

# HTE COPPER FOIL

PRODUCT DATA SHEET  
Edition 01 18 September 2013

## INTRODUCTION

HTE Copper Foil is an high purity copper foil produced by Chang Chun Petrochemical Taipei Taiwan adopting the most advanced equipment, with severe quality control, through electro-deposition and special surface treatment. HTE Copper Foil has very good mechanical properties (Elongation ductility), solder and chemical resistance. Elga Europe, who is marketing responsible for Europe, imports from CCP the master rolls which are cut in Italy in rolls and sheets providing specific sizes and packaging according with customer specific requirements with the guarantee of prompt deliveries.

## MAIN APPLICATIONS AND FEATURES

- Glass fiber epoxy resin copper clad laminates
- Multi layer printed circuit board
- High T<sub>g</sub> glass fiber epoxy resin copper clad laminates

## PROPERTIES

### **High Temperature Elongation Copper Foil**

**According to IPC-4562-1.2.4.1**

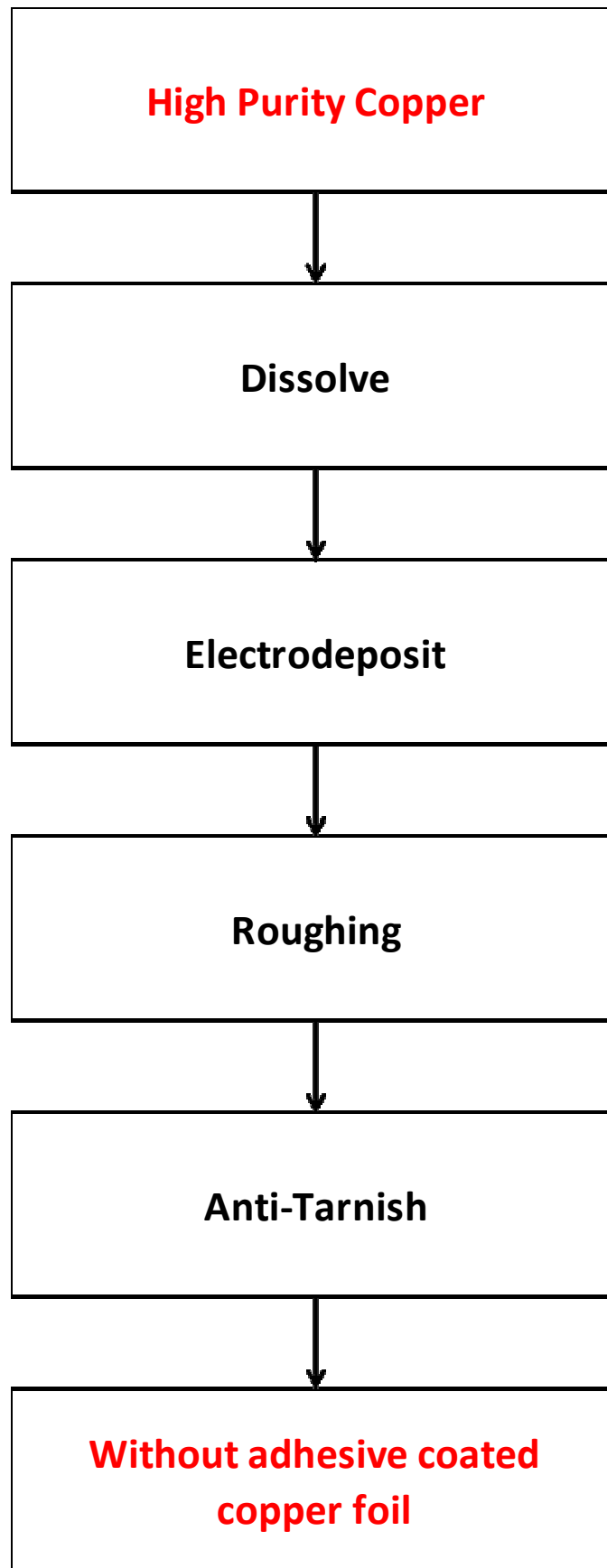
### **Grade 3 HTE Copper Foil for multilayer**

**According to IPC-4562-1.3**

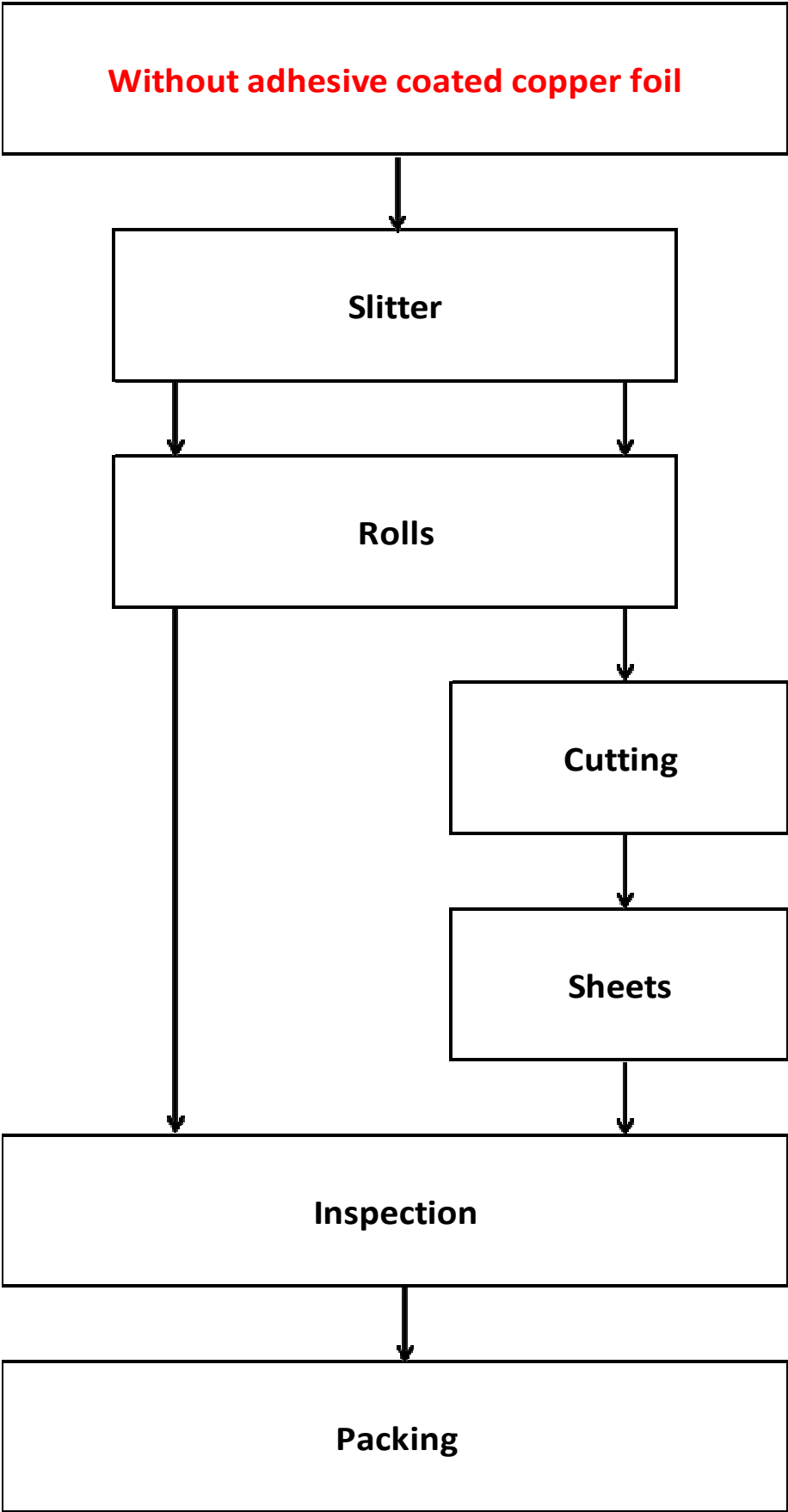
### **Low profile electrodeposited copper foil**

**According to IPC-4562-1.2.7**

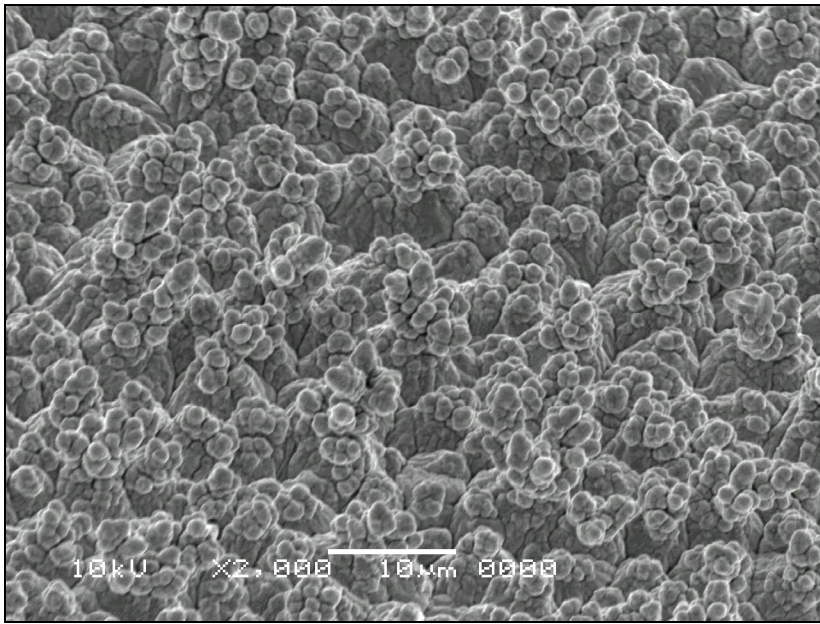
## PRODUCTION PROCESS CHART OF ELECTRODEPOSITED COPPER FOIL



**PRODUCTION PROCESS CHART OF CUTTING/SLITTING COPPER FOIL**

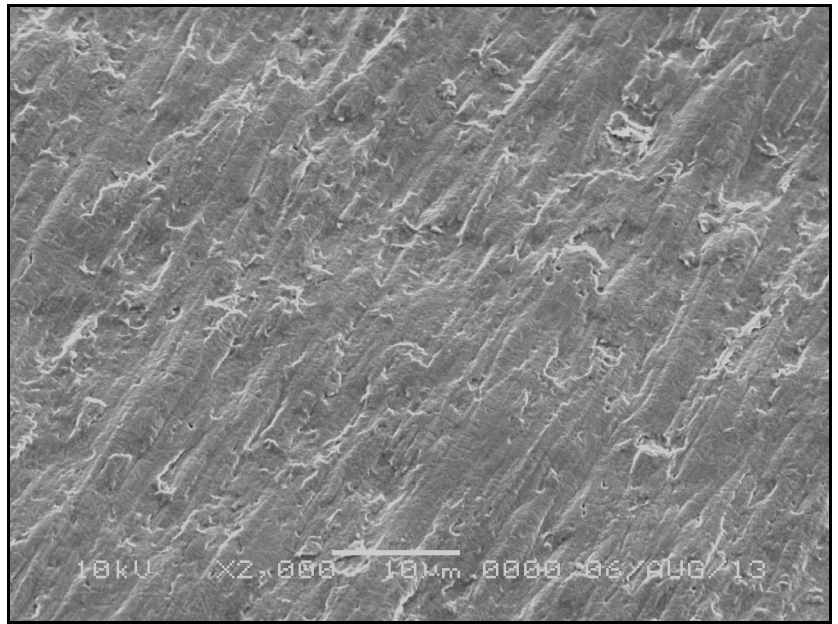


## COPPER TOPOGRAPHY



Matt side of treated copper foil  
(elettroscanningmicroscope2000x)

Matt side of raw copper foil  
(elettroscanningmicroscope2000x)



## COPPER FOIL SPECIFICATIONS (CCP-PLS)

Item	Unit	Condition	Specification value						Inspect	Specification
										IPC-4562
										Test method
										IPC-TM-650
Nominal thickness	micron		12	18	35	50	70	105		
	oz.		1/3	1/2	1	1,5	2	3		
Thickness Area weight	g/m <sup>2</sup>	A	107 ± 10	153 ± 15	305 ± 30	457 ± 45	610 ± 60	915 ± 90	A	2.2.12
	oz/ft <sup>2</sup>		0,33 ± 0,03	0,5 ± 0,05	0,95 ± 0,09	1,35 ± 0,13	1,9 ± 0,19	2,85 ± 0,27		
Purity	%	A	Above 99,8						C	2.3.15
Tensile Strenght	kg/mm <sup>2</sup>	25°C	> 21	> 21	> 28	> 28	> 28	> 28	A	2.4.18
		180°C	> 15	> 15	> 15	> 15	> 15	> 15	B	
Elongation	%	25°C	> 4	> 4	> 5	> 5	> 5	> 5	A	
		180°C	> 3	> 3	> 3	> 3	> 3	> 3	B	
Peel strength	N/mm	A	> 1,1	> 1,3	> 1,7	> 1,7	> 1,9	> 1,9	A	2.4.8
	Lb/in		> 7	> 7,7	> 10	> 10,5	> 11	> 11		
Roughness (M), Rz	micron	A	< 6	< 8	< 10	< 11	< 13	< 13	A	2.2.17
Roughness (S), Ra	micron	A	< 0,43							
Solderblister	sec	S-260	> 120						B	JIS-C-6481-5.5
Pinhole	n°/1000m	A	< 5						A	CCP Standard
Anti-oxidation		225°C – 10'	Without harmful rust, coloration						A	
Solderability		FS-250	No evidence of solder de-wetting						B	MQZC104CF02
Stain and copper residue	n° (Ø 2mm) 1000m	A	over 20 µm			under 5 µm				
			under 18 µm			under 50 µm				
Ink adhesion	hardness	A	> HB							
Appearance	S side	A	Uniform treatment without harmful defect							
	M side									
	others		Foil surface without wrinkles and scratches							

**Note:**

- Inspection: A (per lot), B (x 10 lot), C (x 6 months).
- Treatment condition: A (ambient temperature); S (soldering); FS (autosoldering).
- Peel strength and solder blister tests are based on FR-4 lamination.
- CCP QMTS2.E108591

## PACKAGING AND ORDERS

### Sheets:

Minimum dimension: 200 \* 300 mm

Maximum dimension: 1290 \* 1290 mm for all thickness – 1295 \* 1295 mm only for 18 µm thickness

CODES FOR ORDERS			
Thickness	12 micron	Code	TE.....
	18 micron		TF.....
	35 micron		TG.....
	50 micron		TL.....
	70 micron		TH.....
	105 micron		TI.....

STANDARD SHEETS PACKAGING	
12 micron	250 sheets / pack
18 micron	200 sheets / pack
35 micron	100 sheets / pack
50 micron	50 sheets / pack
70 micron	50 sheets / pack
105 micron	25 sheets / pack

### Rolls:

Width on request: Max width 1290 mm for all thickness – 1295 mm only for 18 µm

Weight on request: Standard weight from 25 to 50 kg per roll.

Internal core diameter: 80 mm (3 inches 1/8).

#### Sheets Order Example

Code TF0600x0640 = 600 x 640 mm 18 µm copper foil sheet

#### Rolls Order Example

Code TF0500 = 500 mm width 18 µm copper foil

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Any such special or particular description shall be taken only as the expression of seller's opinion in that behalf. The seller does not give any warranty as to the quality (save that the goods are of merchantable quality), state condition fitness of the goods or use to which the goods may be put.

Claims on account of weight, loss of or damage to the goods in transit ( so far as seller is liable) shall be made in writing to the seller within the period of 30 days of receipt thereof.

No claim shall be entertained after the expiration of the appropriate period mentioned above and the seller's liability by reason of any such claim shall not in any event the purchase price of the goods in respect of which a claim is made. Goods shall not be returned to the seller without the seller's express written permission.

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