



**By Sandy Meindersma
Correspondent**

Posted Jul. 5, 2015 at 6:00 AM

SPENCER - A collaboration between FLEXcon and the NASA Glenn Research Center has resulted in an exclusive license agreement for the Spencer company that will extend beyond the aerospace industry.

The license agreement announced last month gives FLEXcon and its subsidiary, Blueshift International Materials Inc., exclusive rights to manufacture and market the Glenn Center's newest polyimide aerogel.

"This is the first time we've worked with NASA," said William Sullivan, vice president of performance products for FLEXcon. "We are excited about this product, and so is NASA."

The privately held company has 1,000 employees, including 635 in Spencer. Blueshift International Materials is based in Texas, where much of FLEXcon's work with aerogels takes place.

Locally, employees in Spencer add adhesives, foils and other substrates to the patent-pending aerogel before it is sold to their customers from a number of different industries.

The Glenn Center's new polyimide aerogel is not only 500 times stronger than the traditional silica aerogel, but it is also thinner and can be custom-made as molded shapes and thin films.

Aerogels, which are used in thermal applications, are a low density solid produced from a gel and contain a high percentage of air within the solid, which makes them lightweight and excellent insulators.

Mr. Sullivan said polyimide aerogels are preferred to silica aerogels because they are a denser, more stable product. A polyimide aerogel is polymer based, as opposed to silica, which gives it greater flexibility.

"It doesn't crack or leave gaps when it is applied," he said. "It's also self-contained and doesn't release any particles, so protective gear is not needed for installation. They are really the best of both worlds."

In space, polyimide aerogels are used as insulation for cryotanks and spacesuits.

Polyimide aerogels are used on Earth, as well. Commercial markets that use the aerogel include construction, consumer electronics, consumer appliances such as refrigerators and dishwashers, the oil and gas industry, as well as in clothing.

The automotive industry uses polyimide aerogels as a thermal barrier and to reduce vibration, while the medical industry uses them to serve as a portable cooler to keep medicines at a constant temperature.

Mr. Sullivan said the company's license with the Glenn Research Center in Cleveland came about through a cooperative effort of all three parties, yet FLEXcon is no stranger to new technology.

"The McDonough family (owners of FLEXcon) has always been innovative," Mr. Sullivan said. "With the NASA intellectual property, and our knowledge of the market, it's a good fit for us.

"We have already had inquiries about it," he said. "Anytime you get intellectual property from NASA, and it's a successful venture, then that's a good thing."

Glenn Research Center Director James Free said he was very pleased to gain a commercial partner for its aerogel technology.

"We have hundreds of technologies available, and it is extremely gratifying when the private sector adapts NASA innovations," Mr. Free said.

Mr. Sullivan observed that NASA is conducting numerous tests and experiments in space, and it is very exciting to bring their work to the commercial marketplace.

While the license agreement took effect last month, FLEXcon has been working with other polyimide aerogels for some time and the NASA aerogel is a welcome addition to the company's portfolio of products. Mr. Sullivan declined to comment on the financial impact of the new aerogel, saying that it was too early to measure it.

"We are still in the early stages of the product, and there is a lot of excitement about it," he said.

Mr. Sullivan said that in addition to the financial benefits of bringing one of NASA's products to market, FLEXcon continues to be a leader in Central Massachusetts in innovation and manufacturing.

"Innovation is alive and well in Worcester County," Mr. Sullivan said. "We are helping to grow markets, produce in the United States and keep manufacturing alive."