MATERIAL SAFETY DATA SHEET

ADDOCAT® 102 418D/1672S

RHEIN CHEMIE CORPORATION
145 Parker Court
Chardon, OH 44024

TRANSPORTATION EMERGENCY
CALL CHEMTREC......... : (800) 424-9300
INTERNATIONAL .......... : (703) 527-3887

NON-TRANSPORTATION
RCC EMERGENCY PHONE : (440) 285-3547
RCC INFORMATION PHONE: (800) 289-2436

Section 1: Product and Company Identification

Product Name: ADDOCAT® 102 418D/1672S
Article Number: 2280697
Chemical Family: Imidazole
Chemical Name: 1-Methylimidazole
Synonyms:
Formula: C4-H6-N2

Section 2: Composition/Information on Ingredients

HAZARDOUS INGREDIENTS

<table>
<thead>
<tr>
<th>Ingredient Name/ CAS Number</th>
<th>Exposure Limits</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-Methylimidazole 616-47-7</td>
<td>OSHA (PEL):</td>
<td>Min.</td>
</tr>
<tr>
<td></td>
<td>Not Established</td>
<td>Max.</td>
</tr>
</tbody>
</table>

Section 3: Hazards Identification

EMERGENCY OVERVIEW

POTENTIAL HEALTH EFFECTS

Route(s) of Entry: Eye Contact, Skin Contact, Inhalation, Ingestion

HUMAN EFFECTS AND SYMPTOMS OF OVEREXPOSURE

Inhalation Hazards
Acute Inhalation Hazards: Inhalation of the vapors results in coughing, choking and possible burns of the mucous membranes.

Chronic Inhalation Hazards: None reported for this product as a whole.

Skin Hazards
Acute Skin Hazards: Product is considered corrosive to the skin and is expected to cause severe skin damage resulting in dermatitis and deep burns.

Chronic Skin Hazards: None reported for this product as a whole.

Eye Hazards
Acute Eye Hazards: Upon contact this product is expected to cause severe irritation resulting in burns and possible permanent injury to the eyes. The amine vapors are irritating and have been reported to cause transient fogging of the eyes or corneal edema. Corneal edema may give rise to a perception of "blue haze or halos" or "fog" around lights. Although not detrimental to the eye per se, glaucoma predisposes an affected individual to physical accidents and reduces the ability to undertake skilled tasks such as driving a motorized vehicle.

Chronic Eye Hazards: None reported for this product as a whole.

Ingestion Hazards
Acute Ingestion Hazards: Can result in irritation and corrosive action in the mouth, stomach tissue and digestive tract.

Chronic Ingestion Hazards: None reported for this product as a whole.

Carcinogenic Components:
NTP: None
IARC: None
OSHA: None

Medical Conditions
Aggravated by Exposure: May aggravate respiratory disorders, May aggravate skin conditions, May aggravate eye conditions.

Section 4: First Aid Measures

First Aid for Eye: In case of contact, flush eyes with large quantities of water for at least 15 minutes. The eyelids should be held apart during irrigation to ensure thorough flushing of all eye tissue. Call a physician immediately.
**First Aid for Skin:**
Immediately proceed to an emergency safety shower. Immediately remove contaminated clothing and shoes. In case of skin contact, wash affected areas with soap and water. Call a physician immediately. Wash clothing and clean shoes before reuse.

**First Aid for Inhalation:**
If inhaled, remove to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Call a physician immediately.

**First Aid for Ingestion:**
If material is ingested, do not induce vomiting unless directed to do so by medical personnel. Give victim one or two glasses of water or milk. Call a physician immediately. Never give anything by mouth to an unconscious person.

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### Section 5: Fire Fighting Measures

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Flash Point:</strong></td>
<td>197.6 °F (92 °C)</td>
</tr>
<tr>
<td><strong>Flammable Limits:</strong></td>
<td></td>
</tr>
<tr>
<td>Upper Explosion Limit</td>
<td>15.7</td>
</tr>
<tr>
<td>(UEL %):</td>
<td></td>
</tr>
<tr>
<td>Lower Explosion Limit</td>
<td>2.7</td>
</tr>
<tr>
<td>(LEL %):</td>
<td></td>
</tr>
<tr>
<td><strong>Auto-ignition Temperature:</strong></td>
<td>977 °F (525 °C)</td>
</tr>
<tr>
<td><strong>Extinguishing Media:</strong></td>
<td>Water, Foam, Carbon Dioxide, Dry Chemical</td>
</tr>
<tr>
<td><strong>Special Fire Fighting Procedures:</strong></td>
<td>Full emergency equipment with self-contained breathing apparatus and full protective clothing should be worn by firefighters. During a fire, irritating and toxic gases may be generated by thermal decomposition or combustion. Containers can build up pressure and may rupture when exposed to extreme heat. Use cold water spray to cool fire exposed containers.</td>
</tr>
</tbody>
</table>

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### Section 6: Accidental Release Measures

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Spill or Leak Procedures:</strong></td>
<td>Emergency clean-up personnel should wear appropriate protection when entering the spill area for clean-up. Do not allow spilled or released material to enter ground water, waste water or soil. Cover spill with absorbent material, such as sand, sweeping compound or diatomaceous earth; collect material for disposal.</td>
</tr>
<tr>
<td><strong>Other Accidental Release Notes:</strong></td>
<td>Rhein Chemie requires that CHEMTREC be immediately notified (800-424-9300) when this product is unintentionally released from its container during its course of distribution, regardless of the amount released. Distribution includes transportation, storage incidental to transportation, loading and unloading. Such notification must be immediate and made by the person having knowledge of the release.</td>
</tr>
</tbody>
</table>
**Section 7: Handling and Storage**

**Storage Temperature:**
- **Minimum:** 57 °F (14 °C)
- **Maximum:** 77 °F (25 °C)

**Shelf Life:** Not Established

**Special Sensitivity:** Heat, moisture, and incompatible materials.

**Handling/Storage Precautions:** Store in original or similar containers. Keep container tightly closed when not in use. Do not breath dust, vapors or mist. Do not get on skin or clothing. Do not get in eyes. Do not reseal container if contamination is suspected. All handling equipment should be properly grounded to prevent the build-up of electrostatic charges. Handle in accordance with good industrial hygiene and safety practices.

**Section 8: Exposure Controls/Personal Protection**

**Personal Protection Equipment**

**Eye Protection Requirements:** Chemical safety goggles, full-face shield.

**Skin Protection Requirements:** Chemical-resistant gloves (i.e. butyl rubber, nitrile rubber, or polyvinyl alcohol which degrades in water)., Cover as much of the exposed skin area as possible with appropriate clothing, coveralls, apron and boots.

**Ventilation Requirements:** Standard reference sources regarding industrial ventilation (i.e., ACGIH Industrial Ventilation) should be consulted for guidance about adequate ventilation. Thermal processing equipment should be ventilated to control gases and fumes given off during processing.

**Respirator Requirements:** Chemical cartridge respirator with face piece to protect against the organic vapor; supplied air respirator with full face piece; or in high vapor concentrations use self-contained breathing apparatus in pressure demand mode. Observe OSHA regulations for respirator use (29 CFR 1910.134.)

**Additional Protective Measures:** Emergency showers and eye wash stations should be available. Educate and train employees on the safe use and handling of this product. Employees working with this product should not eat, drink, or use tobacco products in the work area.

**Section 9: Physical and Chemical Properties**

**Physical Form:** Liquid

**Color:** Colorless

**Odor:** Pungent odor (Amine like), Pyridine-like
Molecular Weight: 82.12
pH: 11.3
Boiling Point: 161.6 - 163.4 °F (72 - 73 °C)
Melting/Freezing Point: 28.4 - 30.2 °F (-2 - -1 °C)

Section 10: Stability and Reactivity

Stability: Stable
Hazardous Polymerization: Will not occur
Substances to Avoid: Oxidizing materials, mineral acids, Isocyanates
Conditions to Avoid: Periods of prolonged overheating or temperatures above 86 F (30 C) will cause discoloration.
Decomposition Products: Oxides of carbon, Oxides of nitrogen, and other undetermined fragments.

Section 11: Toxicological Information

Toxicity Data for ADDOCAT® 102 418D/1672S
Toxicity Data for 1-Methylimidazole
Acute oral toxicity: LD50 = 1,130 mg/kg (Rat)
Acute dermal toxicity: LD50 = 400 - 600 mg/kg (Rabbit)
Eye Irritation: Corrosive (Rabbit)
Skin Irritation: Corrosive (Rabbit)
Mutagenicity: Negative test results (Ames Salmonella Test)

Section 12: Ecological Information

Ecological Data for ADDOCAT® 102 418D/1672S
Ecological Data for 1-Methylimidazole
Fish Toxicity: 100 - 200 mg/L, 96 hrs. Ide, silver or golden orfe (Leuciscus idus)
Invertebrate Toxicity: 180 mg/L, 48 hrs. Water flea (Daphnia magna)
Biodegradation: < 30 %
Inhibition Bacteria: 1,100 mg/L, 17 hrs. Wastewater bacteria

Section 13: Disposal Considerations
Waste Disposal Method: Disposal must be in compliance with federal, state and local environmental control regulations. Incineration is the preferred method of disposal. If incinerated, toxic and corrosive combustion gases must be properly handled.

Empty Container Precautions: Empty container retains product residue and can be hazardous. Label precautions also apply to this container when empty. Recondition or dispose of empty container in accordance with government regulations. Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat, flame, sparks, static electricity, or other sources of ignition.

Section 14: Transportation Information

Technical shipping name: 1-Methylimidazole Contains 1-Methylimidazole;

Freight Class
Bulk: Chemicals, N.O.I. (NMFC 60000)
Package: Chemicals, N.O.I. (NMFC 60000)

Product Label: Product Label Established

Domestic Surface Transportation (DOT)
Proper Shipping Name: Corrosive Liquids, Toxic, N.O.S.
Hazard Class or Division: 8, 6.1
UN/NA Number: UN2922
Packing Group: III
Hazard Label(s): Corrosive, Toxic
Hazard Placard(s): Corrosive, Toxic

Marine Transportation (IMO / IMDG)
Proper Shipping Name: Corrosive Liquid, Toxic, N.O.S.
Hazard Class Division: 8, 6.1
Number:
UN Number: UN2922
Packaging Group: III
Hazard Label(s): Corrosive, Toxic
Hazard Placard(s): Corrosive, Toxic

Air Transportation (ICAO / IATA)
Proper Shipping Name: Corrosive Liquid, Toxic, N.O.S.
Hazard Class Division: 8
Number:
UN Number: UN2922
Subsidiary Risk: 6.1
Packing Group: III
Hazard Label(s): Corrosive, Toxic
Radioactive?: Non-Radioactive
Passenger Air - Max. Qty.: 5 L
Passenger Packing Instruction: 852
Cargo Air - Max. Qty.: 60 L
Section 15: Regulatory Information

United States Federal Regulations

OSHA Hazcom Standard: Hazardous

TSCA Inventory List: On TSCA Inventory

CERCLA Hazardous Substance:

<table>
<thead>
<tr>
<th>Component(s)</th>
<th>Reportable Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td></td>
</tr>
</tbody>
</table>

SARA Title III

SARA Section 302 Extremely Hazardous Substances:

<table>
<thead>
<tr>
<th>Component(s)/</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAS Number</td>
<td>Min. Max.</td>
</tr>
<tr>
<td>None</td>
<td></td>
</tr>
</tbody>
</table>

SARA Section 311/312 Hazard Categories: Fire Hazard, Immediate Health Hazard

SARA Section 313 Toxic Chemicals:

<table>
<thead>
<tr>
<th>Component(s)/</th>
<th>Reporting Threshold</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAS Number</td>
<td>Min. Max.</td>
<td></td>
</tr>
<tr>
<td>None</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

RCRA Status: When discarded in its purchased form, this product meets the criteria of corrosivity, and should be managed as a hazardous waste (EPA Hazardous Waste Number D002). (40 CFR 261.20-24)

The following chemicals are specifically listed by individual states; other product specific health and safety data in other sections of the MSDS may also be applicable for state requirements. For details on your regulatory requirements you should contact the appropriate agency in your state.

State Right-to-Know Information

<table>
<thead>
<tr>
<th>Component(s)/</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAS Number</td>
<td></td>
</tr>
<tr>
<td>1-Methylimidazole</td>
<td>PA-N, NJ-N</td>
</tr>
<tr>
<td>616-47-7</td>
<td>Min. Max.</td>
</tr>
<tr>
<td>None</td>
<td>0% 100%</td>
</tr>
</tbody>
</table>

State Code Translation Table

PA-N = Pennsylvania Non-hazardous
NJ-N = New Jersey Other - includes predominant ingredients

Foreign Chemical Inventory List(s)

EINECS (Europe): Listed
DSL (Canada): Listed
AICS (Australia): Listed
PICCS (Philippines): Listed
Section 16: Other Information

HMIS Rating

<table>
<thead>
<tr>
<th>Category</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health</td>
<td>3</td>
</tr>
<tr>
<td>Flammability</td>
<td>2</td>
</tr>
<tr>
<td>Reactivity</td>
<td>1</td>
</tr>
</tbody>
</table>

0=Minimal 1=Slight 2=Moderate 3=Serious 4=Severe
*Chronic Health Hazard

RHEIN CHEMIE CORPORATION’s method of hazard communication is comprised of Product Labels and Material Safety Data Sheets. HMIS and NFPA ratings are provided by RHEIN CHEMIE CORPORATION as a customer service.

Contact: HES Dept.
Phone: (440) 285-3547
MSDS Number: 00000003332
Version Date: 06/28/2011
MSDS Version: 3.4

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Indicates Relevant Change Made.