# SAFETY DATA SHEET

## Clenbuterol (hydrochloride)

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:** 14985  
**Product Name:** Clenbuterol (hydrochloride)  
**Synonyms:** 4-amino-3,5-dichloro-a-[(1,1-dimethylethyl)amino]methyl]-benzenemethanol, monohydrochloride;

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:**

**Company Name:** Cayman Chemical Company  
**Web site address:** www.caymanchem.com  
**Emergency Contact:** +1 (800)424-9300  
**Information:** +1 (734)971-3335

1.4 **Emergency telephone number:**

**Emergency Contact:** CHEMTREC Within USA and Canada: +1 (800)424-9300  
CHEMTREC Outside USA and Canada: +1 (703)527-3887

## 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: Oral, Category 3**  
**Toxic To Reproduction, Category 1B**

2.1.2 **Classification according to Directive 1999/45/EC:**

**T:** Toxic  
**Reproductive Hazard:** 2  
**Risk Phrases:** R25, R60, R61  
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]:**

<table>
<thead>
<tr>
<th>GHS Signal Word:</th>
<th>Danger</th>
</tr>
</thead>
</table>

**GHS Hazard Phrases:**  
H301: Toxic if swallowed.  
H360: May damage fertility or the unborn child.

**GHS Precaution Phrases:**  
P264: Wash (hands) thoroughly after handling.  
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.

**GHS Response Phrases:**  
P301+310: IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.  
P330: Rinse mouth.  
P308+313: IF exposed or concerned: Get medical attention/advice.

**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:

Reproductive Hazard:  2

2.3 Adverse Human Health Material may be irritating to the mucous membranes and upper respiratory tract. Effects and Symptoms: May be harmful by inhalation or skin absorption.

- May cause eye, skin, or respiratory system irritation.
- May cause gastrointestinal disturbances.
- May damage fertility or the unborn child.
- May stimulate contraction of intestinal and reproductive smooth muscle.
- This chemical has the potential to induce premature labor or abortion.
- Toxic if swallowed.

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

Section 3. Composition/Information on Ingredients

<table>
<thead>
<tr>
<th>CAS #</th>
<th>Hazardous Components (Chemical Name)/REACH Registration No.</th>
<th>Concentration</th>
<th>EC No./EC Index No.</th>
<th>Risk Phrases/GHS Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>21898-19-1</td>
<td>Clenbuterol (hydrochloride)</td>
<td>100.0 %</td>
<td>244-643-7/NA</td>
<td>T; R25-60-61 Acute Tox.(O) 3: H301 Toxic Repro. 1B: H360</td>
</tr>
</tbody>
</table>

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 20 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 20 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.

4.2 Important Symptoms and Effects, Both Acute and Delayed:

- Exposure can cause: diarrhea, dizziness, fever, flushing, headache, hypotension, nausea, shivering, vomiting.
- May produce tremor, headache, nervousness, and lightheadedness.
Section 5. Fire Fighting Measures

5.1 Suitable Extinguishing Media: Use alcohol-resistant foam, carbon dioxide, water, or dry chemical spray. 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:

<table>
<thead>
<tr>
<th>CAS #</th>
<th>Partial Chemical Name</th>
<th>Britain EH40</th>
<th>France VL</th>
<th>Europe</th>
</tr>
</thead>
<tbody>
<tr>
<td>21898-19-1</td>
<td>Clenbuterol (hydrochloride)</td>
<td>No data.</td>
<td>No data.</td>
<td>No data.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CAS #</th>
<th>Partial Chemical Name</th>
<th>OSHA TWA</th>
<th>ACGIH TWA</th>
<th>Other Limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>21898-19-1</td>
<td>Clenbuterol (hydrochloride)</td>
<td>No data.</td>
<td>No data.</td>
<td>No data.</td>
</tr>
</tbody>
</table>

8.2 Exposure Controls:

8.2.1 Engineering Controls: 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: NIOSH approved respirator, as conditions warrant. (Specify Type):

Work/Hygienic/Maintenance Practices: Do not take internally. Facilities storing or utilizing this material should be equipped with an eyewash and a
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:** ~3 mg/ml in PBS (pH 7.2); ~12 mg/ml in EtOH; ~20 mg/ml in DMSO; ~25 mg/ml in DMF.
- **Solubility Notes:**
- **Autoignition Pt:** No data.

9.2 Other Information

- **Percent Volatile:** No data.

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.

10.4 Conditions To Avoid: No data available.

10.5 Incompatibility - Materials To Avoid: No data available.

10.6 Hazardous Decomposition Or Byproducts:
- carbon dioxide
- carbon monoxide
- hydrogen chloride gas
- nitrogen oxides
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Section 11. Toxicological Information

11.1 Information on Toxicological Effects:

The toxicological effects of this product have not been thoroughly studied.

Clenbuterol (hydrochloride) - Toxicity Data: Oral LD50 (rat): 159 mg/kg; Oral LD50 (mouse): 147 mg/kg; Intraperitoneal LD50 (rat): 67 mg/kg;

Chronic Toxicological Effects:

Clenbuterol (hydrochloride) - 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.

Clenbuterol (hydrochloride) RTECS Number: DN3180000

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.(4-amino-3,5-dichloro-a-[[1,1-dimethylethyl)amino]methyl]-benzenemethanol, monohydrochloride);

DOT Hazard Class: 6.1 - POISON

UN/NA Number: 2811 Packing Group: III

14.1 LAND TRANSPORT (European ADR/RID):

ADR/RID Shipping Name: Toxic solid, organic, n.o.s.(4-amino-3,5-dichloro-a-[[1,1-dimethylethyl)amino]methyl]-benzenemethanol, monohydrochloride);

UN Number: 2811 Packing Group: III

Hazard Class: 6.1 - POISON

14.3 AIR TRANSPORT (ICAO/IATA):

ICAO/IATA Shipping Name: Toxic solid, organic, n.o.s.(4-amino-3,5-dichloro-a-[[1,1-dimethylethyl)amino]methyl]-benzenemethanol, monohydrochloride);

UN Number: 2811 Packing Group: III

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

<table>
<thead>
<tr>
<th>CAS #</th>
<th>Hazardous Components (Chemical Name)</th>
<th>S. 302 (EHS)</th>
<th>S. 304 RQ</th>
<th>S. 313 (TRI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>21898-19-1</td>
<td>Clenbuterol (hydrochloride)</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CAS #</th>
<th>Hazardous Components (Chemical Name)</th>
<th>Other US EPA or State Lists</th>
</tr>
</thead>
<tbody>
<tr>
<td>21898-19-1</td>
<td>Clenbuterol (hydrochloride)</td>
<td>CAA HAP,ODC: No; CWA NPDES: No; TSCA: No; CA PROP.65: No</td>
</tr>
</tbody>
</table>

European Community Hazard Symbol codes:

- T

Reproductive Hazard: 2

European Community Risk and Safety Phrases:

- R25 Toxic if swallowed.
- R60 May impair fertility.
- R61 May cause harm to the unborn child.
- 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: 10/29/2013

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