

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:** 15212  
**Product Name:** Ketoconazole  
**Synonyms:** 1-[4-[4-[[[(2R,4S)-2-(2,4-dichlorophenyl)-2-(1H-imidazol-1-ylmethyl)-1,3-dioxolan-4-yl]methoxy]phenyl]-1-piperazinyl]-ethanone; Nizoral; R 41400;
- 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:** Cayman Chemical Company +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**  
**Target Organ Systemic Toxicity (repeated exposure), Category 2**  
**Aquatic Toxicity (Acute), Category 1**  
**Aquatic Toxicity (Chronic), Category 1**
- 2.2 Label Elements:**
- 2.2.1 Labeling according to Regulation (EC) No 1272/2008 [CLP]:**



**GHS Signal Word:** **Danger**

**GHS Hazard Phrases:**

- H301: Toxic if swallowed.  
H360: May damage fertility or the unborn child.  
H373: May cause damage to organs through prolonged or repeated exposure.  
H400: Very toxic to aquatic life.  
H410: Very toxic to aquatic life with long lasting effects.

**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.  
P260: Do not breathe {dust/fume/gas/mist/vapours/spray}.  
P273: Avoid release to the environment.

**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.  
P314: Get medical attention/advice if you feel unwell.  
P391: Collect spillage.

**GHS Storage and Disposal Phrases:**

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

**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 damage to organs through prolonged or repeated exposure.  
May damage fertility or the unborn child.  
Toxic if swallowed.  
Very toxic to aquatic life with long lasting effects.  
To the best of our knowledge, the toxicological properties have not been thoroughly investigated.

**Section 3. Composition/Information on Ingredients**

CAS # / RTECS #	Hazardous Components (Chemical Name)/ REACH Registration No.	Concentration	EC No./ EC Index No.	GHS Classification
65277-42-1 TK7912300	Piperazine, 1-acetyl-4-(4-((2-(2,4-dichlorophenyl)-2-(1h-imidazol-1-ylmethyl)-1,3-dioxolan-4-yl)met	100.0 %	265-667-4 613-283-00-6	Acute Tox.(O) 3: H301 Toxic Repro. 1B: H360 TOST (RE) 2: H373 Aquatic (A) 1: H400 Aquatic (C) 1: H410

**Section 4. First Aid Measures**

**4.1 Description of First Aid Measures:** No data available.

**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** Use alcohol-resistant foam, carbon dioxide, water, or dry chemical spray.  
**Media:** Use water spray to cool fire-exposed containers.  
**Unsuitable Extinguishing** A solid water stream may be inefficient.  
**Media:**
- 5.2 Flammable Properties and** No data available.  
**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,** Avoid raising and breathing dust, and provide adequate ventilation.  
**Protective Equipment and** As conditions warrant, wear a NIOSH approved self-contained breathing apparatus, or respirator,  
**Emergency Procedures:** and appropriate personal protection (rubber boots, safety goggles, and heavy rubber gloves).
- 6.2 Environmental** Take steps to avoid release into the environment, if safe to do so.  
**Precautions:**
- 6.3 Methods and Material For** Contain spill and collect, as appropriate.  
**Containment and Cleaning** Transfer to a chemical waste container for disposal in accordance with local regulations.  
**Up:**

### Section 7. Handling and Storage

- 7.1 Precautions To Be Taken** Avoid breathing dust/fume/gas/mist/vapours/spray.  
**in Handling:** Avoid prolonged or repeated exposure.
- 7.2 Precautions To Be Taken** Keep container tightly closed.  
**in Storing:** Store in accordance with information listed on the product insert.

### Section 8. Exposure Controls/Personal Protection

**8.1 Exposure Parameters:**

CAS #	Partial Chemical Name	Britain EH40	France VL	Europe
65277-42-1	Piperazine, 1-acetyl-4-(4-((2-(2,4-dichlorophenyl)-2-(1h-imidazol-1-ylmethyl)-1,3-dioxolan-4-yl)met	No data.	No data.	No data.
CAS #	Partial Chemical Name	OSHA TWA	ACGIH TWA	Other Limits
65277-42-1	Piperazine, 1-acetyl-4-(4-((2-(2,4-dichlorophenyl)-2-(1h-imidazol-1-ylmethyl)-1,3-dioxolan-4-yl)met	No data.	No data.	No data.



### Section 11. Toxicological Information

**11.1 Information on Toxicological Effects:** The toxicological effects of this product have not been thoroughly studied.  
Ketoconazole - Toxicity Data: Oral LD50 (rat): 166 mg/kg; Intraperitoneal LD50 (rat): 1474 mg/kg; Subcutaneous LD50 (rat): >2400 mg/kg; Oral LD50 (mouse): 618 mg/kg; Intraperitoneal LD50 (mouse): 2937 mg/kg; Subcutaneous LD50 (mouse): >4 gm/kg; Oral LDLO (man): 45 mg/kg/17D (intermittent); Oral LDLO (woman): 412 mg/kg/15W (intermittent);

**Chronic Toxicological Effects:** Ketoconazole - Investigated as an agricultural chemical, drug, 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.  
Ketoconazole RTECS Number: TK7912300

CAS #	Hazardous Components (Chemical Name)	NTP	IARC	ACGIH	OSHA
65277-42-1	Piperazine, 1-acetyl-4-(4-((2-(2,4-dichlorophenyl)-2-(1h-imidazol-1-yl)met hyl)-1,3-dioxolan-4-yl)met	n.a.	n.a.	n.a.	n.a.

### 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.

### 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 solids, organic, n.o.s. (Ketoconazole)  
**DOT Hazard Class:** 6.1 POISON  
**UN/NA Number:** UN2811 **Packing Group:** III



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

**ADR/RID Shipping Name:** Toxic solids, organic, n.o.s. (Ketoconazole)  
**UN Number:** 2811 **Packing Group:** III  
**Hazard Class:** 6.1 - POISON

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

**ICAO/IATA Shipping Name:** Toxic solids, organic, n.o.s. (Ketoconazole)  
**UN Number:** 2811 **Packing Group:** III  
**Hazard Class:** 6.1 - POISON **IATA Classification:** 6.1



# SAFETY DATA SHEET

## Ketoconazole

<b>Additional Transport Information:</b>	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.
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### Section 15. Regulatory Information

#### EPA SARA (Superfund Amendments and Reauthorization Act of 1986) Lists

CAS #	Hazardous Components (Chemical Name)	S. 302 (EHS)	S. 304 RQ	S. 313 (TRI)
65277-42-1	Piperazine, 1-acetyl-4-(4-((2-(2,4-dichlorophenyl)-2-(1h-imidazol-1-ylmethyl)-1,3-dioxolan-4-yl)met	No	No	No

CAS #	Hazardous Components (Chemical Name)	Other US EPA or State Lists
65277-42-1	Piperazine, 1-acetyl-4-(4-((2-(2,4-dichlorophenyl)-2-(1h-imidazol-1-ylmethyl)-1,3-dioxolan-4-yl)met	CAA HAP,ODC: No; CWA NPDES: No; TSCA: No; CA PROP.65: No

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

### Section 16. Other Information

**Revision Date:** 03/01/2015

**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.