RTI International validates Alchimer?s electrografting technology for 3D TSV applications

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Alchimer S.A., a provider of nanometric deposition technology for through-silicon vias (TSVs), semiconductor interconnects and other electronic applications, said today its Electrografting (eGTM) technology has been validated by scientists at RTI International (RTI).

RTI, the latest third-party organization to validate eG, presented its research findings at the IEEE 3D System Integration Conference (3DIC) in Munich, Germany, in November. The paper confirmed that electrografting is a proven technology for depositing *“insulator, barrier and seedlayer into high aspect ratio TSVs for 3D integration applications.”*

Electrografting is Alchimer’s breakthrough electrochemical process that enables the growth of extremely high-quality polymer and metal thin films. The company’s deposition technology reduces overall cost of ownership for high-aspect-ratio TSV metallization by up to two-thirds compared to conventional dry processes, and shortens time to market.

The RTI study analyzed a variety of film properties, including leakage current, breakdown voltage, flat-band capacitance and voltage.

“The eG films in particular had effective interface trap densities in the range of 1011 per cm2, which is an excellent result that is comparable to device-grade SiO2 and high-k gate dielectrics,” the **study** said.

Scientists in the Center for Materials and Electronic Technologies at RTI integrated electrografted layers in RTI test vehicles and exposed them to autoclave (AC) and high-temperature storage (HTS) reliability testing. The autoclave test was conducted during 96 hours under 121°C, 100 percent relative humidity and 2 bar absolute pressure. High-temperature storage was performed during 20 hours at 205°C.

“Both tests showed strong results with no significant difference in film performance before and after the tests,” said **Claudio Truzzi**, Alchimer’s chief technology officer. *“Alchimer’s films have been vetted by multiple third parties and have been validated as conforming with several industry-standard, package-level reliability tests.”*

Based in Research Triangle Park, N.C., USA, RTI International provides research and technical expertise to governments and businesses in more than 40 countries in the areas of health and pharmaceuticals, education and training, surveys and statistics,

advanced technology, international development, economic and social policy, energy and the environment, and laboratory and chemistry services.

About Alchimer S.A.
Alchimer develops and markets innovative chemical formulations, processes and IP for the deposition of nanometric films used in a variety of microelectronic and MEMS applications, including wafer-level interconnects and TSVs (through-silicon vias) for 3D packaging. The company's breakthrough technology, Electrografting (eG™), is an electrochemical-based process that enables the growth of very thin coatings, of various types, on both conducting and semiconducting surfaces. Alchimer's potential was initially recognized by the Strategic Industrial Innovation Programme of OSEO, which supports state-of-the-art technologies with a high likelihood of commercialization, and the company was spun off from the Commissariat à l'Energie Atomique (CEA) in 2001. Based in Massy, France, it won the First National Award for the Creation of High Tech Companies from the French Minister of Research and Industry and is a Red Herring Top 100 European Company. Visit alchimer.com.

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