threshold
No data available
Melting point/freezing point
No data available
Boiling point/boiling range
No data available
Decomposition temperature
No data available
Safety Data Sheet

**CALCITRIOL**

**Effective Date:** 2014-09-24

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
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<tr>
<td>Relative density</td>
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<tr>
<td>Solubility in water</td>
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<tr>
<td>Solubility in other liquids</td>
<td>~1 mg/mL in EtOH</td>
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<tr>
<td>pH</td>
<td>No data available</td>
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<tr>
<td>Partition coefficient: n-octanol/water</td>
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<tr>
<td>Viscosity</td>
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<tr>
<td>Vapour pressure</td>
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<tr>
<td>Vapour density</td>
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<tr>
<td>Evaporation rate</td>
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</tr>
<tr>
<td>Flash point</td>
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</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>No data available</td>
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<tr>
<td>Upper/lower flammability or explosive limits</td>
<td>No data available</td>
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<tr>
<td>Auto-ignition temperature</td>
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</table>

**9.2 Other information**

- Molecular formula: C_{27}H_{44}O_{3}
- Molecular weight: 416.6

**10 Stability and Reactivity**

**10.1 Reactivity**
- No data available

**10.2 Chemical stability**
- Stable

**10.3 Possibility of hazardous reactions**
- No data available

**10.4 Conditions to avoid**
- No data available

**10.5 Incompatible materials**
- Acid anhydrides
- Acid chlorides
- Strong oxidizing agents

**10.6 Hazardous decomposition products**
- Carbon dioxide
- Carbon monoxide

**11 Toxicological Information**

**11.1 Acute toxicity**
- Toxicity Data: Oral LD50 (rat): 620 µg/kg; Intraperitoneal LD50 (rat): >5 mg/kg; Subcutaneous LD50 (rat): 66 µg/kg; Oral LD50 (mouse): 1350 µg/kg; Intraperitoneal LD50 (mouse): 1900 µg/kg; Subcutaneous LD50 (mouse): 145 µg/kg

**11.2 Skin corrosion/irritation**
- No data available

**11.3 Serious eye damage/eye irritation**
- No data available

**11.4 Aspiration hazard**
- No data available

**11.5 Specific target organ toxicity - single exposure**
- No data available
11.6 Specific target organ toxicity - repeated exposure
No data available

11.7 Respiratory and/or skin sensitization
No data available

11.8 Carcinogenicity
IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

11.9 Reproductive toxicity
No data available

11.10 Germ cell mutagenicity
No data available

11.11 Signs and symptoms of exposure
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

11.12 RTECS # FZ4645000

12 Ecological Information

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

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Other adverse effects
No data available

13 Disposal Considerations

13.1 Waste disposal method
Dispose in accordance with local, provincial/state, and federal regulations.

14 Transport Information

14.1 UN number
DOT 2811
ADR/RID 2811
IMDG No data available
IATA 2811

14.2 UN proper shipping name
DOT Toxic solids, organic, n.o.s. (Calcitriol)
ADR/RID Toxic solids, organic, n.o.s. (Calcitriol)
IMDG No data available
IATA Toxic solids, organic, n.o.s. (Calcitriol)
14.3 Transport hazard class(es)

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14.4 Packing group

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<tr>
<td></td>
<td>I</td>
<td>I</td>
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<td>I</td>
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</tbody>
</table>

14.5 Environmental hazards

No data available

14.6 Special precautions

No data available

14.7 Additional Transport Information:

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.

15 Regulatory Information

15.1 US EPA SARA Title III

<table>
<thead>
<tr>
<th>Hazardous Components (Chemical Name)</th>
<th>CAS #</th>
<th>Sec.302 (EHS)</th>
<th>Sec.304 RQ</th>
<th>Sec.313 (TRI)</th>
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<td>Calcitriol</td>
<td>32222-06-3</td>
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15.2 Other US EPA or State Lists

<table>
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<th>Hazardous Components (Chemical Name)</th>
<th>CAS #</th>
<th>CAA HAP, ODC</th>
<th>CWA NPDES</th>
<th>TSCA</th>
<th>CA PROP.65</th>
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<td>No</td>
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15.3 Regulatory information statement

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

15.4 WHMIS Classification

D1A Very Toxic Material Causing Immediate and Serious Toxic Effects

WHMIS compliant label available upon request

16 Other Information

16.1 Prepared by: Quality Control, STEMCELL Technologies Inc.

16.2 Revision: N/A

16.3 Notice: The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. STEMCELL Technologies Inc. shall not be held liable for any damage resulting from handling or from contact with the product. The information contained in this Safety Data Sheet (SDS) is current as of the Effective Date shown in this document and may be subject to amendment by STEMCELL Technologies Inc.
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