MATERIAL SAFETY DATA SHEET

SECTION 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: **ECCOSTOCK® FPH**

DESCRIPTION: Two part, foam-in-place resin (low loss/low dielectric foam).

INTENDED USE: **Load Low Loss/Low Dielectric Foam Product -** Two-part, foam-in-place resin equivalent of ECCOSTOCK® SH.

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

ELEMENT	CAS NUMBER	WEIGHT PERCENT	OSHA PEL* (mg/m^3)	
			TWA	STEL
Toluene-2,4-Diisocyanate (TDI)	584-84-9	55-65%	NE [0.036]	NE [0.14]
Isocyanate Terminated Polymer	68610-40-2	35-45%	NE	NE

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

SECTION 3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW: Danger: Poison
Seek medical attention if inhaled or ingested.
Contains Toluene Diisocyanate.
Contact with eyes and skin results in serious burns.
Inhalation of vapors causes severe irritation to lungs.
Pulmonary edema may occur.

POTENTIAL HEALTH EFFECTS: Pulmonary edema may occur. Pulmonary sensitization can occur in some individuals leading to asthma-like spasms of the bronchial tubes and difficulty breathing. Individuals with a history of respiratory illness, asthmatic conditions, eye damage or TDI sensitization should not be exposed to this product.TDI is included in the NTP Annual Report on carcinogens. Preliminary results from a TDI health study indicate that overexposure to a respiratory irritant (chlorine or phosgene for example), resulting in lower respiratory tract symptoms could increase the risks of developing asthma-like reactions from subsequent TDI exposure.

INHALATION: TDI is severely toxic to the respiratory system and to the mucous membranes. Inhalation of TDI vapors at low concentrations can cause respiratory and mucous membrane irritation, tightness of the chest, coughing, headache, shortness of breath, difficulty in breathing and reduction in lung function. Full development of symptoms may be delayed for several hours after an overexposure has taken place. Extensive exposure to TDI vapors by inhalation can cause bronchitis, bronchial spasm, pulmonary edema.

INGESTION: If swallowed, TDI can cause irritation and corrosive action in the mouth, stomach and digestive tract.

SKIN:. TDI is a skin irritant. Prolonged contact with skin can cause reddening, swelling, blistering, and in some individuals skin sensitization and dermatitis.

EYES: TDI is severely irritating to eyes. Corneal injury can occur which can be slow to heal.

CHRONIC HEALTH EFFECTS: Overexposure to TDI has resulted in decreased pulmonary function and fibrosis in workers. Oral gavage administration of TDI in corn oil to rats and mice for two years resulted in an increased incidence of tumors. Six hour daily inhalation exposures to rats and mice of 0.05 and 0.15 ppm TDI for two years did not produce tumors. Since inhalation is the usual route of human exposure, the carcinogenic potential of TDI to humans has not been established. However, TDI is included in the NTP list of substances "reasonably anticipated" to be carcinogenic in humans.

TARGET ORGANS: Skin, eyes, respiratory system

CARCINOGENICITY: Carcinogenic effects: IARC Carcinogen List – YES
NTP Carcinogen List – YES
OSHA Carcinogenic List – NO

CONDITIONS AGGRAVATED BY EXPOSURE:

TDI is a pronounced allergic sensitizer. Therefore much lower levels of exposure can cause severe problems in persons who have been sensitized. Symptoms can be immediate or delayed, and include chest tightness, wheezing, coughing, shortness of breath, or asthmatic attacks. Persons with asthma-type conditions, chronic bronchitis, other chronic respiratory diseases or recurrent skin eczema or sensitization should be excluded from working with isocyanates.

SECTION 4. EMERGENCY AND FIRST AID MEASURES

INHALATION: If a person breathes large amounts of this chemical, move the exposed person to fresh air at once. If breathing has stopped, perform artificial respiration. Keep the affected person warm and at rest. Get medical attention as soon as possible.

INGESTION: If swallowed, do not induce vomiting. Get immediate medical attention.

SKIN: If this chemical contacts the skin, immediately wash the contaminated skin with soap and water. If this chemical penetrates the clothing, immediately remove the clothing, wash the skin with soap and water, and get medical attention promptly.

EYES: If this chemical contacts the eyes, immediately wash (irrigate) the eyes with large amounts of water, occasionally lifting the lower and upper lids. Get medical attention immediately.

MEDICAL TREATMENT: Treat symptoms and eliminate overexposure.

SECTION 5. FIRE FIGHTING MEASURES

Flash Point: Not established

Explosive Limits: Not established

Extinguishing Media: Use carbon dioxide, dry chemical, or foam (alcohol resistant). Use water fog for cooling purposes only. Spray fire-exposed containers with water to keep them cool.

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: During combustion and decomposition, irritating and toxic gases/vapors including nitrogen oxides and isocyanate vapors will be generated. This material contains isocyanate which is highly reactive with water or steam. Keep dry. Water or moist air should never be in contact with this material in a closed container since CO_2 will be liberated and generate high internal gas pressure.

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NFPA and HMIS Rating:

Flammability:	1	Health:	4
Reactivity:	1	Special Hazards:	none

Autoignition Temperature: Not established

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: Neutralize all residues (must be vented) with a neutralizing solution, 10% isopropyl alcohol, 85% water, 5% ammonia.

Large Spills: Dike spill and take up material with sand, earth or other absorbent. Neutralize all residues (must be vented) with a neutralizing solution, 10% isopropyl alcohol, 85% water, 5% ammonia. Transfer to steel drums.

NOTE: DO NOT BANG UP DRUMS OR CONTAINERS when neutralizing residues because of CO_2 generation and high pressure formation.

SECTION 7. HANDLING AND STORAGE

Storage: Store below 120° Fahrenheit. Protect from moisture, light and extreme heat. Consult the product Technical Bulletin for detailed storage information.

Engineering Controls: Good general ventilation should be sufficient to control airborne levels.

SECTION 8. EXPOSURE CONTROLS, PERSONAL PROTECTION

VENTILATION AND ENGINEERING CONTROLS: Monitor the workplace to be sure that OSHA PEL levels are not exceeded. Good ventilation is necessary to avoid inhalation.

RESPIRATORY PROTECTION: Use NIOSH-approved respirator or air supply respirator (positive pressure) at all times when Toluene diisocyanate vapors may be present at levels near or at the OSHA PEL level. Monitor the workplace to be sure that OSHA PEL levels are not exceeded.

PROTECTIVE GLOVES: Wear Neoprene, butyl rubber or other solvent-resistant gloves with gauntlets to give maximum skin protection.

EYE PROTECTION: Wear side-shield chemical safety goggles or full face shield.

OTHER PROTECTIVE EQUIPMENT: Wear disposable protective coveralls to keep material off skin and clothing. Discard disposable protective coveralls every day. If clothing becomes wet or contaminated with product, remove clothing immediately. Have employee shower and scrub down thoroughly with soap and water immediately and at the end of the work shift. Any clothing that is contaminated with TDI should not be re-worn. It should either be discarded, or the TDI removed from the clothing. If the clothing is to be laundered or otherwise cleaned, the person performing the operation must be informed of the hazardous properties of Toluene diisocyanate.

OTHER REQUIREMENTS: Eyewash fountains should be provided in areas where there is any possibility that workers could be exposed to the substances; this is irrespective of the recommendation involving the wearing of eye protection

Facilities for quickly drenching the body should be provided within the immediate work area for emergency use where there is a possibility of exposure. [Note: It is intended that these facilities provide a sufficient quantity or flow of water to quickly remove the substance from anybody areas likely to be exposed. The actual determination of what constitutes an adequate quick drench facility depends on the specific circumstances. In certain instances, a deluge shower should be readily available, whereas in others, the availability of water from a sink or hose could be considered adequate.]

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Water white to light amber
Odor:	Pungent
Volatile Organic Compound content:	Not established
Physical State:	Liquid
Boiling Point:	Not established
Vapor Pressure:	Not established
Evaporation Rate:	Not established
Specific Gravity (water =1):	1.1
Vapor Density:	Not established
Solubility in Water:	Reacts

SECTION 10. STABILITY AND REACTIVITY

Stability: Product is stable under normal handling and storage conditions. However, review reactivity data concerning conditions to avoid and incompatible substances.

Incompatibility: Avoid contamination with water, steam, moist air, alcohols, amines, other active hydrogen compounds and strong bases. The free isocyanate in this product will react readily with water to generate CO_2. In a closed container, high internal gas pressures will be generated which can rupture the container.

Hazardous Decomposition Products: Will not occur in normal storage. Combustion will produce aromatic or aliphatic fragments, Toluene diisocyanate and other isocyanate vapors, CO, CO_2 and oxides of nitrogen.

Hazardous Polymerization: Polymerization can occur if product is contaminated with water or with certain catalysts for isocyanate reactions. Also, polymerization can occur if product is exposed to excessive heat.

Reactivity: Normally stable, but becomes very reactive at high temperatures and pressures.

SECTION 11. TOXICOLOGICAL INFORMATION

Toxicological Data for Toluene-2,4-Diisocyanate (TDI):

TDI is very toxic, and may be fatal, if inhaled. Skin, eye and respiratory irritant. Inhalation or skin contact may cause sensitization. Limited evidence of carcinogenicity. Note that this material is an important cause of occupational asthma.

Oral gavage administration of TDI in corn oil to rats and mice for two years resulted in an increased incidence of tumors. Six hour daily inhalation exposures to rats and mice of 0.05 and 0.15 ppm TDI for two years did not produce tumors. Since inhalation is the usual route of human exposure, the carcinogenic potential of TDI to humans has not been established. However, TDI is included in the NTP list of substances "reasonably anticipated" to be carcinogenic in humans.

Acute Oral Toxicity
LD50: 4,130-5,110 mg/kg (Rat, Male/Female)

Acute Inhalation Toxicity

LC50: 66 ppm (480 mg/m3), 1 hour (Rat, Male/Female)

LC50: 49-50.4 ppm (350-360 mg/m3), aerosol, 4 h (Rat, Male/Female)

RD50: 2.12 ppm, vapor 3 hour (Rat, Male)

Acute Dermal Toxicity

LD50: >9,400 mg/kg (Rabbit, Male/Female)

SECTION 12. ECOLOGICAL INFORMATION

No data available for this product.

SECTION 13. DISPOSAL CONSIDERATIONS

Note: Data listed is for TDI

Waste Disposal: Incinerate waste TDI in a RCRA-permitted facility.

Container Disposal: Empty containers (as defined by RCRA, Section 261.7 and applicable state regulations) should be neutralized before leaving the generator facility and punctured or crushed to prevent reuse. TDI is listed as a hazardous waste and requires special handling for disposal. Also, under no circumstances should empty drums be burned or cut open with a gas or electric torch as toxic decomposition products may be liberated.

SECTION 14. TRANSPORT INFORMATION

DOT Hazardous Material Description:	Not available
Proper Shipping Name:	Toluene Diisocyanate
Hazard Class:	**6.1**
ID Number:	**UN2078**
Packing Group:	PGII
Canadian Transportation of Dangerous Goods Classification:	156

SECTION 15. REGULATORY INFORMATION

TSCA Status: All compounds of this product are listed in the EPA Toxic Substance Control Act Inventory.
SARA Section 313 Information: The components listed in Section 2 that are substances regulated by the SARA Section 313 amendments to RCRA are as follows: Toluene-2,4-Diisocyanate (584-84-9)

Other Regulations: OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).
WHMIS (Canada): CLASS D-1A: Material causing immediate and serious toxic effects (VERY TOXIC). CLASS D-2A: Material causing other toxic effects (VERY TOXIC).

DSCL (EEC): R26- Very toxic by inhalation. R38- Irritating to skin. R41- Risk of serious damage to eyes. R45- May cause cancer.

SECTION 16. OTHER INFORMATION

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.

Abbreviations: NA = Not Applicable NE = Not Established ND = Not Determined
ppm = Parts per Million mg/m^3 = Milligrams Per Cubic Meter
C = Ceiling Concentration STEL = Short Term Exposure Limit

Safety Information and additional MSDS: 781-961-9600