

Inherently FST Thermoset Solutions for Aerospace Interiors Composites

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Huntsman Advanced Materials LLC (Huntsman) is actively involved in the development of new novel materials for high performance applications in advanced composites, adhesives and other demanding fields. This work will review three innovative solutions for making aerospace interior composites that have unique combinations of high performance and processing not available by current solutions.

The first one, Araldite® FST 40002 / 40003 is an entirely new high-performance, unfilled, halogen free, inherently flame resistant solution for RTM and infusion composite processes. Araldite® FST 40002 / 40003 is a radically different development that provides a unique combination of high mechanical, fire, smoke and toxicity (FST) performance alongside high quality, user-friendly composites processing conditions enabling efficient production of interior carbon and glass composites parts with maximized weight savings without limitations in part size and complexity.

The second one, Araldite® XU 35710 FST is a new benzoxazine resin that enables formulators to develop cost-effective solution as alternative to low-cost phenolic resins in aerospace interiors. Free of gas release during curing, benzoxazine resins provide excellent surface finish and laminate quality and are also compliant with health and safety regulations as compliance concerns regarding formaldehyde in phenolic continue to be of concern. Meeting the same FST and heat release requirements as phenolics, the new benzoxazine, Araldite® XU 35710 FST offers superior properties aiming at a wider range of applications including semi-structural parts as well as low viscosity in comparison to traditional benzoxazine resins which makes it suitable for the formulation of solvent and hot-melt preregs, as well as for systems designed for direct processes, such as RTM.

The third one, Araldite® MT 40050 FST is a recently developed, non-formulated but structurally fire resistant thermosetting epoxy resin that can replace or be combined with standard epoxies in prepreg formulations. With its inherent FST performance, Araldite®

MT 40050 FST can also be used in formulations for direct process such as RTM, infusion and filament winding, to provide fire resistance, very low smoke density and toxicity as well as very good heat release behavior.

The presentation will describe the unique combination of process, mechanicals and FST properties of Araldite® FST 40002 / 40003, Araldite® XU 35710 FST and Araldite® MT 40050 FST.

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