ShinEtsuMicroSi

Shin-Etsu manufactures a complete line of high quality, high performance flexible copper laminates, coverlays and adhesive sheets for the production of flexible circuits. In North America, Shin-Etsu MicroSi is the Shin-Etsu subsidiary responsible for this line of flexible materials.

The copper foil and polyimide film used in our FCL materials is laminated using a proprietary and unique process, yielding improved peel strength, greater dimensional stability and excellent flexural endurance.

Shin-Etsu FCL's offer a higher resistance to soldering heat, (>330 °C) as compared to epoxy based laminates. Our Coverlay materials can be processed at lower temperatures (160 °C) than epoxy materials, and have higher flexural endurance.

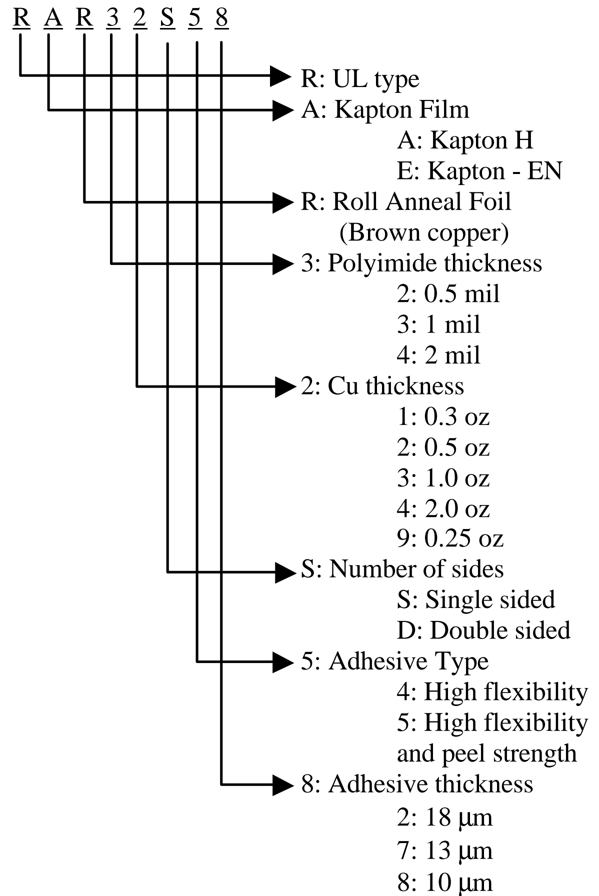
Our material is **UL approved (UL V-0)** and is suitable for commercial circuits.

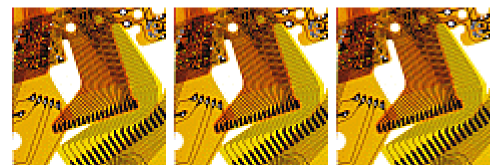
Shin-Etsu offers **copper materials from ¼ oz to 2 oz. The polyimide is offered in thicknesses from 0.5 to 2.0 mils**.

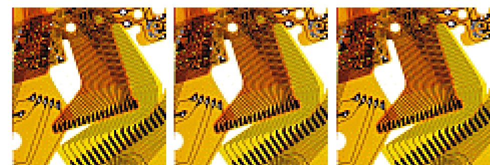
Our recently introduced –58 series material employs an improved adhesive system, resulting in greater bond strength and flexural endurance, while reducing the overall thickness of the laminate.

Our copper laminates are designated as follows:
RAR indicates Roll Annealed Copper, UL approved, and a plasma treated polyimide film. The second two numbers in the product code designate the thickness of the copper. The letter designates either single or double-sided copper foil (S or D).
The last two numbers indicate the adhesive system and thickness.

For example, RAR32S58 indicates:







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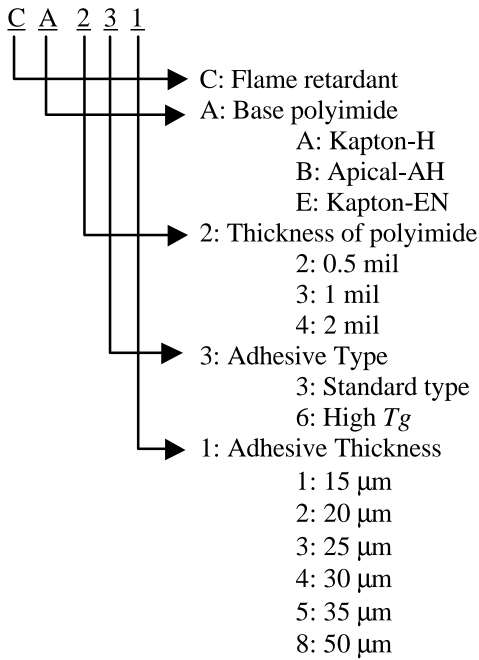
Our coverlay materials are similarly designated as follows:



All Shin-Etsu coverlay and adhesive sheets must be kept between 0 – 5°C to ensure proper shelf life. The shelf life for adhesive sheets and coverlay is 1 year from the date of manufacture. The shelf life for FCL material is three years from the date of manufacture.

Storage Conditions:

Flexible Copper Laminate can be stored safely at room temperature. Coverlay and Adhesive materials must be stored at or below 5°C (40°F) to maintain the desired flow properties. Epoxy products require refrigeration to maintain their flow properties. Prior to use, we recommend the material be allowed to stabilize at room temperature. Once at room temperature, the material will give good results for a week or more.

Suggested Process settings for Shin-Etsu Coverlay Material:

Shin-Etsu recommends the following procedure to laminate coverlay to high density, fine line (0.0015”) lines and spaces. Designs using larger geometries should not require pressures as high as those listed here.

Use a polypropylene sheet as the release sheet for pressing temperatures below 140°C. Use polymethylpentene sheets for temperature above 150°C.

Pressing conditions:

a) Platen temperature 160°C
b) Pressure 70 – 140 psi
c) Release pressure at 5 min. intervals to release trapped air.
d) Increase pressure to 420 – 700 psi and maintain for 30 min.
e) Cool to less than 50°C.

Alternate heating/pressure conditions can be used, and your Shin-Etsu representative can offer tables of different process setting for your trials.

In addition to the brief description offered above, Shin-Etsu’s technical staff is available to assist with any questions you may have concerning the use of our coverlay, flexible copper laminates, or adhesive sheets. Shin-Etsu remains committed to our customer’s success.

Please feel free to contact Shin-Etsu through Shin-Etsu MicroSi at:

480-893-8898 or 1-888-642-MicroSi.

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