

Hybrid Plastics' Receives a Prospective \$850,000 R&D Grant from the Missile Defense Agency/Air Force to Develop Low Cost Radiation Shielding

Fountain Valley, CA: Hybrid Plastics, Inc. has received a R&D Grant from the Missile Defense Agency/Air Force for a potential \$850,000 for the development of low cost radiation shielding. The competitive initial Phase I award will allow the company to advance the fundamental knowledge and service performance of a general, low cost, and rapid method to shield microelectronic, optical and sensory components from radiation.

As the reliance on space-based devices has grown exponentially, it has produced a pressing need for a low cost method of protecting them from a wide variety of radiation types, such as thermal neutrons and ionizing radiations like electrons and X-rays. The limitations of materials and manufacturing methods currently utilized pose major design constraints in this area. Metallized POSS® [Polyhedral Oligomeric Silsesquioxanes] technology will be utilized to provide efficient radiation absorptive coatings. These coatings marry the beneficial properties of plastics (processability and toughness) with those of ceramics (thermal, chemical and oxidative stability), as well as those of metals (radiation absorption, catalysis, refractive index, and conductivity). For development and testing of these materials, Hybrid Plastics™ will team with Full Circle Research, San Marcos, California.

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 globally one of the 100 most technologically significant new products for the year 2000. More 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 the best people, products and companies in nanotechnology, MEMS and Microsystems globally.

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