The NASA
LangleyEdge
NASA LANGLEY RESEARCH CENTER

Polyimide Insulation

Versatile Foam-in-Place Insulation

NASA Langley Research Center is actively seeking partnerships and collaborations to commercialize its Polyimide Foam Insulation technology.

The Market Opportunities

- Automotive: molded parts and structural components; trim molding, body fillers, soundproofing, and firewall materials; gaskets, brake pads, undercoatings, sealants, and repair putties
- Building Materials and Construction: ceiling and roofing tiles, carpet backing, coring for laminates, and repair compounds
- Land and Marine Recreation: surfboards, kayaks, and flotation devices; golf equipment; sports balls and paddles; and sports-playing surfaces
- Electronics and Electrical Devices: adhesives and sealants; coatings and pigments; gaskets, circuit board laminates, and potting compounds; buoyant and high-performance cable coatings
- Aerospace and Marine Applications: insulative tiles and components; heat-ablating parts; abradable seals; honeycomb core replacement and filler; water-penetration barriers; and radomes

The Benefits

- In-place application and repair
- Excellent thermal and acoustic protection
- Lightweight and durable
- Highly resilient, with high compressive strength and low density
- Low coefficient of thermal expansion, with high glass-transition temperature
- Nontoxic and nonfuming
- Flame resistant, with low smoke emissions.
- Resistant to chemicals, solvents, and hot water

The Technology

Polyimide Foam Insulation derives from a solution with salt-like properties and yields a homogeneous polyimide precursor in solid form. The resulting material can be processed into molded shapes, including microspheres and honeycombs.

Two or more polyimides can be combined or used separately to make a variety of insulating foams with varying properties. Foams and microspheres can be fabricated to specific densities, from 0.5 pounds to more than 20 pounds per cubic foot. Depending on performance requirements, the foams can be further formulated and refined to meet a variety of environmental conditions.

Additional Information

To discuss in detail how this technology can profit you and your business, please contact:

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