Inventions & Innovation Project Abstract

Energy Saving Glass Lamination via Selective Radio Frequency Heating

Glass lamination typically involves bonding two or more sheets of glass with vinyl interlayers. The entire assembly of glass and vinyl is heated to soften the vinyl, and then pressed together to create a strong bond and pleasing aesthetics. The heating of glass is an inefficient process. Glass tends to be a poor absorber and poor conductor of heat. Energy is wasted to get heat through the glass and to the vinyl, where the heat is desired.

Ceralink, Inc. proposes to develop technology entitled, "Energy Saving Glass Lamination via Selective Radio Frequency (RF) Heating." The effort, led by Dr. Holly Shulman, an expert in the field of microwave/materials interactions, has potential to replace energy intensive, multi-step processes for producing laminated glass and other composite materials with a low energy, single step RF process, allowing higher throughput. This cross-cutting technology has the potential to reduce the electric energy usage by the autoglass industry alone by 219 billion of BTUs per year in the US. The innovation brings together the extremely large laminated glass industry (which provides windshields, windows, and mirrors to the automotive, aeronautical and marine industries) with the RF heating industry to provide more energy efficient, green operations.

The project objectives are to develop the process, equipment, and tooling needed to create the first sales and industrial implementation. From there, Ceralink will be able to 1) provide the manufacturing sector with a production example of microwave/RF heating 2) license the technology to other players in the laminated glass industry and equipment manufacturers, and 3) solicit interest from the broader composites industry for investment and licensing.

PPG and Ceralink are working out a license agreement which includes PPG's assistance with the commercialization and licensing of the technology to their competitors. Ceralink is also supported by Thermex Thermatron, an RF industry partner positioned to license equipment IP and become the equipment manufacturer.

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