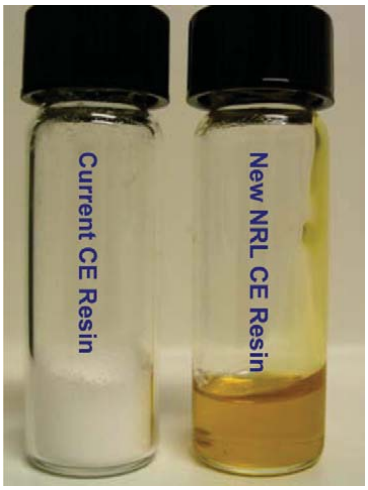
NEW PROCESSABLE CYANATE ESTER (CE) RESINS



Description

Novel cyanate ester (CE) resins have been discovered with enhanced processability and increased toughness. The synthesis uses high-yield reactions to produce resins of various compositions and properties. Most notable is the formation of liquid CE resins while still maintaining high-thermal stability of the thermoset. The synthetic approach permits the design and synthesis of a CE resin system that can be easily processed into shaped composite components by cost effective techniques such as resin transfer molding, resin infusion molding, pultrusion, and filament winding at ambient temperatures. The new CE resins have relatively low-curing temperatures and high-thermal stability, giving them a distinct advantage over other resin systems.

Advantages & Features

- Resins are liquid, resulting in an enhancement in the processability
- Thermoset is inherently less brittle due to a reduction in crosslinking density
- High-thermal stability of polymers
- Excellent fire resistant properties
- Can be blended with current CE resins and other desirable resins
- Simple, high-yielding reactions to produce resins

Applications

- Structural composites and coating applications
- High-temperature adhesives
- Low-dielectric materials for electronic applications

References

- "Oligomeric Cyanate Ester Resins: Application of a Modified Ullmann Synthesis in the Preparation of Thermosetting Polymers," Journal of Polymer Science: Part A: Polymer Chemistry 44 (2006) 4559-4565.
- "Synthesis and Properties of a Liquid Oligomeric Cyanate Ester Resin," POLYMER 47 (2006) 3727.
- "Development of an Oligomeric Cyanate Ester Resin with Enhanced Processability," Journal of Materials Chemistry 16 (2005) 1611.

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7,087,707; 7,342,085; and 7,348,395

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