1. PRODUCT AND COMPANY IDENTIFICATION

Product name: Clenbuterol hydrochloride
Product Number: C5423
Brand: Sigma
Company: Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO  63103
USA
Telephone: +18003255832
Fax: +18003255052
Emergency Phone #: (314) 776-6555

2. HAZARDS IDENTIFICATION

Emergency Overview

OSHA Hazards
Toxic by ingestion, Teratogen

GHS Label elements, including precautionary statements

Pictogram

Signal word Danger

Hazard statement(s)
H301 Toxic if swallowed.

Precautionary statement(s)
P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.

HMIS Classification

Health hazard: 2
Chronic Health Hazard: *
Flammability: 0
Physical hazards: 0

NFPA Rating

Health hazard: 2
Fire: 0
Reactivity Hazard: 0

Potential Health Effects

Inhalation May be harmful if inhaled. May cause respiratory tract irritation.
Skin May be harmful if absorbed through skin. May cause skin irritation.
Eyes May cause eye irritation.
Ingestion Toxic if swallowed.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms: 4-Amino-α-(t-butyraminomethyl)-3,5-dichlorobenzyl alcoholhydrochloride

Formula: C_{12}H_{18}Cl_{2}N_{2}O · HCl
Molecular Weight: 313.65 g/mol
4. FIRST AID MEASURES

   General advice
   Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

   If inhaled
   If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

   In case of skin contact
   Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

   In case of eye contact
   Flush eyes with water as a precaution.

   If swallowed
   Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

5. FIRE-FIGHTING MEASURES

   Suitable extinguishing media
   Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

   Special protective equipment for fire-fighters
   Wear self contained breathing apparatus for fire fighting if necessary.

6. ACCIDENTAL RELEASE MEASURES

   Personal precautions
   Wear respiratory protection. Avoid dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.

   Environmental precautions
   Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

   Methods and materials for containment and cleaning up
   Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

7. HANDLING AND STORAGE

   Precautions for safe handling
   Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Provide appropriate exhaust ventilation at places where dust is formed. Normal measures for preventive fire protection.

   Conditions for safe storage
   Keep container tightly closed in a dry and well-ventilated place.

     Recommended storage temperature: 2 - 8 °C

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

   Contains no substances with occupational exposure limit values.

   Personal protective equipment

     Respiratory protection
     Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N99 (US) or type P2 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).
Hand protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove’s outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Eye protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin and body protection
Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Hygiene measures
Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

9. PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Appearance</th>
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<tbody>
<tr>
<td>Form</td>
</tr>
<tr>
<td>solid</td>
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<table>
<thead>
<tr>
<th>Safety data</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH</td>
</tr>
<tr>
<td>no data available</td>
</tr>
<tr>
<td>Melting point</td>
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<tr>
<td>no data available</td>
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<tr>
<td>Boiling point</td>
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<tr>
<td>no data available</td>
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<tr>
<td>Flash point</td>
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<tr>
<td>Ignition temperature</td>
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<tr>
<td>no data available</td>
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<tr>
<td>Lower explosion limit</td>
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<td>no data available</td>
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<tr>
<td>Upper explosion limit</td>
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<tr>
<td>no data available</td>
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<tr>
<td>Water solubility</td>
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<tr>
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10. STABILITY AND REACTIVITY

<table>
<thead>
<tr>
<th>Chemical stability</th>
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<tbody>
<tr>
<td>Stable under recommended storage conditions.</td>
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<table>
<thead>
<tr>
<th>Conditions to avoid</th>
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<tbody>
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<table>
<thead>
<tr>
<th>Materials to avoid</th>
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<tbody>
<tr>
<td>Strong oxidizing agents</td>
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<table>
<thead>
<tr>
<th>Hazardous decomposition products</th>
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</thead>
<tbody>
<tr>
<td>Hazardous decomposition products formed under fire conditions. - Carbon oxides, nitrogen oxides (NOx), Hydrogen chloride gas</td>
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</table>

11. TOXICOLOGICAL INFORMATION

<table>
<thead>
<tr>
<th>Acute toxicity</th>
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<tbody>
<tr>
<td>LD50 Oral - rat - 159 mg/kg</td>
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<thead>
<tr>
<th>Skin corrosion/irritation</th>
</tr>
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<tbody>
<tr>
<td>no data available</td>
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</table>

<table>
<thead>
<tr>
<th>Serious eye damage/eye irritation</th>
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</thead>
<tbody>
<tr>
<td>no data available</td>
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</table>

<table>
<thead>
<tr>
<th>Respiratory or skin sensitization</th>
</tr>
</thead>
<tbody>
<tr>
<td>no data available</td>
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</tbody>
</table>
Germ cell mutagenicity
no data available

**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.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

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.

**Reproductive toxicity**

Laboratory experiments have shown teratogenic effects.

**Specific target organ toxicity - single exposure (GHS)**
no data available

**Specific target organ toxicity - repeated exposure (GHS)**
no data available

**Aspiration hazard**
no data available

**Potential health effects**

<table>
<thead>
<tr>
<th>Route</th>
<th>Effects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inhalation</td>
<td>May be harmful if inhaled. May cause respiratory tract irritation.</td>
</tr>
<tr>
<td>Ingestion</td>
<td>Toxic if swallowed.</td>
</tr>
<tr>
<td>Skin</td>
<td>May be harmful if absorbed through skin. May cause skin irritation.</td>
</tr>
<tr>
<td>Eyes</td>
<td>May cause eye irritation.</td>
</tr>
</tbody>
</table>

**Additional Information**

RTECS: DN3180000

12. ECOLOGICAL INFORMATION

**Toxicity**
no data available

**Persistence and degradability**
no data available

**Bioaccumulative potential**
no data available

**Mobility in soil**
no data available

**PBT and vPvB assessment**
no data available

**Other adverse effects**
no data available

13. DISPOSAL CONSIDERATIONS

**Product**
Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

**Contaminated packaging**
Dispose of as unused product.
14. TRANSPORT INFORMATION

**DOT (US)**
- UN-Number: 2811  Class: 6.1  Packing group: III
- Proper shipping name: Toxic solids, organic, n.o.s. (4-Amino-α-[(tert-butylamino)methyl]-3,5-dichlorobenzyl alcohol monohydrochloride)
- Marine pollutant: No
- Poison Inhalation Hazard: No

**IMDG**
- UN-Number: 2811  Class: 6.1  Packing group: III  EMS-No: F-A, S-A
- Proper shipping name: TOXIC SOLID, ORGANIC, N.O.S. (4-Amino-α-[(tert-butylamino)methyl]-3,5-dichlorobenzyl alcohol monohydrochloride)
- Marine pollutant: No

**IATA**
- UN-Number: 2811  Class: 6.1  Packing group: III
- Proper shipping name: Toxic solid, organic, n.o.s. (4-Amino-α-[(tert-butylamino)methyl]-3,5-dichlorobenzyl alcohol monohydrochloride)

15. REGULATORY INFORMATION

**OSHA Hazards**
- Toxic by ingestion, Teratogen

**DSL Status**
- All components of this product are on the Canadian DSL list.

**SARA 302 Components**
- SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

**SARA 313 Components**
- SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

**SARA 311/312 Hazards**
- Acute Health Hazard, Chronic Health Hazard

**Massachusetts Right To Know Components**
- No components are subject to the Massachusetts Right to Know Act.

**Pennsylvania Right To Know Components**

- 4-Amino-α-[(tert-butylamino)methyl]-3,5-dichlorobenzyl alcohol monohydrochloride  CAS-No. 21898-19-1  Revision Date

**New Jersey Right To Know Components**

- 4-Amino-α-[(tert-butylamino)methyl]-3,5-dichlorobenzyl alcohol monohydrochloride  CAS-No. 21898-19-1  Revision Date

**California Prop. 65 Components**
- This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

**Further information**
- Copyright 2010 Sigma-Aldrich Co. License granted to make unlimited paper copies for internal use only.
- The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Co., shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale.