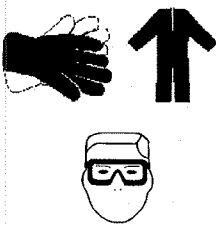
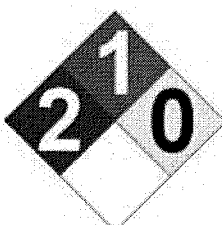




MATERIAL SAFETY DATA SHEET

Protective Clothing	HMIS & NFPA Rating (USA)	EC Classification	WHMIS (Canada)	Transportation
		 Irritant	 D2B	Not Regulated

Section 1: Product and Company Information

Product Name: ZeMac™ E400
Product Code: 2710
Product Use: Emulsifying reagent
Chemical Family: Polyanhydride
Synonyms: EMA
Manufacturer: Vertellus Health & Specialty Products LLC
 300 North Meridian Street, Suite 1500
 Indianapolis, Indiana 46204
Phone Number: (616) 772-2193
Fax: (616) 772-7344
24-hour Emergency: CHEMTREC: (800) 424-9300; (703) 527-3887

Section 2: Composition and Ingredient Information

Common Name	Chemical Name	CAS No.	Wt.%	EINECS / ELINCS	Symbol	Risk Phrases
EMA	Ethylene Maleic Anhydride Copolymer	9006-26-2	100	Polymer See Section 15	Xi	R36/38

Note: See Section 8 of this MSDS for exposure limit data for these ingredients.
 See Section 16 for the full text of the R-phrases above.

MATERIAL SAFETY DATA SHEET

Section 3: Hazards Identification

Preparation Hazards and Classification:

Irritating to eyes and skin.

USA: This product is a hazardous material as defined by 29 CFR1910.1200, OSHA Hazard Communication Evaluation.

Canada: This is a controlled product under WHMIS.

European Communities (EC): This preparation is classified as dangerous according to Directive 1999/45/EC and its amendments.

Appearance, Color and Odor:

White to off-white solid with a characteristic odor.

Primary Route(s) of Exposure:

Inhalation, Ingestion, Eye contact, Skin contact

Potential Health Effects:

ACUTE (short term): see Section 8 for exposure controls

Inhalation: Dust may be irritating to the respiratory tract.

Ingestion: May cause gastrointestinal tract irritation with nausea and vomiting. Not expected to be toxic by ingestion. The toxicological properties of this substance have not been fully investigated.

Skin: Direct contact causes skin irritation.

Eyes: Direct contact causes eye irritation.

CHRONIC (long term): see Section 11 for additional toxicological data

Not available

Medical Conditions

Aggravated by Exposure:

Not available

Section 4: First Aid Measures

Inhalation:

If symptoms of respiratory irritation are experienced remove source of contamination or move victim to fresh air and obtain medical advice.

Eye Contact:

Immediately flush the contaminated eye(s) with lukewarm, gently flowing water for 20 minutes or until the chemical is removed, while holding the eyelids open. Take care not to rinse contaminated water into the unaffected eye or onto the face. Obtain medical attention.

Skin Contact:

As quickly as possible, flush with lukewarm, gently flowing water for at least 20 minutes or until the chemical is removed. If irritation persists, obtain medical advice. Thoroughly wash or discard contaminated clothing and shoes before reuse.

Ingestion:

If irritation or discomfort occurs, obtain medical advice immediately.

MATERIAL SAFETY DATA SHEET

Section 5: Fire Fighting Measures

<u>Extinguishing Media:</u>	Water spray, dry chemical, CO ₂ , alcohol foam.
<u>Unusual Fire and Explosion Hazards:</u>	Sensitivity to mechanical impact: Not sensitive Sensitivity to static discharge: As with any organic powder, high dust concentrations may create a dust explosion hazard when exposed to sources of ignition. Material may burn, but does not ignite readily. Avoid high temperatures.
<u>Fire Fighting Instructions:</u>	As for any fire, evacuate the area and fight the fire from a safe distance. Wear a pressure-demand, self-contained breathing apparatus and full protective gear. Prevent contaminated water from being released into soil or surface waters.
<u>Hazardous Combustion Products:</u>	During a fire, irritating and toxic gases may be generated. Products of combustion may include carbon monoxide, carbon dioxide and dense smoke.

Section 6: Accidental Release Measures

<u>Personal Precautions:</u>	Wear proper personal protective equipment as indicated in Section 8. Prevent skin and eye contact. Avoid inhaling dusts of this product.
<u>Environmental Precautions:</u>	Prevent material from contaminating soil and from entering sewers or waterways. Refer to permit discharge limitations if applicable.
<u>Methods for Containment:</u>	Isolate the spill area. Shut off the leak if it is safe to do so.
<u>Methods for Clean-up:</u>	Vacuum, scrape or scoop the material into a chemical waste container. Avoid raising dust into the air. Scrub the area with detergent and water.

Section 7: Handling and Storage

<u>Handling</u>	Use only in a well-ventilated area. Minimize dust generation and accumulation. Do not get on skin or in eyes. Do not ingest or inhale. Wash thoroughly with detergent and water after handling, before eating, drinking, smoking or using the toilet. Remove contaminated clothing and wash before reuse. Follow all MSDS and label precautions even after the container is emptied because they may retain product residues.
<u>Storage:</u>	Store in a cool, dry area, out of direct sunlight. Keep containers closed when not in use.

MATERIAL SAFETY DATA SHEET

Section 8: Exposure Controls and Personal Protection

Exposure Limits

<u>Ingredient</u>	<u>ACGIH TLV</u> <u>(8-hr. TWA)</u>	<u>U.S. OSHA PEL</u> <u>(8-hr. TWA)</u>	<u>Ontario (Canada)</u> <u>TWAEV</u>	<u>UK OEL</u> <u>(8-hr. TWA)</u>
Ethylene Maleic Anhydride Copolymer	Not established	Not established	Not established	Not established

Exposure Controls

Engineering Controls: Use process enclosures, local exhaust ventilation, or other engineering controls to control sources of dust, mist or vapor.

Personal Protection:

Respiratory Protection: Wear an approved air-purifying respirator as needed to control exposure. Wear a positive pressure supplied air respirator for uncontrolled releases or when the air-purifying respirator limitations may be exceeded.

A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements or European Standard EN 149 or Canadian Standards Association (CSA) Standard Z94.4-93 must be followed whenever workplace conditions warrant a respirator's use.

Skin Protection: Wear chemical protective gloves and body-covering clothing to prevent skin exposure.

Eye Protection: Wear chemical safety glasses. Where contact with the eyes is likely, wear chemical goggles. Wear a face-shield when necessary to prevent contact with skin and eyes.

Other Protective Equipment:

Have a safety shower and eye-wash fountain readily available in the immediate work area.

Hygiene Measures:

Remove contaminated clothing promptly. Keep contaminated clothing in closed containers. Launder contaminated clothing before re-wearing or discard. Do not eat, drink or smoke in work areas. Wash hands thoroughly after handling this material. Maintain good housekeeping.

MATERIAL SAFETY DATA SHEET

Section 9: Physical and Chemical Properties

<u>Physical State:</u> Solid	<u>Vapor Pressure:</u> (mm Hg @ 20°C) Not available
<u>Appearance:</u> White	<u>Vapor Density:</u> (Air = 1) Not available
<u>pH:</u> Not available	<u>Solubility in Water:</u> Insoluble
<u>Relative Density:</u> (water = 1) Not available	<u>Water / Oil distribution coefficient:</u> Not available
<u>Boiling Point:</u> Not available	<u>Odor Type:</u> Nearly odorless
<u>Melting Point:</u> Softens at 170°C	<u>Odor Threshold:</u> Not available
<u>Viscosity:</u> Not available	<u>Evaporation Rate:</u> (n-Butyl Acetate = 1) Not available
<u>Oxidizing Properties:</u> Not available	<u>Auto Ignition Temperature (°C):</u> Not available
<u>Flash Point and Method (°C):</u> Not available	<u>Flammability Limits (%):</u> Not available

Section 10: Stability and Reactivity

<u>Stability:</u>	Stable under normal temperatures and pressures.
<u>Conditions to Avoid:</u>	Avoid contact with incompatible materials, dust generation and excess heat.
<u>Incompatible Materials:</u>	Strong oxidizing agents.
<u>Hazardous Decomposition Products:</u>	Carbon monoxide, carbon dioxide and dense smoke.
<u>Possibility of Hazardous Reactions:</u>	Not prone to hazardous polymerization.

MATERIAL SAFETY DATA SHEET

Section 11: Toxicological Information

Acute Toxicity Data

<u>Ingredient</u>	<u>LD₅₀ Oral</u> (mg/kg)	<u>LD₅₀ Dermal</u> (mg/kg)	<u>LC₅₀ Inhalation</u> (mg/m ³ , 4 hrs.)
Ethylene Maleic Anhydride Copolymer	> 10 000 (rat) Unconfirmed	7 940 (rabbit) Unconfirmed	Not available

Chronic Toxicity Data
Carcinogenicity:

The table below indicates whether each agency has listed any ingredient as a carcinogen.

<u>Ingredient</u>	<u>ACGIH</u>	<u>IARC</u>	<u>NTP</u>	<u>OSHA</u>
Ethylene Maleic Anhydride Copolymer	Not listed	Not listed	Not listed	Not listed

Carcinogenicity Designations:

ACGIH: American Conference of Governmental Industrial Hygienists

IARC: International Agency for Research on Cancer

NTP: National Toxicity Program

OSHA: Occupational Safety and Health Administration

Irritation: Product is irritating to eyes and skin.

Sensitization: Not available

Neurological Effects: Not available

Teratogenicity: Not available

Reproductive Toxicity: Not available

Mutagenicity (Genetic Effects): Not available

Toxicologically Synergistic Materials: Not available

MATERIAL SAFETY DATA SHEET

Section 12: Ecological Information

<u>Ecotoxicity:</u>	Not available
<u>Mobility:</u>	Not available
<u>Persistence and degradability:</u>	Not available
<u>Bioaccumulative potential:</u>	Not available
<u>Other adverse effects:</u>	Not available

Section 13: Disposal Considerations

<u>Waste Disposal Method:</u>	Do NOT dump into any sewers, on the ground or into any body of water. Store material for disposal as indicated in Section 7 Handling and Storage.
<u>USA:</u>	Dispose of in accordance with local, state and federal laws and regulations. RCRA P-Series: None listed RCRA U-Series: None listed
<u>Canada:</u>	Dispose of in accordance with local, provincial and federal laws and regulations.
<u>EC:</u>	Waste must be disposed of in accordance with relevant EC Directives and national, regional and local environmental control regulations. For disposal within the EC, the appropriate code according to the European Waste Catalogue (EWC) should be used.

Section 14: Transport Information:

<u>U.S. Hazardous Materials Regulation (DOT 49CFR):</u>	Not regulated
<u>Canadian Transportation of Dangerous Goods (TDG):</u>	Not regulated
<u>ADR/RID:</u>	Not regulated
<u>IMDG:</u>	Not regulated
<u>Marine Pollutants:</u>	None
<u>ICAO/IATA:</u>	Not regulated

MATERIAL SAFETY DATA SHEET

Section 15: Regulatory Information

NFPA Hazard Rating

Category	NFPA
Acute Health	2
Flammability	1
Instability	0

HMIS Hazard Rating

Category	HMIS
Acute Health	2
Flammability	1
Physical Hazard	0

USA

TSCA Status: XU (Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(B)).

SARA Title III:

Sec. 302/304: None
 Sec. 311/312: None
 Sec. 313: None
 CERCLA RQ: None

Canada

This product has been classified in accordance with the hazard criteria of the *Controlled Products Regulations* and the MSDS contains all the information required by the *Controlled Products Regulations*.

WHMIS Classification: D2B – Material Causing Other Toxic Effects (toxic) [For eye irritation]

NSNR Status (New Substance Notification Regulations): This substance is listed on the Canadian Domestic Substance List (DSL).

NPRI Substances (National Pollutant Release Inventory): None

EC Classification for the Substance/Preparation:

Symbol:



Irritant

Risk Phrases: R36/38: Irritating to eyes and skin.

Safety Phrases: S25: Avoid contact with eyes.
 S26: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
 S36/37/39: Wear suitable protective clothing, gloves and eye/face protection.

Other: This substance meets the definition of a polymer and is not subject to notification under the European Union Directives.
 Present on Inventory of Cosmetic Ingredients 76/768/EEC (INCI).

Australia: Present on the Inventory of Chemical Substances (AICS).

China: Present on China Inventory.

Japan: Present on Japan's Existing and New Chemical Substances (ENCS). 6-1094; 6-2176

Korea: Present on Korea's Existing and Evaluated Chemical Substances. KE-17326

Philippines: Present on Philippines' Inventory of Chemicals and Chemical Substances (PICCS).

MATERIAL SAFETY DATA SHEET**Section 16: Other Information****Full Text of R-phrases
appearing in Section 2:**

R36/38: Irritating to eyes and skin.

Preparation Information**Prepared by:**LEHDER Environmental Services Limited
704 Mara Street, Suite 210
Pt. Edward, ON
N7V 1X4 www.lehder.com**Phone:**

(519) 336-4101

Preparation Date:

August 31, 2005

Revision Date:

March 20, 2006

Revision Summary:

March 20, 2006: Revision to R phrases (Sections 15 and 16).

Disclaimer:

While LEHDER Environmental Services Limited believes that the data set forth herein is accurate, as of the date hereof, LEHDER makes no warranty with respect thereto and expressly disclaims all liability for reliance thereon. Such data is offered solely for your consideration, investigation and verification.

Manufacturer Disclaimer:

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Printed Date:

September 18, 2006

Printed Summary:

Changed manufacturer from Zeeland, A Division of Rutherford Chemicals LLC to Vertellus Health & Specialty Products LLC. Changed Section 16 Manufacturer Disclaimer. Added printed date to Section 16.