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

1.1 Product Code: 12008
Product Name: Atropine
Synonyms: a-(hydroxymethyl)-(3-endo)-8-methyl-8-azabicyclo[3.2.1]oct-3-yl ester-benzeneacetic acid; DL-Hyoscyamine; Tropine tropate;

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:
2.1.1 Classification according to Regulation (EC) No 1272/2008 [CLP]:
Acute Toxicity: Inhalation, Category 2
Acute Toxicity: Oral, Category 2

2.1.2 Classification according to Directive 1999/45/EC:
T+: Very Toxic
Risk Phrases: R26/28
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.

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.

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.

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.
Fatal if swallowed.
Material may be irritating to the mucous membranes and upper respiratory tract.
May be harmful by skin absorption.
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

<table>
<thead>
<tr>
<th>CAS # / RTECS #</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>51-55-8 CK0700000</td>
<td>Atropine</td>
<td>100.0 %</td>
<td>200-104-8 614-010-00-3</td>
<td>T+; R26/28 Acute Tox.(O) 2: H300 Acute Tox.(I) 2: H330</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 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.

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

A solid water stream may be inefficient.

5.2 Flammable Properties and Hazards:

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:

- **Contain spill and collect, as appropriate.**
- **Transfer to a chemical waste container for disposal in accordance with local regulations.**

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>51-55-8</td>
<td>Atropine</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>51-55-8</td>
<td>Atropine</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 (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: 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 safety shower.**
- **Wash thoroughly after handling.**
## Section 9. Physical and Chemical Properties

### 9.1 Information on Basic Physical and Chemical Properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical States</td>
<td>[ ] Gas [ ] Liquid [X] Solid</td>
</tr>
<tr>
<td>Appearance and Odor</td>
<td>A crystalline solid</td>
</tr>
<tr>
<td>Melting Point</td>
<td>No data.</td>
</tr>
<tr>
<td>Boiling Point</td>
<td>No data.</td>
</tr>
<tr>
<td>Flash Pt</td>
<td>No data.</td>
</tr>
<tr>
<td>Evaporation Rate</td>
<td>No data.</td>
</tr>
<tr>
<td>Explosive Limits</td>
<td>LEL: No data. UEL: No data.</td>
</tr>
<tr>
<td>Vapor Pressure (vs. Air or mm Hg)</td>
<td>No data.</td>
</tr>
<tr>
<td>Vapor Density (vs. Air = 1)</td>
<td>No data.</td>
</tr>
<tr>
<td>Specific Gravity (Water = 1)</td>
<td>No data.</td>
</tr>
<tr>
<td>Solubility in Water</td>
<td>No data.</td>
</tr>
<tr>
<td>Solubility Notes</td>
<td>∼10 mg/ml in PBS (pH 7.2); ∼16 mg/ml in EtOH; ∼10 mg/ml in DMSO; ∼2 mg/ml in DMF;</td>
</tr>
<tr>
<td>Autoignition Pt</td>
<td>No data.</td>
</tr>
</tbody>
</table>

### 9.2 Other Information

- **Molecular Formula & Weight**: C17H23NO3 289.4

## Section 10. Stability and Reactivity

### 10.1 Reactivity

No data available.

### 10.2 Stability

- **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

- alkalis
- iodine
- mercury salts
- tannins

### 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. Atropine - Toxicity Data:

- **Oral TDLO (human):** 33 µg/kg
- **Intramuscular TDLO (human):** 1 µg/kg
- **Intravenous TDLO (human):** 14 µg/kg
- **Oral LD50 (rat):** 500 mg/kg
- **Subcutaneous LD50 (rat):** 250 mg/kg
- **Intravenous LD50 (rat):** 73 mg/kg
- **Intramuscular LD50 (rat):** 920 mg/kg
- **Oral LD50 (mouse):** 75 mg/kg
- **Subcutaneous LD50 (mouse):** 428 mg/kg
- **Intravenous LD50 (mouse):** 30 mg/kg
- **Oral LD50 (rabbit):** 600 mg/kg
- **Subcutaneous TDLO (mouse):** 50 mg/kg
- **Intravenous TDLO (mouse):** 1.24 mg/kg
- **Oral TDLO (rat):** 1 mg/kg
- **Oral TDLO (mouse):** 1 mg/kg
- **Inhalation TCLO (woman):** 0.72 mg/kg/3D (intermittent)

**Chronic Toxicological Effects:**

- Atropine - Investigated as a mutagen, 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.
- **Atropine RTECS Number:** CK0700000

**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:** Alkaloids, solid, n.o.s. (Atropine)
- **DOT Hazard Class:** 6.1 - POISON
- **UN/NA Number:** 1544
- **Packing Group:** II

**14.1 LAND TRANSPORT (European ADR/RID):**

- **ADR/RID Shipping Name:** Alkaloids, solid, n.o.s. (Atropine)
- **UN Number:** 1544
- **Packing Group:** II
- **Hazard Class:** 6.1 - POISON

**14.3 AIR TRANSPORT (ICAO/IATA):**

- **ICAO/IATA Shipping Name:** Alkaloids, solid, n.o.s. (Atropine)
- **UN Number:** 1544
- **Packing Group:** II
- **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>51-55-8</td>
<td>Atropine</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

CAS # Hazardous Components (Chemical Name) Other US EPA or State Lists

<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>51-55-8</td>
<td>Atropine</td>
<td>CAA HAP, ODC: No; CWA NPDES: No; TSCA: Inventory; CA PROP.65: No</td>
</tr>
</tbody>
</table>

European Community Hazard Symbol codes:

![T+]

European Community Risk and Safety Phrases:

R26/28 Very toxic by inhalation 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

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: 11/26/2013

Additional Information About This Product: No data available.

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