



Material Safety Data Sheet – 3EC Copper Foil

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: 3EC Copper Foil

OTHER/GENERIC NAMES: 3EC, 3EC-HTE, MLS-3EC-HTE, 3EC-III

PRODUCT USE: Circuit Boards

MANUFACTURER: Oak-Mitsui Inc.

80 First Street
Hoosick Falls, NY 12090

Oak-Mitsui Inc.

29 Battleship Road Extension
Camden, SC 29020

FOR MORE INFORMATION CALL:

(Monday-Friday, 7:00am-4:00pm EST)

803-425-7904 or Cell # 803-338-8583

IN CASE OF EMERGENCY CALL:

(24 Hours/Day, 7 Days/Week)

803-425-7904 or 803-425-7918 or Cell # 803-338-8583

2. COMPOSITION/INFORMATION ON INGREDIENTS

<u>INGREDIENT NAME</u>	<u>CAS NUMBER</u>	<u>WEIGHT %</u>
Copper	7440-50-8	99.6 min.
Chromium	7440-47-3	<0.01
Zinc	7440-66-6	<0.04

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 red/orange metal sheet. The only hazards associated with copper foil as shipped are the potential for cuts from sharp edges.

POTENTIAL HEALTH HAZARDS

Dusts, mists or fumes may be generated when copper foil is cut or processed. (laminated)

SKIN: As produced in foil form, the potential for cuts exists due to sharp edges of the metal.

EYES: Dust may irritate eyes.

INHALATION: Dust may cause irritation to respiratory tract.

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

DELAYED EFFECTS: No chronic effects are expected from this product.

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3. HAZARDS IDENTIFICATION (cont)

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>
Chromium	Known carcinogen	3	No
Zinc	No	No	No

4. FIRST AID MEASURES

SKIN: Seek medical attention for cuts

EYES: Flush eyes with large amounts of water. Seek medical attention if irritation persists.

INHALATION: Seek fresh air. Get medical attention if irritation persists.

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

ADVICE TO PHYSICIAN: No specific advice. Treat according to symptoms present.

5. FIRE FIGHTING MEASURES**FLAMMABLE PROPERTIES**

FLASH POINT: None

FLASH POINT METHOD: Not applicable.

AUTOIGNITION TEMPERATURE: Not applicable.

UPPER FLAME LIMIT (volume % in air): Not applicable.

LOWER FLAME LIMIT (volume % in air): Not applicable.

FLAME PROPAGATION RATE (solids): Not applicable

OSHA FLAMMABILITY CLASS: Not applicable

EXTINGUISHING MEDIA:

Water or carbon dioxide as appropriate for surrounding materials.

UNUSUAL FIRE AND EXPLOSION HAZARDS:

None

SPECIAL FIRE FIGHTING PRECAUTIONS/INSTRUCTIONS:

None

6. ACCIDENTAL RELEASE MEASURES

IN CASE OF SPILL OR OTHER RELEASE: (Always wear recommended personal protective equipment.)

As a solid, spills and releases are not a factor. Dust should be swept or vacuumed to reduce airborne dust and particulates.

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

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NORMAL HANDLING: Always wear recommended personal protective equipment. Edges of copper foil are sharp. Dyneema® or Kevlar® cut-resistant gloves are recommended for hand protection.

STORAGE RECOMMENDATIONS: No specific storage requirements.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

ENGINEERING CONTROLS: General exhaust.

PERSONAL PROTECTIVE EQUIPMENT

SKIN PROTECTION: Dyneema® or Kevlar® cut-resistant gloves

EYE PROTECTION: Safety glasses.

RESPIRATORY PROTECTION: If dust or fume is present, use negative pressure respirator according to NIOSH/MSHA standards.

ADDITIONAL RECOMMENDATIONS: None

EXPOSURE GUIDELINES

<u>INGREDIENT NAME</u>	<u>ACGIH TLV</u>	<u>OSHA PEL</u>	<u>OTHER LIMIT</u>
Copper	0.2 mg/m ³ TWA-fume 1 mg/m ³ TWA-dust/mist	0.1 mg/m ³ TWA-fume 1 mg/m ³ TWA-dust/mist	None
Chromium	0.5 mg/m ³ TWA	1 mg/m ³ TWA	None
Zinc	5 mg/m ³ TWA	10 mg/m ³ TWA	None

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9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE:	Red/orange metal.	
PHYSICAL STATE:	Solid	
MOLECULAR WEIGHT:	Not applicable	
CHEMICAL FORMULA:	Not applicable	
ODOR:	Odorless	
SPECIFIC GRAVITY (water = 1.0):	8.93 @ 20 d C	
SOLUBILITY IN WATER (weight %):	Insoluble	
pH:	Not applicable	
BOILING POINT:	4652 d F @ 1 atm.	
MELTING POINT:	1083 d C @ 1 atm.	
VAPOR PRESSURE:	Not applicable	
VAPOR DENSITY (air = 1.0):	Not applicable	
EVAPORATION RATE:	Not applicable	COMPARED TO:
% VOLATILES:	Not applicable	
FLASH POINT:	None	

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

10. STABILITY AND REACTIVITY

NORMALLY STABLE? (CONDITIONS TO AVOID):

Stable

INCOMPATIBILITIES:

1-bromo-2 propyne

HAZARDOUS DECOMPOSITION PRODUCTS:

None

HAZARDOUS POLYMERIZATION:

Will not occur

11. TOXICOLOGICAL INFORMATION

IMMEDIATE (ACUTE) EFFECTS:

Not applicable in this form

DELAYED (SUBCHRONIC AND CHRONIC) EFFECTS:

Not applicable in this form

OTHER DATA:

None

12. ECOLOGICAL INFORMATION

Not applicable

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13. DISPOSAL CONSIDERATIONS

RCRA

Is the unused product a RCRA hazardous waste if discarded? No

If yes, the RCRA ID number is: Not applicable

OTHER DISPOSAL CONSIDERATIONS: Copper foil is completely recyclable

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.

14. TRANSPORT INFORMATION

US DOT HAZARD CLASS: Not applicable

US DOT ID NUMBER: Not applicable

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

15. REGULATORY INFORMATION

TOXIC SUBSTANCES CONTROL ACT (TSCA)

TSCA INVENTORY STATUS: Article - Exempt from TSCA

OTHER TSCA ISSUES: None

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 (lb)</u>	<u>SARA EHS TPQ (lb)</u>
Copper	5000	None
Chromium	5000	None
Zinc	1000	None

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: None

SARA 313 TOXIC CHEMICALS:

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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	None
Chromium	None
Zinc	None

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>COMMENT</u>
No ingredients listed in this section		

ADDITIONAL REGULATORY INFORMATION:

None

WHMIS CLASSIFICATION (CANADA):

Not applicable - Article

FOREIGN INVENTORY STATUS:

Not applicable - Article

16. OTHER INFORMATION

CURRENT ISSUE/REVISION DATE: November 10, 2006

PREVIOUS ISSUE/REVISION DATE: June 30, 2006

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

- Section 1 Changed Emergency Contact Phone Number

OTHER INFORMATION: None