



## Material Safety Data Sheet

### 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

**PRODUCT NAME:** FaradFlex™  
**OTHER/GENERIC NAMES:** Copper clad polymer/filler dielectric - **BC16T & BC12TM**  
**PRODUCT USE:** Substrate for printed circuit boards  
**MANUFACTURER:** Oak-Mitsui Technologies  
80 First Street  
Hoosick Falls, NY 12090

**FOR MORE INFORMATION CALL:**  
(Monday-Friday, 9:00am-4:30pm EST)  
518-686-4961

**IN CASE OF EMERGENCY CALL:**  
(24 Hours/Day, 7 Days/Week)  
518-686-4961

### 2. COMPOSITION/INFORMATION ON INGREDIENTS

<u>INGREDIENT NAME</u>	<u>CAS NUMBER</u>	<u>WEIGHT %</u>
Proprietary polymer/s in dielectric	Proprietary	0.5-2.5
Barium Titanate in dielectric	12047-27-7	2-8
Copper	7440-50-8	90-97

Trace impurities and additional material names not listed above may also appear in Section 15 towards the end of the MSDS. These materials may be listed for local "Right-To-Know" compliance and for other reasons.

### 3. HAZARDS IDENTIFICATION

**EMERGENCY OVERVIEW:** A nonflammable sheet material. Vapors if decomposed may irritate eyes, nose and throat.

### POTENTIAL HEALTH HAZARDS

**SKIN:** No irritation expected  
**EYES:** Not a probable route of exposure  
**INHALATION:** Not a probable route of exposure  
**INGESTION:** Not a probable route of exposure

# MATERIAL SAFETY DATA SHEET

## **FaradFlex™**

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**DELAYED EFFECTS:** None expected

**Ingredients found on one of the OSHA designated carcinogen lists are listed below.**

<u>INGREDIENT NAME</u>	<u>NTP STATUS</u>	<u>IARC STATUS</u>	<u>OSHA LIST</u>
No ingredients listed in this section.	None	none	None

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### **4. FIRST AID MEASURES**

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**SKIN:** Wash with soap and water after handling. If skin irritation develops, consult a physician.

**EYES:** Flush with water. If irritation persists, consult a physician.

**INHALATION:** If overcome by fumes from decomposition, remove to fresh air. If condition persists, consult a physician.

**INGESTION:** Not a probable route of exposure.

**ADVICE TO PHYSICIAN:** Treat symptomatically.

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### **5. FIRE FIGHTING MEASURES**

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#### **FLAMMABLE PROPERTIES**

<b>FLASH POINT:</b>	N/A
<b>FLASH POINT METHOD:</b>	N/A
<b>AUTOIGNITION TEMPERATURE:</b>	N/A
<b>UPPER FLAME LIMIT (volume % in air):</b>	N/A
<b>LOWER FLAME LIMIT (volume % in air):</b>	N/A
<b>FLAME PROPAGATION RATE (solids):</b>	This product is self extinguishing, does not burn.
<b>OSHA FLAMMABILITY CLASS:</b>	N/A

**EXTINGUISHING MEDIA:** water, foam, dry chemical, CO<sub>2</sub>

**UNUSUAL FIRE AND EXPLOSION HAZARDS:** May give off CO, CO<sub>2</sub> when thermally decomposed.

# **MATERIAL SAFETY DATA SHEET**

**FaradFlex™**

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**SPECIAL FIRE FIGHTING PRECAUTIONS/INSTRUCTIONS:** Fireman should wear proper PPE and breathing apparatus.

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## **6. ACCIDENTAL RELEASE MEASURES**

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**IN CASE OF SPILL OR OTHER RELEASE:** Not applicable, material is an article.

**Spills and releases may have to be reported to Federal and/or local authorities. See Section 15 regarding reporting requirements.**

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## **7. HANDLING AND STORAGE**

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**NORMAL HANDLING:** (Always wear recommended personal protective equipment.) Wash thoroughly after handling.

**STORAGE RECOMMENDATIONS:** N/A

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## **8. EXPOSURE CONTROLS/PERSONAL PROTECTION**

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**ENGINEERING CONTROLS:** Safe handling of polymers at high temperatures requires adequate ventilation. Adequate ventilation will be dependent on temperature and exposure time.

### **PERSONAL PROTECTIVE EQUIPMENT**

**SKIN PROTECTION:** Gloves are recommended as good industrial practice.

**EYE PROTECTION:** Safety glasses are recommended as good industrial practice.

**RESPIRATORY PROTECTION:** Atmospheric copper dust from machining or lasing operations should be maintained below exposure guidelines.

**ADDITIONAL RECOMMENDATIONS:** N/A

# MATERIAL SAFETY DATA SHEET

## **FaradFlex™**

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### EXPOSURE GUIDELINES

<u>INGREDIENT NAME</u>	<u>ACGIH TLV</u>	<u>OSHA PEL</u>	<u>OTHER LIMIT</u>
Copper dust	1 mg/M <sup>3</sup>	1 mg/M <sup>3</sup>	None

\* = Limit established by Oak-Mitsui, Inc.

\*\* = Workplace Environmental Exposure Level (AIHA).

\*\*\* = Biological Exposure Index (ACGIH).

**OTHER EXPOSURE LIMITS FOR POTENTIAL DECOMPOSITION PRODUCTS:** none

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### 9. PHYSICAL AND CHEMICAL PROPERTIES

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<b>APPEARANCE:</b>	white sheet, copper clad
<b>PHYSICAL STATE:</b>	Solid
<b>MOLECULAR WEIGHT:</b>	N/A
<b>CHEMICAL FORMULA:</b>	N/A
<b>ODOR:</b>	None
<b>SPECIFIC GRAVITY (water = 1.0):</b>	8.5 to 8.8
<b>SOLUBILITY IN WATER (weight %):</b>	Insoluble
<b>pH:</b>	N/A
<b>BOILING POINT:</b>	N/A
<b>MELTING POINT:</b>	N/A
<b>VAPOR PRESSURE:</b>	N/A
<b>VAPOR DENSITY (air = 1.0):</b>	N/A
<b>EVAPORATION RATE:</b>	N/A
<b>% VOLATILES:</b>	N/A
<b>FLASH POINT:</b>	N/A

**COMPARED TO:** N/A

(Flash point method and additional flammability data are found in Section 5.)

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### 10. STABILITY AND REACTIVITY

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**NORMALLY STABLE? (CONDITIONS TO AVOID):** stable

**INCOMPATIBILITIES:** none determined

**HAZARDOUS DECOMPOSITION PRODUCTS:** CO and CO<sub>2</sub> above 400 deg. C

**HAZARDOUS POLYMERIZATION:** none

# MATERIAL SAFETY DATA SHEET

**FaradFlex™**

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## **11. TOXICOLOGICAL INFORMATION**

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**IMMEDIATE (ACUTE) EFFECTS:** none

**DELAYED (SUBCHRONIC AND CHRONIC) EFFECTS:** none determined

**OTHER DATA:** N/A

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## **12. ECOLOGICAL INFORMATION**

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not biodegradable

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## **13. DISPOSAL CONSIDERATIONS**

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### **RCRA**

**Is the unused product a RCRA hazardous waste if discarded? No**  
**If yes, the RCRA ID number is:**

**OTHER DISPOSAL CONSIDERATIONS:** Observe all Federal, State, and Local Environmental regulations.

The information offered here is for the product as shipped. Use and/or alterations to the product such as mixing with other materials may significantly change the characteristics of the material and alter the RCRA classification and the proper disposal method.

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## **14. TRANSPORT INFORMATION**

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**US DOT PROPER SHIPPING NAME:**N/A

**US DOT HAZARD CLASS:** Not regulated

**US DOT ID NUMBER:** N/A

For additional information on shipping regulations affecting this material, contact the information number found in Section 1.

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## **15. REGULATORY INFORMATION**

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### **TOXIC SUBSTANCES CONTROL ACT (TSCA)**

**TSCA INVENTORY STATUS:** N/A

# MATERIAL SAFETY DATA SHEET

**FaradFlex™**

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**OTHER TSCA ISSUES:** N/A

## SARA TITLE III/CERCLA

"Reportable Quantities" (RQs) and/or "Threshold Planning Quantities" (TPQs) exist for the following ingredients.

<u>INGREDIENT NAME</u>	<u>SARA/CERCLA RQ</u> <u>(lb)</u>	<u>SARA EHS TPQ (lb)</u>
Copper	5000	N/A

**Spills or releases resulting in the loss of any ingredient at or above its RQ requires immediate notification to the National Response Center [(800) 424-8802] and to your Local Emergency Planning Committee.**

**SECTION 311 HAZARD CLASS:** N/A

## **SARA 313 TOXIC CHEMICALS:**

The following ingredients are SARA 313 "Toxic Chemicals". CAS numbers and weight percents are found in Section 2.

<u>INGREDIENT NAME</u>	<u>COMMENT</u>
Copper CAS 7440-50-8	Recycle

## STATE RIGHT-TO-KNOW

In addition to the ingredients found in Section 2, the following are listed for state right-to-know purposes.

<u>INGREDIENT NAME</u>	<u>WEIGHT</u> <u>%</u>	<u>COMMENT</u>
No ingredients listed in this section.	N/A	N/A

**ADDITIONAL REGULATORY INFORMATION:** N/A

# **MATERIAL SAFETY DATA SHEET**

**FaradFlex™**

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**WHMIS CLASSIFICATION (CANADA):** N/A

**FOREIGN INVENTORY STATUS:** N/A

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## **16. OTHER INFORMATION**

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**CURRENT ISSUE**      February 11, 2004

**DATE:**

**PREVIOUS ISSUE**      None

**DATE:**

**CHANGES TO MSDS FROM PREVIOUS ISSUE DATE ARE DUE TO THE FOLLOWING:**

**OTHER**

**INFORMATION:**