MATERIAL SAFETY DATA SHEET

ADDOCAT 6090 350D

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 6090 350D
Article Number: 1567911
Product Code: 220740
Chemical Family: Aliphatic Amine
Chemical Name: Tetramethylethylenediamine
Synonyms: 1,2-Di-(dimethylamine)ethane
CAS Number: 110-18-9
Formula: C6H16N2

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>Tetramethylethylenediamine 110-18-9</td>
<td>OSHA (PEL): Not Established</td>
<td>0% 100%</td>
</tr>
</tbody>
</table>

Section 3: Hazards Identification

EMERGENCY OVERVIEW

DANGER! Flammable. Corrosive. Color: Colorless to Yellow. Form: Liquid
Odor: Ammonia-like, Fishy Odor
Harmful if inhaled. Causes respiratory tract burns. Causes respiratory tract irritation. Causes skin burns. May be harmful if absorbed through skin. May cause allergic skin reaction. Causes skin irritation. Causes eye burns. Causes eye irritation. May cause a...
temporary fogging of the eyes. Harmful if swallowed. Causes digestive tract burns. May cause kidney damage. May cause liver damage. May affect nervous system. Ground containers and equipment before transferring to avoid static sparks. Vapors may spread long distances and ignite. Vapors may ignite explosively. Do not use water to extinguish fire because of violent reaction. Toxic gases/fumes are given off during burning or thermal decomposition.

POTENTIAL HEALTH EFFECTS

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

HUMAN EFFECTS AND SYMPTOMS OF OVEREXPOSURE

Inhalation Hazards
Acute Inhalation Hazards: This product can cause severe irritation of the upper respiratory tract. These symptoms can be delayed up to several hours after exposure. Inhalation of the vapors results in coughing, choking and possible burns of the mucous membranes. Sensitization reactions may occur in previously exposed individuals.

Chronic Inhalation Hazards: Depending on the concentration and duration of exposure, repeated and/or prolonged exposure may cause inflammatory and ulcerative changes in the mouth and possibly bronchial and gastrointestinal disturbances. Repeated and/or prolonged exposures may cause lung, liver and kidney injury.

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. May cause sensitization by skin contact. This product may be absorbed through the skin.

Chronic Skin Hazards: Effects of chronic skin exposure are expected to be similar to those listed for acute skin exposure. Effects depend on concentration and duration of exposure. Dermatitis may result from repeated or prolonged exposure.

Eye Hazards
Acute Eye Hazards: Contact with the eyes, liquid and vapors, causes severe irritation, pain and burns, possibly severe. Scarring of the cornea, permanent opacity, cataract and blindness are possible in severe exposures. Effects depend on concentration and duration of exposure. 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: Effects are expected to be similar to those listed above for acute eye exposure. Repeated and/or prolonged exposures may result in adverse eye effects such as conjunctivitis or corneal damage. Effects depend on concentration and duration of exposure.

Ingestion Hazards
Acute Ingestion Hazards: Ingestion of this product will cause severe irritation and burns of the mouth, throat, esophagus and stomach with abdominal pain,
vomiting and diarrhea. Central nervous system depression may also occur with effects as detailed in acute inhalation. Ingestion of large amounts may result in liver and kidney injury, general depressed activity, and muscle weakness based on experimental studies.

**Chronic Ingestion Hazards:** Depending of the concentration, repeated ingestion may result in inflammatory and ulcerative effects on the oral mucous membranes and other effects as with acute ingestion.

**Carcinogenic Components:**
- **NTP:** None
- **IARC:** None
- **OSHA:** None

**Medical Conditions Aggravated by Exposure:** May aggravate existing skin disorders., May aggravate existing respiratory conditions., May aggravate eye conditions., May aggravate existing kidney and liver conditions., May aggravate asthma.

### 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 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. 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. Call a physician immediately.

**First Aid for Ingestion:**
If material is ingested, do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Give victim one or two glasses of water or milk. Should vomiting occur, keep patients head below hip level to prevent aspiration of fluid into the lungs. Call a physician immediately.

**Note to Physician:** Treat symptomatically.

### Section 5: Fire Fighting Measures

**Flash Point:** 64.4 - 68 °F (18 - 20 °C) Pensky-Martens Closed Cup (ASTM D-93)

**Flammable Limits:**
- **Upper Explosion Limit** Tetramethylethylenediamine 9.08
(UEL %): Lower Explosion Limit (LEL %):
Tetramethylethylenediamine 0.98

Auto-ignition Temperature: Not Established

Extinguishing Media: Water spray for large fires, Dry Chemical, Carbon Dioxide, Foam

Suitable: 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. During a fire, irritating and toxic gases may be generated by thermal decomposition or combustion. Use cold water spray to cool fire exposed containers.

Special Fire Fighting Procedures:

Unusual Fire/Explosion Hazards: The vapor is heavier than air. Vapors may form explosive mixtures with air. Vapors can travel to a source of ignition and flash back. Product may react violently with water.

Section 6: Accidental Release Measures

Spill or Leak Procedures: Extinguish all ignition sources. Do not allow spilled or released material to enter ground water, waste water or soil. Emergency clean-up personnel should wear appropriate protection when entering the spill area for clean-up. Scoop up solid absorbent for waste disposal. Cover the spill with absorbent material such as sand, sweeping compound or diatomaceous earth. Notify local health authorities and other appropriate agencies if such contamination should occur. Vermiculite absorbent can be spread over the spill area to absorb as much of the remaining product as possible. Place in properly marked containers for disposal. Spill area can be washed with water. Ventilate area to remove vapors. Keep unnecessary personnel out of spill area.

Other Accidental Release 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. 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.

Section 7: Handling and Storage

Storage Temperature: Store at ambient conditions

Shelf Life: Not Established

Special Sensitivity: Heat, moisture, and incompatible materials.

Handling/Storage Precautions: Keep away from heat, sparks and flames. Keep container tightly closed when not in use. Avoid contact with skin or clothing. Avoid
breathing dusts, vapors or mists. Do not reseal container if contamination is suspected. Storage area should be equipped with sprinkler system. Handle in accordance with good industrial hygiene and safety practices. This product may form explosive vapor/air mixtures. All handling equipment should be properly grounded to prevent the build-up of electrostatic charges.

Other Notes: Store away from food and beverages.

Section 8: Exposure Controls/Personal Protection

**Personal Protection Equipment**

**Eye Protection Requirements:** Chemical safety goggles, full-face shield. If vapor exposure is causing irritation, use a full-face, air-supplied respirator.

**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:** Use local exhaust ventilation if dusting or misting is a problem, to maintain air levels below the recommended exposure limit. Ventilation equipment should be explosion-proof if explosive concentrations of dust, vapor or fume are present.

**Respirator Requirements:** A supplied air respirator (either positive pressure or continuous flow type) is required. The specific respirator selected must be based on contamination levels found in the work place, must not exceed the working limits of the respirator and be jointly approved by the National Institute for Occupational Safety and Health and the Mine Safety and Health Administration (NIOSH-MSHA). 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. Employees working with this product should not eat, drink, or use tobacco products in the work area. Educate and train employees on the safe use and handling of this product. Follow all label instructions.

Section 9: Physical and Chemical Properties

<table>
<thead>
<tr>
<th>Physical Form:</th>
<th>Liquid</th>
</tr>
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<tbody>
<tr>
<td>Color:</td>
<td>Colorless to Yellow</td>
</tr>
<tr>
<td>Odor:</td>
<td>Ammonia-like, Fishy Odor</td>
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<tr>
<td>Odor Threshold:</td>
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<tr>
<td>Molecular Weight:</td>
<td>116.22</td>
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<tr>
<td>pH:</td>
<td>No Data Available</td>
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<tr>
<td>Boiling Point:</td>
<td>248 °F (120 °C)</td>
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</table>
Melting/Freezing Point: -67 °F (-55 °C)
Viscosity: No Data Available
Solubility in Water: Soluble
Specific Gravity: 0.78 @ 75.2 °F (24 °C)
Bulk Density: Not Established
Evaporation Rate: < 0.78
Vapor Pressure: < 14 mmHg @ 68 °F (20 °C)
Vapor Density: 4.03
VOC by Weight: Approximately 100 % Calculated Value
HOC by Weight: None

Section 10: Stability and Reactivity

Stability: Stable
Hazardous Polymerization: Will not occur
Substances to Avoid: Oxidizing materials, acids, aldehydes, halogenated organic compounds, copper or copper containing metals, and high temperatures.
Conditions to Avoid: Avoid heat, flames, sparks and other sources of ignition.
Decomposition Temperature: Not Established
Decomposition Products: By fire - CO, CO2, oxides of nitrogen, ammonia, and other aliphatic fragments which have not been determined.

Section 11: Toxicological Information

Toxicity Data for ADDOCAT 6090 350D
Toxicity Note: No data available for this product.

Toxicity Data for Tetramethylethylenediamine
Acute oral toxicity: LD50 = 1,063 mg/kg (Rat)
LD50 = 1,580 mg/kg (Rat)
LD50 = 268 mg/kg (Rat)
LD50 = 630 mg/kg (Mouse)

Acute dermal toxicity: LD50 = 5,390 mg/kg (Rabbit)

Acute inhalation toxicity: 1,318 ppm, 4 hrs, (Rat)

Eye Irritation: Severely irritating (Rabbit)

Skin Irritation: Corrosive (Rabbit)
Section 12: Ecological Information

Ecological Data for ADDOCAT 6090 350D
Ecological Note: No data available for this product.

Ecological Data for Tetramethylethylenediamine
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. If incinerated, toxic and corrosive combustion gases must be properly handled.

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

Section 14: Transportation Information

Technical shipping name: 1,2-Di-(dimethylamine)ethane

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: 1,2-Di-(dimethylamine)ethane
Hazard Class or Division: 3
UN/NA Number: UN2924
Packing Group: II
Hazard Label(s): Flammable Liquid
Hazard Placard(s): Flammable

Marine Transportation (IMO / IMDG)
Proper Shipping Name: 1,2-Di-(dimethylamine)ethane
Hazard Class Division Number: 3
UN Number: UN2372
Packaging Group: II
Hazard Label(s): Flammable Liquid
Hazard Placard(s): Flammable Liquid

Air Transportation (ICAO / IATA)
Proper Shipping Name: 1,2-Di-(dimethylamine)ethane
Hazard Class Division: 3
Number:
UN Number: UN2372
Packing Group: II
Hazard Label(s): Flammable Liquid
Radioactive?: Non-Radioactive
Passenger Air - Max. Qty.: 5 L
Passenger Packing Instruction: 305
Cargo Air - Max. Qty.: 60 L
Cargo Air Packing Instruction: 307

Section 15: Regulatory Information

United States Federal Regulations
OSHA Hazcom Standard Rating: Hazardous

TSCA Inventory List: On TSCA Inventory

CERCLA Hazardous Substance:
Component(s) Reportable Quantity
None

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

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

SARA Section 313 Toxic Chemicals:
Component(s)/ Reporting Concentration
CAS Number Threshold Min. Max.
None

RCRA Status: When discarded in its purchased form, this product meets the criteria of ignitability, and should be managed as a hazardous waste (EPA Hazardous Waste Number D001). (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)/ Concentration
CAS Number State Code Min. Max.
Tetramethylethylenediamine PA-N, NJ-H 0% 100%
110-18-9
State Code Translation Table
PA-N = Pennsylvania Non-hazardous
NJ-H = New Jersey Hazardous Substance List

Foreign Chemical Inventory List(s)
- EINECS (Europe): Listed
- DSL (Canada): Listed
- AICS (Australia): Listed
- MITI (Japan): Listed
- MOE (Korea): Listed
- PICCS (Philippines): Listed

Section 16: Other Information

HMIS Rating

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<tr>
<th></th>
<th>0=Minimal</th>
<th>1=Slight</th>
<th>2=Moderate</th>
<th>3=Serious</th>
<th>4=Severe</th>
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<tbody>
<tr>
<td>Health</td>
<td>*</td>
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<tr>
<td>Flammability</td>
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<tr>
<td>Reactivity</td>
<td>2</td>
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</tbody>
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*R=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: 000000000563
Version Date: 01/26/2007
MSDS Version: 3.1

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