MATERIAL SAFETY DATA SHEET

ADDITIN RC 4820  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: ADDITIN RC 4820  396D/1584S
Article Number: 2273054
Chemical Name: Amines, C12-14-alkyl, C6-10-alkyl phosphates
Synonyms: Amine neutralized phosphoric acid esters, Amine neutralized phosphoric acid ester of aliphatic alcohols

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>Amine neutralized phosphoric acid ester of aliphatic alcohols 68603-55-4</td>
<td>OSHA (PEL): Not Established</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td>ACGIH (TLV): Not Established</td>
<td></td>
</tr>
</tbody>
</table>

Section 3: Hazards Identification

EMERGENCY OVERVIEW

WARNING! Corrosive. Combustible. Color: Light Yellow Form: Liquid Odor: Characteristic
Toxic to aquatic organisms. May cause long-term adverse effects in the aquatic environment. Causes respiratory tract burns. Causes respiratory tract irritation. Harmful if inhaled. Causes skin burns. Causes skin irritation. Causes eye burns. Causes digestive tract burns. Harmful if swallowed. Water runoff from fire fighting may be corrosive. Toxic 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: Harmful if inhaled. This product may be expected to cause severe irritation and possibly burns of the upper respiratory tract and mucous membranes of the mouth, nose and throat.

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 deepburns.

Chronic Skin Hazards: Effects of chronic skin exposure are expected to be similar to those listed for acute skin exposure.

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. Effects depend on concentration and duration of exposure.

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

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 existing eye, skin or respiratory 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 remove contaminated clothing and shoes. In case of
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. Never give anything by mouth to an unconscious person. Call a physician immediately. Should vomiting occur, keep patients head below hip level to prevent aspiration of fluid into the lungs.

First Aid Other:  If ingested, immediately rinse mouth out with plenty of water.

Note to Physician:  Treat symptomatically.

### 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>Approximately 194 °F (90 °C)</td>
</tr>
<tr>
<td><strong>Flammable Limits:</strong></td>
<td></td>
</tr>
<tr>
<td>Upper Explosion Limit (UEL %):</td>
<td>Not Established</td>
</tr>
<tr>
<td>Lower Explosion Limit (LEL %):</td>
<td>Not Established</td>
</tr>
<tr>
<td><strong>Auto-ignition Temperature:</strong></td>
<td>Not Established</td>
</tr>
<tr>
<td><strong>Extinguishing Media:</strong></td>
<td>Water, Carbon Dioxide, Dry Chemical, Water spray for large fires.</td>
</tr>
<tr>
<td><strong>Special Fire Fighting Procedures:</strong></td>
<td>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. A solid stream of water directed into the burning material could spread the fire. Contain fire fighting water for treatment and proper disposal. During a fire, irritating and toxic gases may be generated by thermal decomposition or combustion.</td>
</tr>
</tbody>
</table>

### 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. Cover the spill with absorbent material such as sand, sweeping compound or diatomaceous earth. Scoop up solid absorbent for waste disposal. Ventilate area to remove vapors.

**Other Accidental Release**  Rhein Chemie requires that CHEMTREC be immediately notified.
Notes: (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: Store at ambient conditions

Shelf Life: Not Established

Special Sensitivity: None known.

Handling/Storage Precautions: Store in a dry place away from excessive heat. Keep container tightly closed when not in use. Do not get in eyes. Do not get on skin or clothing. Do not breath dust, vapors or mist. Wash thoroughly after handling. Do not store or consume food, drink or tobacco in area where they may become contaminated with this material. Do not store with incompatible materials.

Section 8: Exposure Controls/Personal Protection

Personal Protection Equipment

Eye Protection Requirements: Chemical safety goggles, full-face shield., Vapor resistant goggles should be worn when contact lenses are in use., 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., Minimize skin contact.

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

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). An organic vapor cartridge should be used if ventilation is not sufficient to control fumes released during thermal processing. 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 Emergency showers and eye wash stations should be available.
Measures: 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

<table>
<thead>
<tr>
<th>Physical Form:</th>
<th>Liquid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Color:</td>
<td>Light Yellow</td>
</tr>
<tr>
<td>Odor:</td>
<td>Characteristic</td>
</tr>
<tr>
<td>pH:</td>
<td>Not Established</td>
</tr>
<tr>
<td>Boiling Point:</td>
<td>Not Established</td>
</tr>
<tr>
<td>Melting/Freezing Point:</td>
<td>Not Established</td>
</tr>
<tr>
<td>Viscosity:</td>
<td>Approximately 55 cm2/s (kinematic value) @ 40 °C</td>
</tr>
<tr>
<td>Solubility in Water:</td>
<td>Insoluble</td>
</tr>
<tr>
<td>Specific Gravity:</td>
<td>Approximately 0.9 @ 68 °F (20 °C) DIN 51757</td>
</tr>
<tr>
<td>Vapor Pressure:</td>
<td>Not Established</td>
</tr>
<tr>
<td>Vapor Density:</td>
<td>Not Established</td>
</tr>
</tbody>
</table>

Section 10: Stability and Reactivity

<table>
<thead>
<tr>
<th>Stability:</th>
<th>Stable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hazardous Polymerization:</td>
<td>Will not occur</td>
</tr>
<tr>
<td>Substances to Avoid:</td>
<td>Strong bases, Oxidizing agents.</td>
</tr>
<tr>
<td>Conditions to Avoid:</td>
<td>High Heat.</td>
</tr>
<tr>
<td>Decomposition Temperature:</td>
<td>194 °F (90 °C)</td>
</tr>
<tr>
<td>Decomposition Products:</td>
<td>Thermal decomposition may produce toxic oxides and fumes of the components of this product and other potentially toxic fumes., Oxides of carbon, and other undetermined fragments.</td>
</tr>
</tbody>
</table>

Section 11: Toxicological Information

**Toxicity Data for ADDITIN RC 4820  396D/1584S**
**Toxicity Data for Amine neutralized phosphoric acid ester of aliphatic alcohols**

**Acute oral toxicity:** LD50 = 500 - 1,000 mg/kg (Rat)

**Eye Irritation:** Corrosive (Rabbit)

**Skin Irritation:** Corrosive (Rabbit)

**Sensitization:** No sensitization. (Guinea pig) OECD Guideline No. 406 (Skin Sensitization)

**Mutagenicity:** Negative test results (Ames Salmonella Test)
Section 12: Ecological Information

Ecological Data for ADDITIN RC 4820 396D/1584S
Ecological Data for Amine neutralized phosphoric acid ester of aliphatic alcohols

Fish Toxicity: 1 - 10 mg/L,

Biodegradation: 62 %,

Ecological Note: This product is considered toxic to aquatic organisms and may cause long-term adverse effects in the aquatic environment., Water Pollution Class WGK 2 - impairment of water quality (German Water Resources Act)

Section 13: Disposal Considerations

Waste Disposal Method: 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. 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: Amine Neutralized Phosphoric Acid Esters

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, N.O.S
Hazard Class or Division: 8
UN/NA Number: UN1760
Packing Group: II
Hazard Label(s): Corrosive
Hazard Placard(s): Corrosive

Marine Transportation (IMO / IMDG)
Proper Shipping Name: Corrosive Liquids, N.O.S
Hazard Class Division Number: 8
UN Number: UN1760
Packaging Group: II
Material Name: ADDITIN RC 4820 396D/1584S  
Article Number: 2273054

Hazard Label(s): Corrosive  
Hazard Placard(s): Corrosive

**Air Transportation (ICAO / IATA)**  
Proper Shipping Name: Corrosive Liquids, N.O.S  
Hazard Class Division: 8  
Number:  
UN Number: UN1760  
Packing Group: II  
Hazard Label(s): Corrosive  
Radioactive?: Non-Radioactive  
Passenger Air - Max. Qty.: 1 L  
Passenger Packing Instruction: 808  
Cargo Air - Max. Qty.: 30 L  
Cargo Air Packing: 812  
Instruction:

### Section 15: Regulatory Information

**United States Federal Regulations**

OSHA Hazcom Standard: Hazardous  
Rating:

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

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

SARA Section 313 Toxic Chemicals:

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

**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
| Amine neutralized phosphoric acid ester of aliphatic alcohols | 68603-55-4 |

###CAS Number | State Code | Concentration |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>68603-55-4</td>
<td>PA-N, NJ-N</td>
<td>100%</td>
</tr>
</tbody>
</table>

### State Code Translation Table
- PA-N = Pennsylvania Non-hazardous
- NJ-N = New Jersey Other - includes predominant ingredients

#### Section 16: Other Information

### HMIS Rating
- **Health**: * 3
- **Flammability**: 2
- **Reactivity**: 1

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:** 000000002041
**Version Date:** 05/16/2006
**MSDS Version:** 1.2

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Indicates Relevant Change Made.