MATERIAL SAFETY DATA SHEET

SECTION 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: ECCOSORB® CR500, PART Y
DESCRIPTION: Organic Anhydrides
INTENDED USE: Load Absorber - High temperature version of the ECCOSORB® CR series
COMPANY NAME: Emerson & Cuming Microwave Products, Inc.
ADDRESS: 28 York Ave, Randolph, MA 02368
CONTACT: 781-961-9600
EMERGENCY PHONE NUMBER
CHEMTREC USA: 1-800-424-9300
INTERNATIONAL: 703-527-3887 (COLLECT)

DATE OF MSDS REVISION: 09-19-2011

SECTION 2. COMPOSITION AND INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>ELEMENT</th>
<th>CAS NUMBER</th>
<th>WEIGHT PERCENT</th>
<th>OSHA PEL* (mg/m³)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>TWA</td>
<td>STEL</td>
</tr>
<tr>
<td>Hexahydrophthalic Anhydride</td>
<td>85-42-7</td>
<td>40-60%</td>
<td>NE</td>
</tr>
<tr>
<td>Pyromellitic Dianhydride</td>
<td>89-32-7</td>
<td>40-60%</td>
<td>NE</td>
</tr>
<tr>
<td>Phthalic Anhydride</td>
<td>85-44-9</td>
<td>1-10%</td>
<td>12 [6.1]</td>
</tr>
</tbody>
</table>

*ACGIH TLVs different from OSHA PELs are shown in brackets. NE = Not Established.

SECTION 3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW: Eye, skin and respiratory tract irritant.

POTENTIAL HEALTH EFFECTS: Hexahydrophthalic Anhydride: May cause allergic respiratory and skin reaction. Causes eye, skin, and respiratory tract irritation.
Phthalic Anhydride: Contact with water causes formation of phthalic acid, which is responsible for the corrosive effects. Corrosive effects may be delayed several hours.

Date: 11/30/12
INHALATION:

Heating can generate vapors that may cause respiratory irritation, nausea and headaches. May cause respiratory sensitization responses in susceptible individuals; reactions may be severe in some cases. Persons with a pre-existing sensitivity may be affected upon subsequent exposure, even at levels below the OSHA PEL or ACGIH TLV. Symptoms may include tightness of the chest, asthma-like symptoms, respiratory distress; symptoms may be delayed.

Hexahydrophthalic Anhydride: May cause allergic respiratory reaction. The toxicological properties of this substance have not been fully investigated. Causes upper respiratory tract irritation. Causes irritation of the mucous membrane.

Phthalic Anhydride: Inhalation of vapor, fume or dust is a primary irritant. Coughing, choking, as well as headache and dizziness can occur. May cause allergic respiratory reaction.

INGESTION:

Harmful if swallowed.

Hexahydrophthalic Anhydride: May cause gastrointestinal irritation with nausea, vomiting and diarrhea. The toxicological properties of this substance have not been fully investigated. Expected to be a low ingestion hazard.

Phthalic Anhydride: Corrosive. Swallowing can cause severe burns of the mouth, throat, and stomach. Can cause sore throat, vomiting, diarrhea.

SKIN:

Contains materials that cause severe skin irritation. Prolonged or repeated exposure to the liquid may exert a defatting or drying action on the skin, possibly resulting in dermatitis. This product may cause skin sensitization/allergic skin reactions that may be severe in certain individuals; symptoms include rash, itching, hives, swelling of the extremities.

Hexahydrophthalic Anhydride: Causes skin irritation. Chronic exposure may result in sensitization.

Phthalic Anhydride: Corrosive. Symptoms of redness, pain, and severe burn can occur. May cause allergic skin reactions.

EYES:

Contains materials corrosive to the eyes; may cause burns and possible corneal injury. Permanent impairment of vision or blindness may occur.

Hexahydrophthalic Anhydride: Causes eye irritation.

Phthalic Anhydride: Conjunctival edema and corneal destruction can occur. Symptoms include pain, tearing, and photophobia.

CHRONIC HEALTH EFFECTS:

Hexahydrophthalic Anhydride: No data available.
**Phthalic Anhydride:** Chronic exposure by inhalation or skin contact can cause allergic sensitization. Causes liver and kidney effects in laboratory animals.

**TARGET ORGANS:**

Hexahydrophthalic Anhydride: lungs, skin

Phthalic Anhydride: Eyes, skin, respiratory system, liver, kidneys

**CARCINOGENICITY:**

NTP _No_, IARC _No_, OSHA _No_

**CONDITIONS AGGRAVATED BY EXPOSURE:**

Persons with pre-existing skin disorders or impaired respiratory function may be more susceptible to the effects of the substance.

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**SECTION 4. EMERGENCY AND FIRST AID MEASURES**

**INHALATION:** Remove victim to fresh air. Provide oxygen if breathing is difficult. Give artificial respiration if not breathing. Get immediate medical attention.

**INGESTION:** DO NOT induce vomiting. If victim is conscious and alert, dilute by giving water to drink. Never give anything by mouth to a drowsy, unconscious, or convulsing person. Get immediate medical attention.

**SKIN:** Remove any contaminated clothing and flush the affected area of the skin thoroughly with plenty of water. Follow by washing with water. Get medical attention if irritation persists. Do not reuse contaminated clothing until properly cleaned.

**EYES:** Immediately flush eyes thoroughly with water for at least 15 minutes while holding eyelids open. Get immediate medical attention.

**MEDICAL TREATMENT:** Treat symptoms and eliminate overexposure.

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**SECTION 5. FIRE FIGHTING MEASURES**

**Flash Point:** 310 (PMCC)

**Explosive Limits:** Not established

**Extinguishing Media:** Use carbon dioxide, dry chemical, foam, water fog.

**Special Firefighting Procedures:** Firefighters/rescue personnel should wear positive pressure self-contained breathing apparatus and full protective equipment. Cool exposed containers with water to prevent pressure buildup. If large quantities of material are involved, evacuate area and fight fire from a safe distance.

**Unusual Fire/Explosion Hazards:** Fine dust dispersed in air in sufficient concentrations, and in the presence of an ignition source is a potential dust explosion hazard. Minimum explosive dust concentration: 0.015 ox/ft³. The ignition temperature for the dust cloud is 1202°F (650°C). Inerting air with CO2 to below 14% oxygen will prevent dust explosions.

**NFPA and HMIS Rating:**

Flammability: 1  Health: 3  Reactivity: 1  Special Hazards: none

**Autoignition Temperature:** 1202°F (650°C) for dust cloud
SECTION 6. ACCIDENTAL RELEASE MEASURES

Spill response operations must be conducted in accordance with the provisions of OSHA 29 CFR 1910.120. Review the entire MSDS before proceeding with spill response.

Small Spills: Activate available exhaust ventilation equipment in the immediate spill area. Wipe up or absorb spilled material with vermiculite or other similar material. Wash area with soapy water to remove residue. Collect absorbed material and water rinses in appropriate containers. Dispose of in accordance with current Federal, State, and local regulations.

Large Spills: Limit access to the immediate spill area. Shut off source of the release if this can be done without risk of injury. Activate available exhaust ventilation systems in the area. Dike area to contain the spill and prevent releases to sewers, drains or other waterways. Collect spilled material for salvage/disposal. Apply absorbent material to soak up residue. Wash area with soapy water. Prevent runoff from entering waterways. Transfer absorbed material and water rinses to appropriate waste containers. Dispose of in accordance with current Federal, State and local regulations.

SECTION 7. HANDLING AND STORAGE

The recommendations described in this section are provided as general guidance for minimizing exposure when handling this product. Because usage conditions will vary depending on customer application, specific safe handling procedures should be developed by a person knowledgeable in the intended usage conditions and equipment. Employees must be properly trained in safe handling of this product prior to use.

Personal Protection: This product can cause burns to the eyes. Prevent eye contact through the use of splash-proof chemical goggles, or face shield with goggles. This product can cause skin irritation and may cause allergic skin reactions. Wear appropriate protective gloves. If necessary, a proper chemical-resistant apron and additional impervious clothing should be used to prevent skin contact and contamination of clothing. Normal work clothing should be washed before re-use. Wash hands and face thoroughly after handling this product and before eating, drinking or smoking. Emergency eye wash facilities and safety shower must be available.

Ventilation Recommendations and Respiratory Protection:
Provide effective mechanical exhaust ventilation to draw vapors, mists or fumes away from the worker and prevent routine inhalation. Ventilation must be sufficient to maintain airborne levels of Section 2 ingredients below their PEL/TLV values. Use an appropriate, properly fitted respirator if exposures exceed PEL/TLV values. The type of respiratory protection selected (SCBA, air-purifying, etc.) will depend upon the conditions of use. Observe OSHA regulations for respiratory protection (29 CFR 1910.134). When evaluating ventilation and respirator requirements, it must be noted that susceptible workers may experience allergic respiratory reactions at levels below the PEL/TLV; and that engineering controls and personal protective equipment may not be sufficient to protect persons already sensitized to this material.

SECTION 8. EXPOSURE CONTROLS, PERSONAL PROTECTION

VENTILATION AND ENGINEERING CONTROLS: Ventilation must be sufficient to maintain airborne concentrations of Section 2 ingredients below their PEL/TLV values.

RESPIRATORY PROTECTION: Provide effective explosion-proof mechanical exhaust ventilation to draw vapors, mists, or fumes generated during processing away from the worker and prevent routine inhalation. Use an appropriate, properly fitted respirator if exposures exceed PEL/TLV values. The type of respiratory protection selected will depend upon the conditions of use. Observe OSHA regulations for, respiratory protection (29 CFR 1910.134).

PROTECTIVE GLOVES: Wear appropriate protective gloves to minimize skin contact.

EYE PROTECTION: This product can cause burns to the eyes and possibly permanent loss of vision. Prevent eye contact through the use of splash-proof chemical goggles, or face shield with goggles.

OTHER PROTECTIVE EQUIPMENT: A proper chemical-resistant apron and additional impervious clothing should be used to minimize skin contact and prevent contamination of clothing. Normal work clothing should be washed before reuse.

OTHER REQUIREMENTS: Wash hands and face thoroughly after handling this product and before eating, drinking or smoking. Emergency eye wash facilities and safety shower must be available.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Off-white paste</td>
</tr>
<tr>
<td>Odor</td>
<td>Sharp odor</td>
</tr>
<tr>
<td>Volatile Organic Compound content</td>
<td>&lt; 0.5% by weight</td>
</tr>
<tr>
<td>Physical State</td>
<td>Solid</td>
</tr>
<tr>
<td>Boiling Point</td>
<td>Not established</td>
</tr>
<tr>
<td>Vapor Pressure</td>
<td>Negligible</td>
</tr>
<tr>
<td>Evaporation Rate</td>
<td>Not established</td>
</tr>
<tr>
<td>Specific Gravity</td>
<td>1.4 - 1.5</td>
</tr>
<tr>
<td>Vapor Density</td>
<td>Heavier than air</td>
</tr>
<tr>
<td>Solubility in Water</td>
<td>Slightly soluble</td>
</tr>
</tbody>
</table>
SECTION 10. STABILITY AND REACTIVITY

Stability: Stable at normal temperatures and pressure.
Incompatibility: Incompatible with strong oxidizers, acids, bases, epoxides. Will react with water to form weak acid.
Hazardous Decomposition Products: Carbon monoxide, carbon dioxide, aldehydes, acids and other organic substances may be formed during combustion. The chemical nature and quantity of decomposition by-products will vary widely depending on the conditions of combustion.
Hazardous Polymerization: Will not occur.
Reactivity: Conditions to Avoid: Avoid storage in open containers, exposure to open flame or uncontrolled exposure to heat, uncontrolled mixing with (or exposure to) incompatible substances. Avoid contact with water.

SECTION 11. TOXICOLOGICAL INFORMATION

Pyromellitic Dianhydride:

LD50 Guinea pig oral 1595 mg/kg
LD50 Mouse oral 2400 mg/kg
LD50 Rat oral 2250 mg/kg

Phthalic Anhydride:

Toxicological Data:

Phthalic anhydride:
Oral rat LD50: 4020 mg/kg; inhalation rat LC50: > 210 mg/m3/1-hour; skin rabbit LD50: > 10 gm/kg. Irritation data: Skin rabbit, Standard Draize, 500 mg/24H mild; Eye rabbit, Standard Draize, 100 mg severe. Investigated as a tumorigen, mutagen, reproductive effector.

Reproductive Toxicity:
Has shown teratogenic effects in laboratory animals.

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Cancer Lists\-----------------------------------------------
---NTP Carcinogen---
Ingredient    Known Anticipated IARC Category
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Phthalic Anhydride (85-44-9)   No    No    None

SECTION 12. ECOLOGICAL INFORMATION
Pyromellitic dianhydride:

Pyromellitic dianhydride's production and use as a curing agent for epoxy resins and plasticizers may result in its release to the environment through various waste streams. If released to air, an estimated vapor pressure of 4.8X10^-6 mm Hg at 25 deg C indicates pyromellitic dianhydride will exist in both the vapor and particulate phases in the ambient atmosphere. Vapor-phase pyromellitic dianhydride will be degraded in the atmosphere by reaction with photochemically-produced hydroxyl radicals; the half-life for this reaction in air is estimated to be 56 days. Pyromellitic dianhydride is a hygroscopic substance that undergoes hydrolysis when contacted by moist air resulting in the formation of pyromellitic acid. Particulate-phase pyromellitic dianhydride that has not reacted with moist air or hydroxyl radicals will be removed from the atmosphere by wet and dry deposition. If released to soil, pyromellitic dianhydride is expected to have moderate mobility based upon an estimated Koc of 178. Volatilization from moist soil surfaces is not expected to be an important fate process based upon an estimated Henry's Law constant of 7.5X10^-9 atm-cu m/mole. If released into water, pyromellitic dianhydride is expected to adsorb to suspended solids and sediment based upon the estimated Koc. Volatilization from water surfaces is not expected to be an important fate process based upon this compound's estimated Henry's Law constant. No biodegradation data were located for pyromellitic dianhydride, and it is expected that hydrolysis in moist soil and water will be the dominant fate process for this compound. The estimated hydrolysis half-life of this compound at pH 8 is about 9 days. An estimated BCF of 9 suggests the potential for bioconcentration in aquatic organisms is low.

Phthalic Anhydride:

Environmental Fate:
When released to moist soil or water, this material is expected to hydrolyze. When released into water, this material is not expected to evaporate significantly. When released into the water, this material is expected to have a half-life of less than 1 day. This material has an estimated bioconcentration factor (BCF) of less than 100. This material is not expected to significantly bioaccumulate. When released into the air, this material is expected to have a half-life of greater than 30 days.

SECTION 13. DISPOSAL CONSIDERATIONS

Maximize product recovery for reuse or recycling. Waste must be disposed of in accordance with federal, state and local environmental control regulations. If discarded in its purchased form, this product would not be a hazardous waste either by listing or by characteristic. 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). Use may also generate liquid wastes with metal concentrations in excess of those permitted through pretreatment or direct discharge NPDES requirements. Appropriate analyses should be conducted to ensure compliance with existing wastewater permits.

SECTION 14. TRANSPORT INFORMATION

| DOT Hazardous Material Description | Not applicable |
| Proper Shipping Name              | Not applicable |
| Hazard Class                      | Not applicable |
| ID Number                         | 2214 (Phthalic Anhydride) |
| Packing Group                     | Not applicable |
| Canadian Transportation of Dangerous Goods Classification | 156 (Phthalic Anhydride) |

SECTION 15. REGULATORY INFORMATION
TSCA Status: All components of this product are listed in the EPA Toxic Substance Control Act Inventory. This product contains the following substances which are subject to TSCA Section 12(b) Export notification requirements:

- Phthalic Anhydride (85-44-9)
- Masleic Anhydride (108-31-6)

SARA Status: The components listed in Section 2 which are substances regulated by the SARA Section 313 amendments to RCRA are as follows:

- Phthalic Anhydride (85-44-9)

SECTION 16. OTHER INFORMATION

Abbreviations: NA = Not Applicable      NE = Not Established      ND = Not Determined
ppm = Parts per Million      mg/m³ = Milligrams Per Cubic Meter
C = Ceiling Concentration      STEL = Short Term Exposure Limit

Safety Information and additional MSDS: 781-961-9600

DISCLAIMER OF LIABILITY

The information in this MSDS was obtained from sources which we believe are reliable. However, the information is provided without any warranty, express or implied, regarding its correctness. The conditions or methods of handling, storage, use and disposal of the product are beyond our control. For this and other reasons, we do not assume responsibility and expressly disclaim liability for loss, damage or expense arising out of or in any way connected with the handling, storage, use or disposal of the product. Neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein.