GOULD Electronics

JTCHTEHP JTCHTEAB

Copper Foils with Advanced Bond, Grade 3

- Designed for high performance resin systems (high T_G, halogen-free, filled or unfilled high frequency)
- Higher profile and nodularization increase mechanical adhesion
- Tailored to specialty resins

Overview

JTCHTEHP, Grade 3

is specially treated to bond to high performance (HP), high T_G resin systems. When compared to standard Grade 3 this foil is manufactured with higher base foil profile and more nodularization, both designed to increase mechanical adhesion and peel strength. High performance JTCHTEHP products are also treated with a silane tailored to react with and chemically bond to filled or unfilled high T_G resin systems with insufficient tendency to bond, especially multifunctional FR4 and green epoxies, polyimide, BT, cyanate ester, and polyphenylene ether resins (PPE).

JTCHTEAB, Grade 3

is offered for laminates with pure, non-MDA polyimide resins. Advanced bond (AB) foils are treated with a special silane tailored to enhance adhesion and peel strength.

Advantages

Higher Peel Strength

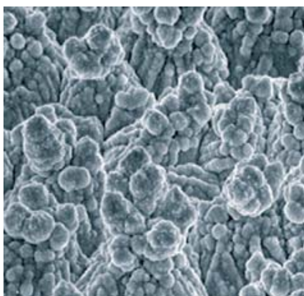
Hi-Performance foils are designed to increase mechanical and chemical adhesion to a wide variety of specialty resin systems, especially high T_G and high frequency resins. In result, the high treatment nodularization transfers the peeling stress deep into the resin matrix and homogenizes the stress distribution in filled and brittle laminating resins with the result of improved peel strength.

Improved Laminate and PCB Reliability

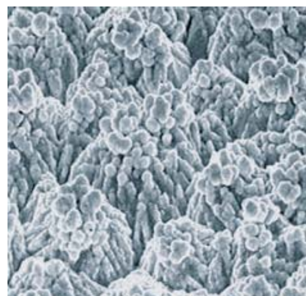
Silane chemically bonds copper foil to resin systems, thereby increasing resistance to undercut in wet PCB processes. Reliability of the laminated foil in thermal cycling tests (delamination, pad liftung) is improved.

Specifications

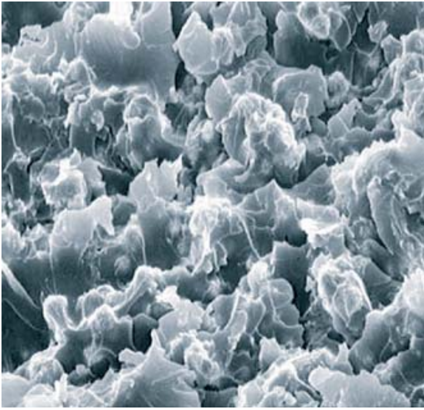
Properties meet the requirements of IPC-4562 and are equivalent to JTCHTE except higher matte side roughness and peel strength. Peel strength in accordance with IPC 4101.



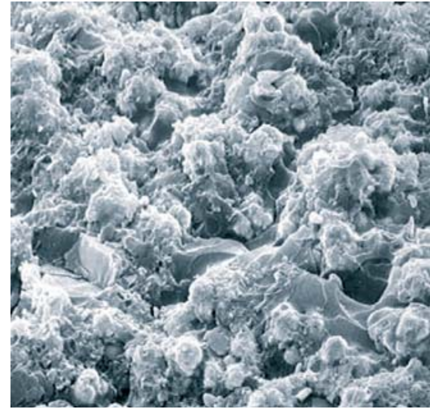
SEM pictures of treated matte sides, JTCHTEHP - 35 µm



JTCHTE - 35 µm in comparison



Copper foil peelbacks, both JTCHTEHP-35 µm
Polyfunctional epoxy, T_G >170°, filled low CTE, (IS420)



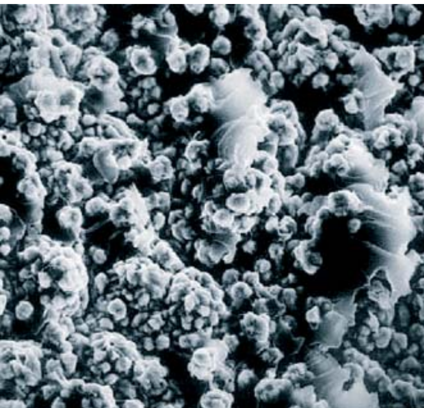
High frequency resin, T_G > 280°C
(RO4450B)

The peelbacks show widely intact copper resin interfaces and the peel strength failure in the resin matrix.

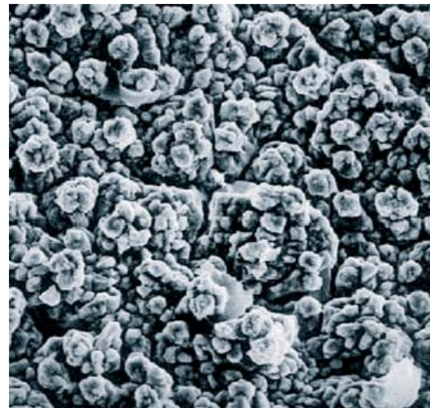
Typical Properties, 35 µm:

Laminated on	Unit	Peel Strength
Polyester	N/mm	1.42
Cyanate ester	N/mm	1.50
BT	N/mm	1.57
Multifunctional epoxy, turbo cured	N/mm	1.57
Polyimide	N/mm	1.57
Halogen-free epoxy	N/mm	1.61

The Advanced Bond (AB) product is supplied with a special silane to improve chemical bond to non-MDA (MethyleneDianiline) polyimide resin.



Copper foil peelbacks on non-MDA polyimide resin:
JTCHTEAB-35 µm, 1.66 N/mm



JTCHTE-35 µm in comparison, 1.22 N/mm

Supply

JTCHTEHP/AB foils are routinely available in continuous rolls and sheeted formats. Roll products can be supplied in a variety of widths and thicknesses from 9 µm (0.25 oz/ft²) to 70 µm (2 oz/ft²). Products are supplied on cardboard cores with an ID of ~ 79 mm (3 1/8”) or 152 mm (6”).

GOULD Electronics is part of the Nikko Materials group. The company is a leading supplier of materials to the electronics industry.

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