



Flexible copper clad laminate – enabling new high definition design and packaging solutions

May 29, 2018: Rochester, NY: Intrinsiq Materials is once again partnering with Austin-based NovaCentrix and is now producing meters of flexible copper clad laminate (FCCL) utilizing high speed, low cost reel-to-reel (R2R) processing. These thin layers cannot be produced by traditional lamination processes and were achieved without the use of adhesives or time-consuming, costly sputtering. This unique FCCL is fabricated by directly printing Intrinsiq Material's copper based ink onto polyimide (PI), and then post-processing using state-of-the-art NovaCentrix PulseForge® photonic curing tools, resulting in a conductive FCCL. The FCCL may even be subsequently plated, exhibiting very high adhesion to the PI in both the as-sintered and the plated conditions. This FCCL has been used to create fine lines for high density interconnects (HDI). Furthermore, the process can produce trace profiles with very straight side walls facilitating high speed signal integrity. This R2R process can be configured to manufacture very wide-area web widths for large flexible patterned circuit applications.

The ink used for the FCCL is formulated with Intrinsiq's own proprietary coated copper nanoparticles to provide excellent stability and is designed for strong adhesion. Large-area processing capabilities are enabled exclusively by the PulseForge photonic tools from NovaCentrix. The PulseForge tools sinter the ink coating in milliseconds, with no damage to low-temperature flexible substrates.

Robert Nead, CEO of Intrinsiq Materials, states, "The compatibility of our copper based ink to work with R2R processing is another example of our team's expertise in formulating for a wide variety of dispensing and sintering methods. The partnership with NovaCentrix moves FCCLs closer to additive manufacturing of high density circuitry with very fine lines and spaces for the global electronics industry. As customer interest grows in FCCL produced in this scalable R2R process, it is evident that flexible circuit designers will benefit from this high volume, lower cost technology as they seek to decrease interconnect real-estate and increase signal fidelity."

Stan Farnsworth, Chief Marketing Officer at NovaCentrix, adds, "This combined materials and processing capability gives the high-performance flexible circuit community opportunities for innovative, cost-effective products. We are particularly pleased our PulseForge processing equipment and the expertise of our team can contribute directly to these opportunities. Customers require performance, economical costs, and reliability, and that's what they get with the Intrinsiq Materials/NovaCentrix collaboration on FCCL."

For more information or to purchase FCCL or ink, contact Intrinsiq Materials or NovaCentrix.



About Intrinsiq Materials

Intrinsiq Materials is an advanced materials company and recognized leader in the field of nanomaterial technology. Intrinsiq has developed a range of nanocopper containing inks and pastes to be compatible with a wide variety of substrates, dispensing systems, and sintering techniques. This allows Intrinsiq to provide products suited to a diverse group of applications. Current other work includes formulating, dispensing, curing / sintering, and testing to develop manufacturing proof of concept support for circuitry on low and high temperature substrates, micro-vias creation in glass and plastics, materials for microelectronic interconnects, and the development of thermo-electrics. Applications include circuitry and interconnects for the consumer electronics, appliance, automotive, semiconductor, mobile device, solar, and lighting subassemblies.

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About NovaCentrix

NovaCentrix offers industry leading photonic curing tools, conductive inks, material, and expertise enabling development and production of next generation printed electronic devices – some already on the market. PulseForge® tools utilize photonic curing which is a cutting edge technology that dries, sinters, and anneals functional inks in milliseconds on low-temperature, flexible substrates such as paper and plastic. PulseForge tools can save time and money, and enable new types of products in applications like solar, RFID, display, packaging, and circuit. Our Metalon® conductive inks capitalize on advanced materials and formulation to provide conductivity options for additive manufacturing of printed electronics with stretchable, solderable, resistive, and magnetic qualities.

NovaCentrix works through a partnership model to take ideas from inception to full production. Our PulseForge tools continue to revolutionize the printed electronics industry through photonic curing, enabling product innovators and manufacturers the option of flexible, low cost substrates and functionality not possible with conventional ovens and lasers.

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