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

1.1 Product Code: 15407  
Product Name: Budesonide  
Synonyms: 16.alpha.,17-[butylidenebis(oxy)]-11.beta.,21-dihydroxy-pregna-1,4-diene-3,20-dione; Entocort; Pulmicort;  

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  
1180 E. Ellsworth Rd.  
Ann Arbor, MI 48108  
Web site address: www.caymanchem.com  
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:  
Acute Toxicity: Inhalation, Category 4  
Acute Toxicity: Skin, Category 4  
Respiratory Sensitization, Category 1  
Skin Sensitization, Category 1  
Toxic To Reproduction, Category 2  

2.2 Label Elements:  

GHS Signal Word: Danger  
GHS Hazard Phrases:  
H312: Harmful in contact with skin.  
H317: May cause an allergic skin reaction.  
H332: Harmful if inhaled.  
H334: May cause allergy or asthma symptoms or breathing difficulties if inhaled.  
H361: Suspected of damaging fertility or the unborn child.  
GHS Precaution Phrases:  
P201: Obtain special instructions before use.  
P202: Do not handle until all safety precautions have been read and understood.  
P261: Avoid breathing {dust/fume/gas/mist/vapours/spray}.  
P272: Contaminated work clothing should not be allowed out of the workplace.  
P280: Wear {protective gloves/protective clothing/eye protection/face protection}.  
P281: Use personal protective equipment as required.  
P285: In case of inadequate ventilation wear respiratory protection.  
GHS Response Phrases:  
P302+352: IF ON SKIN: Wash with plenty of soap and water.  
P304+340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
Budesonide

SAFETY DATA SHEET

10/16/2014

Revision: 01/16/2019

Supersedes Revision: 10/16/2014

P341: If breathing is difficult, remove to fresh air and keep at rest in a position comfortable for breathing.
P308+313: IF exposed or concerned: Get medical attention/advice.
P312: Call a POISON CENTER or doctor/physician if you feel unwell.
P333+313: If skin irritation or rash occurs, seek medical advice/attention.
P342+311: If experiencing respiratory symptoms call a POISON CENTER or doctor/physician.
P363: Wash contaminated clothing before reuse.

GHS Storage and Disposal Phrases:

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

2.3 Adverse Human Health Effects and Symptoms:

Harmful if inhaled or in contact with skin.

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

May be harmful by ingestion.

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

May cause an allergic skin reaction.

May cause eye, skin, or respiratory system irritation.

Suspected of damaging fertility or the unborn child.

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>RTECS #</th>
<th>Hazardous Components (Chemical Name)/REACH Registration No.</th>
<th>Concentration</th>
<th>EC No./EC Index No.</th>
<th>GHS Classification</th>
</tr>
</thead>
</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 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.

### 5.2 Unsuitable Extinguishing Media:
- Use water spray to cool fire-exposed containers.

### 5.3 Flash Point:
- No data available.

### 5.4 Explosive Limits:
- LEL: No data.
- UEL: No data.

### 5.5 Autoignition Point:
- No data.

## 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:
- 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:

### 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.
- No data available.
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

pH: No data.

Melting Point: No data.

Boiling Point: No data.

Flash Pt: No data.

Evaporation Rate: No data.

Flammability (solid, gas): No data available.

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: ~0.5 mg/ml in a 1:1 solution of DMSO:PBS (pH 7.2); ~10 mg/ml in EtOH; ~25 mg/ml in DMSO; ~20 mg/ml in DMF;

Octanol/Water Partition Coefficient: No data.

Autoignition Pt: No data.

Decomposition Temperature: No data.

Viscosity: No data.

9.2 Other Information

Molecular Formula & Weight: C25H34O6 430.5

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 strong oxidizing agents

10.6 Hazardous Decomposition or Byproducts:

- carbon dioxide
- carbon monoxide
Section 11. Toxicological Information

11.1 Information on Toxicological Effects:

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

Budesonide - Toxicity Data:
- Oral LD50 (rat): >3200 mg/kg;
- Subcutaneous LD50 (rat): 58400 µg/kg;
- Intraperitoneal LD50 (rat): 138 mg/kg;
- Oral LD50 (mouse): 4750 mg/kg;
- Intraperitoneal LD50 (mouse): 179 mg/kg;
- Subcutaneous LD50 (mouse): 53600 µg/kg;

Chronic Toxicological Effects:

Budesonide - Investigated as a drug, hormone, primary irritant, reproductive effector and tumorigen.

Only select Registry of Toxic Effects of Chemical Substances (RTECS) data is presented here. See actual entry in RTECS for complete information.

Budesonide RTECS Number: TU3723000

<table>
<thead>
<tr>
<th>CAS #</th>
<th>Hazardous Components (Chemical Name)</th>
<th>NTP</th>
<th>IARC</th>
<th>ACGIH</th>
<th>OSHA</th>
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<td>51333-22-3</td>
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<td>n.a.</td>
<td>n.a.</td>
<td>n.a.</td>
<td>n.a.</td>
</tr>
</tbody>
</table>

Section 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 Results of PBT and vPvB assessment:

No data available.

12.6 Other adverse effects:

No data available.

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: Not dangerous goods.
DOT Hazard Class:
UN/NA Number:

14.1 LAND TRANSPORT (European ADR/RID):

ADR/RID Shipping Name: Not dangerous goods.
UN Number:
Hazard Class:

14.3 AIR TRANSPORT (ICAO/IATA):

ICAO/IATA Shipping Name: Not dangerous goods.
Additional Transport Information:
Transport in accordance with local, state, and federal regulations.
Section 15. Regulatory Information

<table>
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<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>
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</thead>
<tbody>
<tr>
<td>51333-22-3</td>
<td>Budesonide</td>
<td>No</td>
<td>No</td>
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</tr>
</tbody>
</table>

**Regulatory Information**

This SDS was prepared in accordance with 29 CFR 1910.1200 and Regulation (EC) No.1272/2008.

**Statement:**
No.1272/2008.

Section 16. Other Information

**Revision Date:**
01/16/2019

**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.