



Private Company

Advanced thermal insulation materials

Background

We are a well-established player in the construction materials sector, offering a diverse range of high-performance solutions. Within our portfolio, we specialize in building envelope applications, prioritizing the enhancement of energy efficiency, safety, and long-term durability. As energy efficiency becomes a central pillar of building performance, energy codes continue to evolve, pushing for more stringent insulation requirements across both new construction and retrofit projects. These codes directly impact the materials used in building envelopes by demanding better thermal performance with less energy loss, and increasingly, within tighter spatial constraints.

R-value, or thermal resistance value, is the standard measure of how well a material resists heat flow: the higher the R-value per inch, the better the insulation. Most conventional insulation materials, such as closed-cell spray foam or polyisocyanurate boards, offer R-values between 5 and 7 per inch. While effective, they struggle to meet newer energy code thresholds within the space constraints of existing buildings. Alternatives like vacuum insulated panels offer superior R-values above 25 per inch but are limited by high costs, fragility, and installation complexity. New materials with significantly higher R-values per inch would unlock high-performance insulation for space-constrained retrofits. These innovations would enable existing buildings to meet or exceed modern energy codes without compromising interior space or requiring costly structural alterations.

What we're looking for

We are in search of advanced insulation technologies with high R-value per inch and Class A fire performance, specifically engineered to optimize insulation in space-constrained areas within existing buildings.

Solutions of interest include:

- Advancements to PIR (polyisocyanurate) foam
- Aerogel-based insulation composites
- Nanostructured foams and other advanced nanomaterial insulation
- Alternatives with better installed performance potential

Our must-have requirements are:

- Achieves an R-value of 7 or greater per inch
- Meets Class A fire ratings per both UL790 and ASTM E84

Our nice-to-have's are:

- Meets ASTM E136 non-combustibility standard

What's out of scope:

- Any technology that has no potential to be deployed at large scale in a manufacturing plant within 3-4 years
- Vacuum insulated panels

Acceptable technology readiness levels (TRL): Levels 1-9

1. Basic principles observed
2. Concept development
3. Experimental proof of concept
4. Validated in lab conditions
5. Validated in relevant environment
6. Demonstrated in relevant environment
7. Regulatory approval
8. Product in production
9. Product in market

What we can offer you

Eligible partnership models:

- Sponsored research
- Co-development
- Supply/purchase
- Licensing
- Material transfer

Benefits:

- **Sponsored Research**
Up to \$100,000 for a 12-month engagement with option to renew.
- **Expertise**
Internal expertise in the R&D labs and with the R&D chemists and engineers.
- **Data**
We can provide existing data, and any support needed with collecting data and subsequent analysis.
- **Facilities and Services**
Access to our testing and lab capabilities.

Please contact the University of South Florida Technology Transfer office representative for submission – Karla Schramm at kschramm@usf.edu