MATERIAL SAFETY DATA SHEET

ADDOCAT 101 396D/1584S

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 101 396D/1584S
Article Number: 56672293

Section 2: Composition/Information on Ingredients

HAZARDOUS INGREDIENTS

<table>
<thead>
<tr>
<th>Ingredient Name/ CAS Number</th>
<th>Exposure Limits</th>
<th>Concentration Min.</th>
<th>Max.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Morpholine, 4-methyl-109-02-4</td>
<td>OSHA (PEL): Not Established</td>
<td>95%</td>
<td></td>
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<td></td>
<td>ACGIH (TLV): Not Established</td>
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Section 3: Hazards Identification

EMERGENCY OVERVIEW

Causes respiratory tract burns. Causes skin burns. Causes eye burns. Ground containers and equipment before transferring to avoid static sparks. Use cold water spray to cool fire-exposed containers to minimize the risk of rupture. Irritating gases/fumes are given off during burning or thermal decomposition.

POTENTIAL HEALTH EFFECTS

Route(s) of Entry: Inhalation, Skin Contact, Eye Contact, Ingestion
HUMAN EFFECTS AND SYMPTOMS OF OVEREXPOSURE

Inhalation Hazards
Acute Inhalation Hazards: This material is considered a corrosive and membrane contact with this product is expected to result in severe burns (corrosive). Inhalation of the amine vapors results in coughing, choking and possible burns of the mucous membranes.

Chronic Inhalation Hazards: Expected to be similar to those for acute inhalation.

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. Contact with fumes from the hazardous component(s) may cause irritation to the skin.

Chronic Skin Hazards: Effects depend on concentration and duration of exposure.

Eye Hazards
Acute Eye Hazards: This product is corrosive to body tissues. Eye contact with this product will cause severe irritation, burns, and irreversible damage. Contact with the eyes, liquid and vapors, causes severe irritation, pain and burns, possibly severe. At elevated temperatures the vapors from this product may cause severe irritation marked by redness, tearing and possible burns.

Chronic Eye Hazards: Effects are expected to be similar to those listed above for acute eye exposure.

Ingestion Hazards
Acute Ingestion Hazards: Not a likely route of exposure. Ingestion of this product will cause severe irritation and burns of the mouth, throat, esophagus and stomach with abdominal pain, vomiting and diarrhea.

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

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

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: In case of skin contact, wash affected areas with soap and water. Immediately remove contaminated clothing and shoes. Get medical attention. Wash clothing and clean shoes before reuse. Contaminated
leather wear should be discarded.

**First Aid for Inhalation:**
If inhaled, remove to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Get medical attention.

**First Aid for Ingestion:**
If material is ingested, do not induce vomiting unless directed to do so by medical personnel. Call a physician immediately. Should vomiting occur, keep patients head below hip level to prevent aspiration of fluid into the lungs.

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**Section 5: Fire Fighting Measures**

**Flash Point:**
57.2 °F (14 °C) DIN 51755

**Flammable Limits:**
- Upper Explosion Limit (UEL %): 11.8
- Lower Explosion Limit (LEL %): 2.2

**Auto-ignition Temperature:**
329 °F (165 °C) DIN 51794

**Extinguishing Media:**
- Water, Dry Chemical, Foam, Carbon Dioxide

**Special Fire Fighting Procedures:**
Evacuate non-emergency personnel to a safe area. Full emergency equipment with self-contained breathing apparatus and full protective clothing should be worn by firefighters. Cool containers with water spray until fire is out.

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**Section 6: Accidental Release Measures**

**Spill or Leak Procedures:**
Evacuate area and stay upwind. Emergency clean-up personnel should wear appropriate protection when entering the spill area for clean-up. Keep from entering water or ground water. Cover spill with absorbent material, such as sand, sweeping compound or diatomaceous earth; collect material for disposal. After all visible traces have been removed, flush area with clean water.

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**Section 7: Handling and Storage**

**Storage Temperature:**
Store at ambient conditions

**Shelf Life:**
24 Months

**Special Sensitivity:**
Heat and sources of ignition.

**Handling/Storage Precautions:**
Do not get in eyes. Do not get on skin or clothing. Do not ingest. Do not breathe dust, vapor or mist. Avoid inhalation and skin or eye contact with processing fumes. Use local exhaust ventilation above.
processing equipment. Wash thoroughly after handling. Keep away from heat, sparks and flames. Store away from food and beverages. Use with adequate ventilation. All handling equipment should be properly grounded to prevent the build-up of electrostatic charges.

Section 8: Exposure Controls/Personal Protection

**Personal Protection Equipment**

**Eye Protection Requirements:** Chemical safety goggles, in a splash hazard environment chemical goggles should be used in combination with a full face-shield.

**Skin Protection Requirements:** Permeation resistant gloves (neoprene, nitrile, or PVC) and impervious clothing (long sleeve shirts) are recommended.

**Ventilation Requirements:** Use local exhaust ventilation if dusting or misting is a problem, to maintain air levels below the recommended exposure limit. Thermal processing equipment should be ventilated to control gases and fumes given off during processing.

**Respirator Requirements:** Air purifying respirator equipped with a full-face organic vapor and dust/mist cartridge if vapors are near or exceeding the exposure limits listed in Section 2. In areas of high concentrations, confined space or other poorly ventilated areas and for large spill clean-up sites, fresh air-line respirators or self-contained breathing apparatus should be used. Observe OSHA regulations for respirator use (29 CFR 1910.134.)

**Additional Protective Measures:** Emergency showers and eye wash stations should be available. Employees should wash their hands and face before eating, drinking, or using tobacco products. Educate and train employees on the safe use and handling of this product.

Section 9: Physical and Chemical Properties

**Physical Form:** Liquid

**Color:** Colorless

**Odor:** Pungent odor (Amine like)

**Molecular Weight:** 101.1

**pH:** 10.6 @ 50 g/l 68 °F (20 °C)

**Boiling Point:** 231 - 237 °F (111 - 114 °C)

**Melting/Freezing Point:** -85 °F (−65 °C)

**Viscosity:** 0.91 mPa.s @ 68 °F (20 °C)

**Solubility in Water:** @ 68 °F (20 °C) Miscible

**Specific Gravity:** 0.92 @ 68 °F (20 °C)

**Vapor Pressure:** Not Established

**Vapor Density:** Not Established

Section 10: Stability and Reactivity

**Stability:** Stable

Material Name: ADDOCAT 101 396D/1584S  Article Number: 56672293
Hazardous Polymerization: Will not occur

Substances to Avoid: Acids.

Conditions to Avoid: Avoid heat, flames, sparks and other sources of ignition.

Decomposition Temperature: Not Established

Decomposition Products: Oxides of carbon, Oxides of nitrogen, and other undetermined fragments.

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**Section 11: Toxicological Information**

**Toxicity Data for ADDOCAT 101 396D/1584S**

**Acute oral toxicity:** LD50 = 2,200 mg/kg (Rat)  Source: Supplier Material Safety Data Sheet (MSDS)

**Acute dermal toxicity:** LD50 = 1,240 mg/kg (Rabbit)  Source: Supplier Material Safety Data Sheet (MSDS)

**Acute inhalation toxicity:** 25 mg/L, 2 hrs, (Mouse)  Source: Supplier Material Safety Data Sheet (MSDS)

**Eye Irritation:** Not Established

**Skin Irritation:** Corrosive (Rabbit)  Source: Supplier Material Safety Data Sheet (MSDS)

**Sensitization:** Not Established

**Toxicity Data for Morpholine, 4-methyl-**

**Toxicity Note:** No data available for this component.

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**Section 12: Ecological Information**

**Ecological Data for ADDOCAT 101 396D/1584S**

**Fish Toxicity:** > 320 - < 460 mg/L, 96 hrs. Ide, silver or golden orfe (Leuciscus idus)  Source: Supplier Material Safety Data Sheet (MSDS)

**Invertebrate Toxicity:** > 100 mg/L, 48 hrs. Water flea (Daphnia magna)  Source: Supplier Material Safety Data Sheet (MSDS)

**Biodegradation:** > 60 % Readily biodegradable  Source: Supplier Material Safety Data Sheet (MSDS)

**Ecological Data for Morpholine, 4-methyl-**

**Ecological Note:** No data available for this component.
Section 13: Disposal Considerations

Waste Disposal Method: Disposal must be in compliance with federal, state and local environmental control regulations.

Empty Container Precautions: Recondition or dispose of empty container in accordance with government regulations.

Other Disposal Notes: 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. Such notification must be immediate and made by the person having knowledge of the release. Distribution includes transportation, storage incidental to transportation, loading and unloading.

Section 14: Transportation Information

Product Label: Product Label Established

Domestic Surface Transportation (DOT)
Proper Shipping Name: 4-Methylmorpholine
Hazard Class or Division: 3, 8
UN/NA Number: UN2535
Packing Group: II
Hazard Label(s): Flammable Liquid, Corrosive
Hazard Placard(s): Flammable, Corrosive

Marine Transportation (IMO / IMDG)
Proper Shipping Name: 4-Methylmorpholine
Hazard Class Division: 3, 8
Number:
UN Number: UN2535
Packaging Group: II
Hazard Label(s): Flammable Liquid, Corrosive
Hazard Placard(s): Flammable Liquid, Corrosive

Air Transportation (ICAO / IATA)
Proper Shipping Name: 4-Methylmorpholine
Hazard Class Division: 3
Number:
UN Number: UN2535
Subsidiary Risk: 8
Packing Group: III
Hazard Label(s): Flammable Liquid, Corrosive
Radioactive?: Non-Radioactive
Passenger Air - Max. Qty.: 1 L
Passenger Packing Instruction: 305
Cargo Air - Max. Qty.: 5 L
Cargo Air Packing: 307
Instruction:
Section 15: Regulatory Information

United States Federal Regulations

OSHA Hazcom Standard Hazardous
Rating:

TSCA Inventory List: On TSCA Inventory

CERCLA Hazardous Substance:
 Component(s) None

SARA Title III
SARA Section 302 Extremely Hazardous Substances:
 Component(s)/
 CAS Number None

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

SARA Section 313 Toxic Chemicals:
 Component(s)/
 CAS Number None

RCRA Status: Under RCRA, it is the responsibility of the product user to
determine at the time of disposal, whether a material containing the
product or derived from the product, should be classified as a
hazardous waste. (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

Component(s)/

CAS Number Morpholine, 4-methyl-
109-02-4


Concentration Min. Max.
95% 

The following component(s) are listed under New Jersey Special Hazards:

Morpholine, 4-methyl-
109-02-4
NJ-S 95%

Morpholine
110-91-8
NJ-S 0.1% 1%

State Code Translation Table

PA-H = Pennsylvania Hazardous Substance List
NJ-H = New Jersey Hazardous Substance List
NJ-S = New Jersey Special Health Hazardous Substance List
MA-H = Massachusetts Hazardous Substance List

Material Name: ADDOCAT 101 398D/1584S  Article Number: 56672293
Section 16: Other Information

HMIS Rating

| Health | 3 |
|========|---|
| Flammability | 3 |
| Reactivity | 0 |

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: 000000007235
Version Date: 06/18/2009
MSDS Version: 1.0

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