2. HAZARDS IDENTIFICATION

Classification

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

<table>
<thead>
<tr>
<th>Property</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute toxicity - Oral</td>
<td>Category 3</td>
</tr>
<tr>
<td>Skin corrosion/irritation</td>
<td>Category 1</td>
</tr>
<tr>
<td>Serious eye damage/eye irritation</td>
<td>Category 1</td>
</tr>
<tr>
<td>Reproductive toxicity</td>
<td>Category 1B</td>
</tr>
</tbody>
</table>

Label elements
Danger

Hazard statements
Toxic if swallowed
Causes severe skin burns and eye damage
May damage fertility or the unborn child

Precautionary Statements - Prevention
Obtain special instructions before use
Do not handle until all safety precautions have been read and understood
Use personal protective equipment as required
Wash face, hands and any exposed skin thoroughly after handling
Do not eat, drink or smoke when using this product
Do not breathe dust/fume/gas/mist/vapors/spray
Wear protective gloves/protective clothing/eye protection/face protection

Precautionary Statements - Response
Specific treatment (see ? on this label)
Immediately call a POISON CENTER or doctor/physician
Specific treatment (see ? on this label)
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Immediately call a POISON CENTER or doctor/physician.
IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower
Wash contaminated clothing before reuse
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Immediately call a POISON CENTER or doctor/physician.
IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician
Rinse mouth
Do NOT induce vomiting

Precautionary Statements - Storage
Store locked up

Precautionary Statements - Disposal
Dispose of contents/container to an approved waste disposal plant

3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Weight %</th>
<th>Trade Secret</th>
</tr>
</thead>
</table>

Product code: IM105  
Product name: IMIDAZOLE, REAGENT
3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>CAS Number</th>
<th>Percentage</th>
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</thead>
<tbody>
<tr>
<td>Imidazole</td>
<td>288-32-4</td>
<td>100</td>
</tr>
</tbody>
</table>

4. FIRST AID MEASURES

First aid measures

General Advice: Poison information centers in each State capital city can provide additional assistance for scheduled poisons (13 1126)

Skin Contact: Wash off immediately with soap and plenty of water. Continue flushing with plenty of water for at least 15 minutes. Remove all contaminated clothes and shoes. Immediate medical attention is required. Call a physician or Poison Control Centre immediately.

Eye Contact: Flush eye with water for 15 minutes. Immediate medical attention is required. Call a physician immediately.

Inhalation: Move to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. WARNING! It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled or ingested material is toxic, infectious or corrosive. Do not use mouth-to-mouth resuscitation if victim ingested or inhaled the substance; induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Immediate medical attention is required.

Ingestion: Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Immediate medical attention is required. Toxic if swallowed.

Most important symptoms and effects, both acute and delayed

Symptoms Causes eye damage. Eye contact may result in redness or pain. Causes severe skin burns. Skin contact may result in redness, pain, inflammation, itching, scaling. May damage fertility or the unborn child. Toxic if swallowed.

Indication of any immediate medical attention and special treatment needed

Notes to Physician: Treat symptomatically

Protection of first-aiders

First-Aid Providers: Avoid exposure to blood or body fluids. Wear gloves and other necessary protective clothing. Dispose of contaminated clothing and equipment as bio-hazardous waste

5. FIRE-FIGHTING MEASURES

Extinguishing Media

Suitable Extinguishing Media: Carbon dioxide (CO2). Dry chemical. Water spray mist or foam.

Unsuitable Extinguishing Media: No information available.

Specific hazards arising from the chemical

Hazardous Combustion Products: Carbon oxides, Nitrogen oxides

Specific hazards: May be combustible at high temperatures

Special Protective Actions for Firefighters

Specific Methods: No information available.
Special Protective Equipment for Firefighters:

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal Precautions:
Ensure adequate ventilation. Use personal protective equipment. Avoid contact with skin, eyes and clothing. Keep people away from and upwind of spill/leak. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Remove all sources of ignition.

Environmental precautions
Prevent further leakage or spillage if safe to do so. Prevent product from entering drains. Prevent entry into waterways, sewers, basements or confined areas.

Methods and material for containment and cleaning up

Methods for containment
Stop leak if you can do it without risk. Cover with plastic sheet to prevent spreading.

Methods for cleaning up
Sweep up and shovel into suitable containers for disposal. Clean contaminated surface thoroughly.

7. HANDLING AND STORAGE

Precautions for safe handling

Technical Measures/Precautions:
Provide sufficient air exchange and/or exhaust in work rooms. Keep away from incompatible materials.

Safe Handling Advice:
Wear personal protective equipment. Avoid contact with skin, eyes and clothing. Do not ingest. Do not breathe vapours/dust. Handle in accordance with good industrial hygiene and safety practice.

Conditions for safe storage, including any incompatibilities

Technical Measures/Storage Conditions:
Keep container tightly closed in a dry and well-ventilated place. Store at room temperature in the original container. Store away from incompatible materials.

Incompatible Materials:

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

National occupational exposure limits

United States

<table>
<thead>
<tr>
<th>Components</th>
<th>OSHA</th>
<th>NIOSH</th>
<th>ACGIH</th>
<th>AIHA WHEEL</th>
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<tbody>
<tr>
<td>Imidazole 288-32-4</td>
<td>None</td>
<td>None</td>
<td>None</td>
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Canada

<table>
<thead>
<tr>
<th>Components</th>
<th>Alberta</th>
<th>British Columbia</th>
<th>Ontario</th>
<th>Quebec</th>
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<tbody>
<tr>
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</table>

Australia and Mexico

<table>
<thead>
<tr>
<th>Components</th>
<th>Australia</th>
<th>Mexico</th>
</tr>
</thead>
</table>

Product code: IM105 Product name: IMIDAZOLE, REAGENT
Appropriate engineering controls

Engineering measures to reduce exposure: Ensure adequate ventilation. Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

Individual protection measures, such as personal protective equipment

Personal Protective Equipment

Eye protection: Safety glasses Safety glasses with side-shields
Skin and body protection: Chemical resistant apron. Gloves. Long sleeved clothing.
Respiratory protection: Effective dust mask. Wear respirator with dust filter.
Hygiene measures: Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product. When using, do not eat, drink or smoke.

9. PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state</td>
<td>Solid</td>
</tr>
<tr>
<td>Appearance</td>
<td>Crystalline.</td>
</tr>
<tr>
<td>Color</td>
<td>White. Yellow.</td>
</tr>
<tr>
<td>Odor</td>
<td>No information available</td>
</tr>
<tr>
<td>Taste</td>
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</tr>
<tr>
<td>Formula</td>
<td>C3H4N2</td>
</tr>
<tr>
<td>Flammability</td>
<td>May be combustible at high</td>
</tr>
<tr>
<td></td>
<td>temperatures</td>
</tr>
<tr>
<td>Flammable</td>
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<tr>
<td>Flash Point Tested according to</td>
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<td>Upper Explosion Limit (%)</td>
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<td>Melting point/range(°C/°F)</td>
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</tr>
<tr>
<td>Density (g/cm³)</td>
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<tr>
<td>Evaporation rate</td>
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<tr>
<td>VOC content (g/L)</td>
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<tr>
<td>Odor threshold (ppm)</td>
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<tr>
<td>Miscibility</td>
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<tr>
<td>Partition coefficient (n-octanol/water)</td>
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<tr>
<td>Molecular/Formula weight</td>
<td>68.08</td>
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<td>Vapor pressure @ 20°C (kPa)</td>
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<tr>
<td>Vapor density</td>
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<tr>
<td>Partition coefficient (n-octanol/water)</td>
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<tr>
<td>Solubility</td>
<td>Easily soluble in cold water</td>
</tr>
<tr>
<td></td>
<td>Solubility in Water: 6.8 g/L @ 20°C</td>
</tr>
<tr>
<td>pH</td>
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</tr>
<tr>
<td>pKₐ</td>
<td>No information available</td>
</tr>
<tr>
<td>Density (g/cm³)</td>
<td>No information available</td>
</tr>
<tr>
<td>Density (g/cm³)</td>
<td>No information available</td>
</tr>
<tr>
<td>Evaporation rate</td>
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</tr>
<tr>
<td>VOC content (g/L)</td>
<td>No information available</td>
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<tr>
<td>Odor threshold (ppm)</td>
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<tr>
<td>Miscibility</td>
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<tr>
<td>Partition coefficient (n-octanol/water)</td>
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</tr>
<tr>
<td>Solubility</td>
<td>Easily soluble in cold water</td>
</tr>
<tr>
<td></td>
<td>Solubility in Water: 6.8 g/L @ 20°C</td>
</tr>
</tbody>
</table>

10. STABILITY AND REACTIVITY

Product code: IM105 Product name: IMIDAZOLE, REAGENT
10. STABILITY AND REACTIVITY

Reactivity
Reactive with acids
Reactive with oxidizing agents

Chemical stability
Stability: Stable under recommended storage conditions

Possibility of Hazardous Reactions: Hazardous polymerization does not occur


Hazardous decomposition products: Carbon oxides. Nitrogen oxides (NOx).

Other Information
Corrosivity: No information available

Special Remarks on Corrosivity: No information available

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Principal Routes of Exposure: Eyes. Ingestion. Inhalation. Skin.

Acute Toxicity

Component Information

Imidazole - 288-32-4

LD50/oral/rat = 220 mg/kg Oral LD50 Rat
LD50/oral/mouse = 880 mg/kg Oral LD50 Mouse
LD50/dermal/rat = No information available
LD50/dermal/rabbit = No information available
LC50/inhalation/rat = No information available
LC50/inhalation/mouse = No information available
Other LD50 or LC50 information = No information available

Product Information

LD50/oral/rat = VALUE- Acute Tox Oral = 220mg/kg

LD50/oral/mouse = Value - Acute Tox Oral = 880mg/kg

LD50/dermal/rabbit
VALUE-Acute Tox Dermal = No information available

LD50/dermal/rat
VALUE -Acute Tox Dermal = No information available

LC50/inhalation/rat

Product code: IM105  Product name: IMIDAZOLE, REAGENT
VALUE-Vapor = No information available  
VALUE-Gas = No information available  
VALUE-Dust/Mist = No information available

**LC50/Inhalation/mouse**  
VALUE-Vapor = No information available  
VALUE-Gas = No information available  
VALUE - Dust/Mist = No information available

**Symptoms**

**Skin Contact:** Causes severe irritation and burns.

**Eye Contact:** Causes severe eye irritation and possible burns.

**Inhalation**  
May cause respiratory tract irritation.

**Ingestion**  
Toxic if swallowed.

**Aspiration hazard**  
No information available

**Delayed and immediate effects as well as chronic effects from short and long-term exposure**

**Chronic Toxicity**  
No information available

**Sensitization:**  
No information available

**Mutagenic Effects:**  
May affect genetic material

**Carcinogenic effects:**  
Not considered carcinogenic

<table>
<thead>
<tr>
<th>Components</th>
<th>IARC</th>
<th>ACGIH - Carcinogens</th>
<th>NTP</th>
<th>OSHA HCS - Carcinogens</th>
<th>Australia - Prohibited Carcinogenic Substances</th>
<th>Australia - Notifiable Carcinogenic Substances</th>
</tr>
</thead>
<tbody>
<tr>
<td>midazole</td>
<td>Not listed</td>
<td>Not listed</td>
<td>Not listed</td>
<td>Not listed</td>
<td>Not listed</td>
<td>Not listed</td>
</tr>
</tbody>
</table>

**Reproductive toxicity**  
May damage fertility or the unborn child

**Reproductive Effects:**  
May cause adverse developmental effects.

**Developmental Effects:**  
No information available

**Teratogenic Effects:**  
May cause birth defects (teratogenic effects)

**Specific Target Organ Toxicity**

**STOT - single exposure**  
No information available

**STOT - repeated exposure**  
No information available

**Target Organs:**  
No information available

**12. ECOLOGICAL INFORMATION**

**Ecotoxicity**

**Ecotoxicity effects:**  
No data available.
13. DISPOSAL CONSIDERATIONS

Disposal Methods

Waste from residues / unused products:
Waste must be disposed of in accordance with Federal, State and Local regulation.

Contaminated packaging:
Empty containers should be taken for local recycling, recovery or waste disposal

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>imidazole</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
</tr>
</tbody>
</table>

14. TRANSPORT INFORMATION

DOT

UN-No: UN3263
Proper Shipping Name: Corrosive solid, basic, organic, n.o.s. (Imidazole)
Hazard Class: 8
Subsidiary Risk: 
Packing Group: III
ERG No: 154
Marine Pollutant: No data available
DOT RQ (lbs): No information available
Symbol(s): G

TDG (Canada)

UN-No: UN3263
Proper Shipping Name: Corrosive solid, basic, organic, n.o.s.
Hazard Class: 8
Subsidiary Risk: No information available
Packing Group: III
Description: No information available

ADR

UN-No: UN3263
Proper Shipping Name: Corrosive solid, basic, organic, n.o.s.
Hazard Class: 8
Packing Group: III
Subsidiary Risk: No information available
Classification Code: No information available
Description: No information available

Product code: IM105  Product name: IMIDAZOLE, REAGENT
14. TRANSPORT INFORMATION

CEFIC Tremcard No: No information available

IMO / IMDG
- UN-No: UN3263
- Proper Shipping Name: Corrosive solid, basic, organic, n.o.s.
- Hazard Class: 8
- Subsidiary Risk: No information available
- Packing Group: III
- Description: No information available
- IMDG Page: No information available
- Marine Pollutant: No information available
- EMS: F-A
- MFAG: No information available
- Maximum Quantity: No information available

RID
- UN-No: UN3263
- Proper Shipping Name: Corrosive solid, basic, organic, n.o.s.
- Hazard Class: 8
- Subsidiary Risk: No information available
- Packing Group: III
- Classification Code: No information available
- Description: No information available

ICAO
- UN-No: UN3263
- Proper Shipping Name: Corrosive solid, basic, organic, n.o.s.
- Hazard Class: 8
- Subsidiary Risk: No information available
- Packing Group: III
- Description: No information available

IATA
- UN-No: UN3263
- Proper Shipping Name: Corrosive solid, basic, organic, n.o.s.
- Hazard Class: 8
- Subsidiary Risk: No information available
- Packing Group: III
- ERG Code: 8L
- Description: No information available

15. REGULATORY INFORMATION

International Inventories

<table>
<thead>
<tr>
<th>Components</th>
<th>U.S. TSCA</th>
<th>KOREA KECL</th>
<th>Philippines (PICCS)</th>
<th>Japan ENCS (5)-381</th>
<th>CHINA</th>
<th>Australia (AICS)</th>
<th>EINECS-No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Imidazole</td>
<td>Present</td>
<td>Present KE-20937</td>
<td>Present</td>
<td>Present</td>
<td>Present</td>
<td>Present</td>
<td>Present 206-019-2</td>
</tr>
</tbody>
</table>

U.S. Regulations


Chemicals Known to the State of California to Cause Cancer:
This product does not contain a chemical requiring a warning under California Prop. 65. (See table below)
Chemicals Known to the State of California to Cause Reproductive Toxicity:
This product does not contain a chemical requiring a warning under California Prop. 65. (See table below)

<table>
<thead>
<tr>
<th>Components</th>
<th>Carcinogen</th>
<th>Developmental Toxicity</th>
<th>Male Reproductive Toxicity</th>
<th>Female Reproductive Toxicity</th>
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</thead>
<tbody>
<tr>
<td>Imidazole</td>
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<td>Not Listed</td>
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</table>

CERCLA/SARA

<table>
<thead>
<tr>
<th>Components</th>
<th>CERCLA - Hazardous Substances and their Reportable Quantities</th>
<th>Section 302 Extremely Hazardous Substances and TPQs</th>
<th>Section 302 Extremely Hazardous Substances and RQs</th>
<th>Section 313 - Chemical Category</th>
<th>Section 313 - Reporting de minimis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Imidazole</td>
<td>None</td>
<td>None</td>
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U.S. TSCA

<table>
<thead>
<tr>
<th>Components</th>
<th>TSCA Section 5(a)2 - Chemicals With Significant New Use Rules (SNURS)</th>
<th>TSCA 8(d) - Health and Safety Reporting</th>
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<tbody>
<tr>
<td>Imidazole</td>
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<td>Not Applicable</td>
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</table>

Canada

WHMIS hazard class:
E  Corrosive material

Canada Controlled Products Regulation:
This product has been classified according to the hazard criteria of the CPR (Controlled Products Regulation) and the MSDS contains all of the information required by the CPR.

Inventory

<table>
<thead>
<tr>
<th>Components</th>
<th>Canada (DSL)</th>
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<tbody>
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|

<table>
<thead>
<tr>
<th>Components</th>
<th>CEPA Schedule I - Toxic Substances</th>
<th>CEPA - 2010 Greenhouse Gases Subject to Mandatory Reporting</th>
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</thead>
<tbody>
<tr>
<td>Imidazole</td>
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</tbody>
</table>

EU Classification

R-phrase(s)
R22 - Harmful if swallowed.
R34 - Causes burns.

S -phrase(s)
S45 - In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
S36/37/39 - Wear suitable protective clothing, gloves and eye/face protection.

<table>
<thead>
<tr>
<th>Components</th>
<th>Classification</th>
<th>Concentration Limits:</th>
<th>Safety Phrases</th>
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<tbody>
<tr>
<td>Imidazole</td>
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<td>No information</td>
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</tbody>
</table>

The product is classified in accordance with Annex VI to Directive 67/548/EEC

Product code: IM105  Product name: IMIDAZOLE, REAGENT
**Indication of danger:**
C - Corrosive.

---

### 16. OTHER INFORMATION

**Revision Date:** 06/29/2015  
**Prepared by:** Sonia Owen

**Disclaimer:**
All chemicals may pose unknown hazards and should be used with caution. This Safety Data Sheet (SDS) applies only to the material as packaged. If this product is combined with other materials, deteriorates, or becomes contaminated, it may pose hazards not mentioned in this SDS. The physical properties reported in this SDS are obtained from the literature and do not constitute product specifications. Information contained herein does not constitute a warranty, whether expressed or implied, as to the safety, merchantability or fitness of the goods for a particular purpose. Spectrum Chemicals & Laboratory Products, Inc. assumes no responsibility for results obtained or for incidental or consequential damages, including lost profits, arising from the use of these data. No warranty against infringement of any patent, copyright or trademark is made or implied. It shall be the user’s responsibility to develop proper methods of handling and personal protection based on the actual conditions of use. While this SDS is based on technical data judged to be reliable, Spectrum assumes no responsibility for the completeness or accuracy of the information contained herein.

---

**End of Safety Data Sheet**