

Chemically-Amplified Permanent Insulator (#6076)

High quality insulation material with improved performance

Inventors at Georgia Tech have developed a material capable of providing insulation without associated problems. The material has photo-patternable, positive tone, permanent dielectric based on chemically-amplified, cross linkable properties which provides better performance while simultaneously allowing for lower manufacturing costs and faster processing time. The material has excellent mechanical and electric properties when used in thin film and semiconductor applications.

Benefits/Advantages

- Improved – Superior electrical isolation, smaller size and cross-linking capability
- Cost-saving – Lower power and increased processing and manufacturing speeds

Potential Commercial Applications

- Electronic devices and system
- Microelectronic products and systems
- Semiconductor fabrication
- Chip-stacking
- Thermally and electrically isolates two devices

Background/Context for This Invention

Microelectronic technologies use insulating materials to create films that enable electrical and mechanical isolation of components in devices. The materials used need to be of highly adjustable mechanical quality. Current processes for patterning of films in semiconductor manufacturing involve multiple steps, which add time and increase production costs. The number of steps involved, combined with the materials used, results in higher defect rates to achieve the necessary quality.

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More Information

Publications

For more information about this technology, please visit:

<https://licensing.research.gatech.edu/technology/chemically-amplified-permanent-insulator>

Images:

The automated sequential delivery of multiple fluids. A varying number of delay gates imprinted in the branches are shown in the figure.

COVID-19 and flu saliva test on paper: (A) The automatic sequential delivery of multiple reagents required for virus test; (B) Water pouring into the device triggers the virus assay, allowing the presence of SARS-CoV-2 and influenza A & B viruses to be visually identified by the color changes in the corresponding detection spot