Section 1: Product and Company Identification

Product Name: ADDOCAT DMEA 180kgBF/720kgPal
Article Number: 1178702
Chemical Family: Alkyl Alkanolamine
Chemical Name: Ethanol, 2-(dimethylamino)-
Synonyms: DMEA
CAS Number: 108-01-0

Section 2: Composition/Information on Ingredients

HAZARDOUS INGREDIENTS

<table>
<thead>
<tr>
<th>Ingredient Name/ CAS Number</th>
<th>Exposure Limits</th>
<th>Concentration</th>
<th>Min.</th>
<th>Max.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethanol, 2-(dimethylamino)- 108-01-0</td>
<td>OSHA (PEL): Not Established</td>
<td>95%</td>
<td>0%</td>
<td></td>
</tr>
</tbody>
</table>

Section 3: Hazards Identification

EMERGENCY OVERVIEW

DANGER! Corrosive. Flammable. Color: Colorless Form: Liquid Odor: Ammonia-like
Causes respiratory tract irritation. Causes skin burns. May be harmful if absorbed through skin. Causes eye burns. May cause a temporary fogging of the eyes. May be harmful if swallowed. Vapors or mist may be a fire and explosion hazard when exposed to high temperature or ignition. Ground containers and equipment before transferring to avoid static sparks. Vapors may spread long distances and ignite. Water may cause...
frothing. Use cold water spray to cool fire-exposed containers to minimize the risk of rupture. Toxic gases/fumes are given off during burning or thermal decomposition. Closed container may explode under extreme heat.

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 product, based on current information is expected to cause irritation and may also cause burns of the respiratory tract and mucous membranes of the nose, throat, and esophagus. Exposure to high vapor concentrations may cause respiratory tract irritation, sore throat, severe cough, shortness of breath, and chest pain.

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.

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: Repeated and/or prolonged contact with this product may cause dermatitis or other allergic skin reactions.

Eye Hazards
Acute Eye Hazards: Exposure to vapor or solution causes severe irritation and possible burns. The amine vapors are irritating and have been reported to cause transient fogging of the eyes or corneal edema. Initial symptoms may be discomfort, tearing and/or blurring of vision, "halo-vision". Permanent eye damage including blindness may result if there is a delay in flushing product from the person's eyes.

Chronic Eye Hazards: Effects are expected to be similar to those listed above for acute eye exposure. In addition to effects listed in acute exposure, repeated or prolonged contact may result in conjunctivitis.

Ingestion Hazards
Acute Ingestion Hazards: This product is moderately toxic by ingestion. May cause nausea and irritation of the gastrointestinal tract.

Chronic Ingestion Hazards: None reported for this product as a whole, expected to be similar to those listed for acute ingestion.

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

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

Section 4: First Aid Measures

First Aid for Eye: Call a physician immediately. 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.

First Aid for Skin: In case of skin contact, wash affected areas with soap and water. Call a physician immediately. Immediately remove contaminated clothing and shoes. Wash clothing and clean shoes before reuse.

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

First Aid for Ingestion: Give victim one or two glasses of water or milk. Call a physician immediately. 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.

Note to Physician: Inducing vomiting is contraindicated because of the irritating nature of the product.

Section 5: Fire Fighting Measures

Flash Point: 104 °F (40 °C) Tagliabue Closed Cup (ASTM D-56)

Flammable Limits:
Upper Explosion Limit (UEL %): 11.9
Lower Explosion Limit (LEL %): 1.6

Auto-ignition Temperature: 536 °F (280 °C) DIN 51794

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

Special Fire Fighting Procedures: Full emergency equipment with self-contained breathing apparatus and full protective clothing should be worn by firefighters. Use cold water spray to cool fire exposed containers. During a fire, irritating and toxic gases may be generated by thermal decomposition or combustion.

Section 6: Accidental Release Measures

Spill or Leak Procedures: Extinguish all ignition sources. 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. Notify local health authorities and other appropriate agencies if such contamination should occur. Place in properly marked containers for disposal. Vermiculite absorbent can be spread over the spill area to absorb as much of the remaining product as possible. Scoop up solid absorbent for waste disposal. Spill area can be washed with water. Ventilate area to remove vapors.

**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. 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 7: Handling and Storage

**Storage Temperature:**
- **Minimum:** 35 °F (2 °C)
- **Maximum:** 95 °F (35 °C)

**Shelf Life:** 6 Months

**Special Sensitivity:** Moisture. Heat. Light.

**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 get on skin or clothing. Do not reseal container if contamination is suspected. Do not get in eyes. Do not taste or swallow.

## Section 8: Exposure Controls/Personal Protection

**Personal Protection Equipment**

**Eye Protection Requirements:** Contact lenses should not be worn., Chemical safety goggles, full-face shield., Safety glasses with side shields or goggles are recommended.

**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.

**Respirator Requirements:** 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). 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: Safety showers and eyewash stations should be accessible to the work area. Employees working with this product should not eat, drink, or use tobacco products in the work area.

Section 9: Physical and Chemical Properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical Form</td>
<td>Liquid</td>
</tr>
<tr>
<td>Color</td>
<td>Colorless</td>
</tr>
<tr>
<td>Odor</td>
<td>Ammonia-like</td>
</tr>
<tr>
<td>pH</td>
<td>11.5 @ 100 g/l in Methanol:Water = 9:1</td>
</tr>
<tr>
<td>Boiling Point</td>
<td>266 - 278.6 °F (130 - 137 °C)</td>
</tr>
<tr>
<td>Melting/Freezing Point</td>
<td>&lt; 59 °F (&lt; -74.2 °C)</td>
</tr>
<tr>
<td>Viscosity</td>
<td>10 mPa.s @ 68 °F (20 °C) DIN 53211</td>
</tr>
<tr>
<td>Solubility in Water</td>
<td>Miscible</td>
</tr>
<tr>
<td>Specific Gravity</td>
<td>0.88 - 0.89 @ 68 °F (20 °C)</td>
</tr>
<tr>
<td>Bulk Density</td>
<td>Not Established</td>
</tr>
<tr>
<td>Vapor Pressure</td>
<td>4 mmHg @ 68 °F (20 °C)</td>
</tr>
<tr>
<td>Vapor Density</td>
<td>3.1</td>
</tr>
<tr>
<td>VOC by Weight</td>
<td>100 %</td>
</tr>
</tbody>
</table>

Section 10: Stability and Reactivity

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stability</td>
<td>Stable</td>
</tr>
<tr>
<td>Hazardous Polymerization</td>
<td>Will not occur</td>
</tr>
<tr>
<td>Substances to Avoid</td>
<td>Acids., Oxidizing agents.</td>
</tr>
<tr>
<td>Conditions to Avoid</td>
<td>Avoid heat, flames, sparks and other sources of ignition., Avoid contact with incompatible materials.</td>
</tr>
<tr>
<td>Decomposition Products</td>
<td>By heat or fire: oxides of carbon, oxides of nitrogen, and other aliphatic fragments which have not been determined.</td>
</tr>
</tbody>
</table>

Section 11: Toxicological Information

Toxicity Data for ADDOCAT DMEA 180kgBF/720kgPal

<table>
<thead>
<tr>
<th>Toxicity Type</th>
<th>Description</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute oral toxicity</td>
<td>LD50 = 1,200 - 2,340 mg/kg (Rat)</td>
<td>Supplier Material Safety Data Sheet (MSDS)</td>
</tr>
<tr>
<td>Acute dermal toxicity</td>
<td>LD50 = 1,210 - 2,140 mg/kg (Rabbit)</td>
<td>Supplier Material Safety Data Sheet (MSDS)</td>
</tr>
<tr>
<td>Eye Irritation</td>
<td>Corrosive (Rabbit)</td>
<td>Supplier Material Safety Data Sheet</td>
</tr>
</tbody>
</table>
Skin Irritation: Corrosive (Rabbit)  
Source: Supplier Material Safety Data Sheet (MSDS)

Toxicity Data for Ethanol, 2-(dimethylamino)-
Acute oral toxicity: LD50 = 2 g/kg (Rat)

Acute dermal toxicity: 
LD50 = 1,080 mg/kg (Rat) Intraperitoneal
LD50 = 234 mg/kg (Mouse) Intraperitoneal
LD50 = 1,370 uL/kg (Rabbit)

Acute inhalation toxicity: 
1,641 ppm, 4 hrs, (Rat)
3,250 mg/m3, (Mouse)

Eye Irritation: 
Corrosive (Rabbit)
Severely irritating (Rabbit) Standard Draize Test

Skin Irritation: 
Corrosive (Rabbit)
Slightly irritating (Rabbit) Open Draize Test

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Section 12: Ecological Information

Ecological Data for ADDOCAT DMEA 180kgBF/720kgPal
Ecological Note: Water Pollution Class WGK 1 - slightly hazardous to water (German Water Resources Act)

Ecological Data for Ethanol, 2-(dimethylamino)-
Ecological Note: No data available for this component.

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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.

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Section 14: Transportation Information
Technical shipping name: 2-Dimethylaminoethanol

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: 2-Dimethylaminoethanol
Hazard Class or Division: 8, 3
UN/NA Number: UN2051
Packing Group: II
Hazard Label(s): Corrosive, Flammable Liquid
Hazard Placard(s): Corrosive, Flammable

**Marine Transportation (IMO / IMDG)**
Proper Shipping Name: 2-Dimethylaminoethanol
Hazard Class Division Number: 8, 3.2
UN Number: UN2051
Packaging Group: II
Hazard Label(s): Corrosive, Flammable Liquid
Hazard Placard(s): Corrosive, Flammable Liquid

**Air Transportation (ICAO / IATA)**
Proper Shipping Name: 2-Dimethylaminoethanol
Hazard Class Division Number: 8
UN Number: UN2051
Subsidiary Risk: 3
Packing Group: II
Hazard Label(s): Corrosive, Flammable Liquid
Radioactive?: Non-Radioactive
Passenger Air - Max. Qty.: 1 L
Passenger Packing Instruction: 808
Cargo Air - Max. Qty.: 30 L
Cargo Air Packing Instruction: 812

**Section 15: Regulatory Information**

United States Federal Regulations
OSHA Hazcom Standard Rating: 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>

Material Name: ADDOCAT DMEA 180kgBF/720kgPal  Article Number: 1178702
SARA Title III
SARA Section 302 Extremely Hazardous Substances:

| Component(s)/CAS Number | None |

SARA Section 311/312 Hazard Categories:

Immediate Health Hazard, Fire Hazard

SARA Section 313 Toxic Chemicals:

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

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

<table>
<thead>
<tr>
<th>Component(s)/CAS Number</th>
<th>Concentration Min.</th>
<th>Max.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethanol, 2-(dimethylamino)-108-01-0</td>
<td>95%</td>
<td>0%</td>
</tr>
</tbody>
</table>

State Code Translation Table

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

Foreign Chemical Inventory List(s)

DSL (Canada): Listed

Section 16: Other Information

HMIS Rating

<table>
<thead>
<tr>
<th>Health Rating</th>
<th>3</th>
</tr>
</thead>
<tbody>
<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: 000000000384
Version Date: 10/15/2007
MSDS Version: 1.13

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Indicates Relevant Change Made.