Hybrid Plastics™

July 17, 2003 Press Release

Hybrid Plastics' Wins California's Nano-Republic Conference Award for "Most Promising Application"

Fountain Valley, CA: Hybrid Plastics teaming with Shea Technology of Reno, Nevada, received California's Nano-Republic 2003 Conference Award for "Most Promising Application". The incorporation of Hybrid's POSS® Nanostructured® building blocks into Shea Technology's proprietary Fireban® phenolic resin results in a system with improved temperature stability, improved char retention, enhanced thermal insulative performance and room temperature cure promotion.

Currently a number of applications for the system are showing notable results. The US Navy is assessing this resin to replace metals on top-side (above water) structures. This will include doors, ladders, towers, etc. Current composites see limited use due to their hazardous flammability and smoke generation characteristics. In electronics, this resin is a candidate for replacement of halogenated FR4 resin currently utilized in printed wireboards. Major drivers for adoption are the elimination of halogens, increased heat performance and lower cost processing. The US Air Force currently has this resin under testing and qualification for use as rocket motor cases and nozzles. Successful adoption should lead to increased stealth, reduced weight and component reliability at higher temperatures. Finally, the system is being evaluated for use as smoke free air duct liners leading into and out of clean rooms. The use of nonflammable, nonvolatile and non-smoke generating materials is highly desirable in this application.

POSS® [Polyhedral Oligomeric Silsesquioxanes] is a revolutionary new Nanotechnology based on silicon-derived building blocks that provide nanometer-scale control to dramatically improve the thermal and mechanical properties of traditional polymers while offering easy incorporation using existing manufacturing protocols. These compounds have an average diameter of just 1.5 nanometers, or billionth of a meter. POSS® nanomaterials can be used both as direct replacements for hydrocarbon based materials or as low-density performance additives to traditional plastics. They release no VOCs, and, thereby, produce no odor or air pollution. They are biocompatible, recyclable, non-flammable, and competitively priced with traditional polymer feedstocks. POSS® Nanostructured® materials can be readily incorporated into virtually any existing polymer system through blending, grafting or copolymerization.

These POSS® nanobuilding-blocks were hailed by R&D magazine as one of the 100 most technologically significant new products globally for the year 2000. Recently, Hybrid Plastics was one of five finalists for the Small Times Magazine's *2002 Best of Small Tech Award* for its POSS® Nanostructured® materials. The Small Times Magazine Best of Small Tech Awards recognize globally the best people, products and companies in nanotechnology, MEMS and microsystems.

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