# SAVERY DATA SHEET

**Sildenafil**


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

<table>
<thead>
<tr>
<th>1.1 Product Code:</th>
<th>10008671</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Product Name:</strong></td>
<td>Sildenafil</td>
</tr>
<tr>
<td><strong>Synonyms:</strong></td>
<td>5-[2-ethoxy-5-[(4-methyl-1-piperazinyl)sulfonyl]phenyl]-1,6-dihydro-1-methyl-3-propyl-7H-pyrazolo[4,3-d]pyrimidin-7-one; Viagra™;</td>
</tr>
</tbody>
</table>

## Section 1.1 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.

## 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 4
- **Serious Eye Damage/Eye Irritation:** Category 2
- **Aquatic Toxicity (Chronic):** Category 3

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

- **Xn:** Harmful
- **Risk Phrases:** R22, R36, R52/53
- 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:** Warning

**GHS Hazard Phrases:**

- H302: Harmful if swallowed.
- H319: Causes serious eye irritation.
- H412: Harmful to aquatic life with long lasting effects.

**GHS Precaution Phrases:**

- P264: Wash (hands) thoroughly after handling.
- P280: Wear {protective gloves/protective clothing/eye protection/face protection}.
- P273: Avoid release to the environment.

**GHS Response Phrases:**

- P301+312: IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.
- P330: Rinse mouth.
- P305+351+338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- P337+313: If eye irritation persists, get medical advice/attention.

**GHS Storage and Disposal Phrases:**

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**Multi-region format**
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Sildenafil

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

2.2.2 Labeling according to Directive 1999/45/EC:

Xn

2.3 Adverse Human Health Causes serious eye irritation.

Effects and Symptoms: Harmful if swallowed.

- Harmful to aquatic life with long lasting effects.
- Material may be irritating to the mucous membranes and upper respiratory tract.
- May be harmful by inhalation or skin absorption.
- May cause skin or respiratory system irritation.
- Vasodilator.
- 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>139755-83-2 NA</td>
<td>Sildenafil</td>
<td>100.0 %</td>
<td>604-158-7 NA</td>
<td>Xn; R22-36-52/53 Acute Tox.(O) 4: H302 Aquatic (C) 3: H412 Eye Damage 2: H319</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.

4.2 Important Symptoms and Effects, Both Acute and Delayed:

- Exposure may cause: headache, flushing, dyspepsia, nasal congestion and impaired vision.
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.

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.

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

Suitable Extinguishing Media: A solid water stream may be inefficient.

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>139755-83-2</td>
<td>Sildenafil</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>139755-83-2</td>
<td>Sildenafil</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>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>~0.15 mg/ml in 1:5 DMSO:PBS (pH 7.2); ~10 mg/ml in DMSO; ~5 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: C22H30N6O4S, 474.6

### Section 10. Stability and Reactivity

#### 10.1 Reactivity:  
No data available.

#### 10.2 Stability:  
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:  
No data available.
Section 11. Toxicological Information

11.1 Information on Toxicological Effects: The toxicological effects of this product have not been thoroughly studied.

Sildenafil - Toxicity Data: Oral TDLO (human): 1.43 mg/kg; Oral TDLO (child): 30 mg/kg;
Oral TDLO (human): 9.64 mg/kg/3D (intermittent); Intraperitoneal TDLO (rat): 0.25 mg/kg;
Intraperitoneal TDLO (mouse): 1 mg/kg; Subcutaneous TDLO (rat): 0.250 mg/kg;
Intravenous TDLO (rat): 0.1 mg/kg; Intravenous TDLO (dog): 0.1 mg/kg;

Chronic Toxicological Effects: Sildenafil - Investigated as a mutagen and reproductive effector.

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

Sildenafil RTECS Number: TL4256300

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: 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

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>139755-83-2</td>
<td>Sildenafil</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>139755-83-2</td>
<td>Sildenafil</td>
<td>CAA HAP,ODC: No; CWA NPDES: No; TSCA: No; CA PROP.65: No</td>
</tr>
</tbody>
</table>
European Community Hazard Symbol codes:

Xn

European Community Risk and Safety Phrases:

R22  Harmful if swallowed.
R36  Irritating to eyes.
R52/53 Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
S22  Do not breathe dust.
S24/25 Avoid contact with skin and eyes.
S26  In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
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: 12/02/2013
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