

NASA LANGLEY RESEARCH CENTER

MARISOL GARCIA

“LARC™-SI”

LARC-SI has properties that are unique among thermoplastic and thermoset polymers. The unique properties and features of LARC-SI have been used in a variety of fundamental application such as; high strength thin film, hot melt adhesive, microcomposite particle binder, protective coating, and structural, mechanical components and flexible circuits and cables. LARC-SI is now soluble in a commonly-used processing solvent, synthesized from commercially-available monomers. LARC-SI remains soluble in its final form, so no further chemical processing is required to produce the final articles, like thin films and varnishes. Since producing SI does not require complex manufacturing techniques, it can be processed into useful forms for a variety of functions such as: mechanical parts, magnetic components, ceramics, highly filled parts, adhesives, composites, flexible circuits, multilayer printed circuits, coatings on fiber-optics, wires, and metals.

This cost-effective polyimide has advanced the state of the art of polyimide chemistry. LARC™-SI's versatile processing characteristics combined with its outstanding physical, mechanical, electrical, and adhesive properties, has exceeds the highest level of development in the current competitive polymer resins. This feature greatly simplifies the fabrication of components from the polymer, expands its versatility, and provides higher quality parts that can cost-effectively replace other engineered polymers.

After a U. S. Patent application was filed, a Small Business Innovation Research (SBIR) contract was awarded to Imitec, Inc. to develop and supply this and other polyimide thermosets for NASA's High Speed Research Program. Technical articles were published to spread the scientific knowledge of LARC-SI and to serve as a market venue.

Mrs. Marisol Garcia negotiated an exclusive license to Virginia Dominion Power which Medtronic was a sub licensee. After Virginia Dominion Power terminated their license, Mrs. Garcia approached Medtronic to obtain a direct license with NASA. At this time the negotiation began and there were three offers tied to various milestones. These negotiations yielded over a million dollars profit to the center while allowing the technology available for additional licensing opportunities.

After licensing, Medtronic used LARC-SI as a new coating for leads in pace makers. The pacing lead is a very thin metal wire that is electrically isolated from the rest of the body. The tip of the pacing lead is inserted directly into the heart wall and carries electrical pulses from the pulse generator to the heart, stimulating it to beat correctly. The size and structure of the pacing lead is determined by the physician and matches the patient's heart size and muscular condition. In addition to being physically durable, LARC-SI it is not readily attacked by the body's immune system or degraded by biological fluids.