



Trexel brings its MuCell® blow molding technology to markets beyond traditional automotive applications

*Trexel engineering and innovation changes the game in blow molding.
Offers 20% weight reductions without compromising impact strength and product performance
No significant investment in machine or die head modifications
Rapid implementation
No royalties or license fees*

(Trexel, Inc., Wilmington, MA August 23, 2022)... A leader in providing light-weighting solutions to plastic injection molders and automotive blow molders, has recently extended its license and royalty free Trexel MuCell® foaming solution to blow molded components across other industries. Trexel has long been active in automotive blow molding applications currently targeting HVAC ducts in electric vehicles to reduce weight, improve insulation, and extend battery life. Now, as a result of breakthrough innovations, Trexel has added a range of packaging solutions in cosmetics, detergent, and other household products. Trexel is well placed to service these markets due to its current worldwide support and infrastructure.

What makes this expansion possible is a recent Trexel innovation which permits significant light-weighting of packages while meeting impact strength requirements of the packages. This Trexel innovation means that the technology can be applied to larger bottles and those with more complex geometry including handles. Until the discovery of this invention, any package which was sensitive to significant impact loss could not pass the necessary tests for commercialization. This is no longer the case.

The process and equipment are simple and inexpensive to implement. It requires the royalty/license free purchase of a CE rated specially designed SCF system from Trexel which can be added to an existing blow molding machine without changing the screw and barrel. It is also utilizing the same style of die tool as used in solid production. This results in a system that can be used for foaming or solid as needed with a fast implementation time.

Besides significant weight savings (up to 20% in most cases), there are several highly desirable attributes of foamed versus solid blow molded parts. Critically, physically foaming with Trexel's MuCell process addresses today's needs for new processes to enhance recyclability, reduce resin consumption and offset the added cost of materials such as PCR/PIR which molders must begin to adopt to meet emerging regional and national regulations that are likely to be in effect by 2025. This alone is



driving interest in light weighting, provided that mechanical properties can be met. Trexel is currently working with several major brand owners to incorporate physical foaming technology to reduce product weight, energy costs and lower resin consumption while maintaining required product function requirements.

Compared to products made with chemical foaming agents (CFA), the microcellular material structure gained through physical foaming with Trexel's MuCell process has the potential for larger density reductions by utilizing more uniform cell morphology with reduced cell size. The nature of these improvements enhances mechanical properties. This allows larger bottles with more complex shapes to be made. Trexel's MuCell foamed parts can also be recycled and incorporated with ease back into the regular polymer stream. Parts made with the MuCell process are not hindered by waxes and stearates that often cause mold build-up and other problems.

How the system works:

The Trexel MuCell B-Series SCF (Supercritical fluid) delivery system is a state-of-the-art CE marked dosing unit designed specifically for blow molding applications. A self-adjusting feature of the SCF system assures consistency and precise dosing shot to shot.

It is designed to convert industrial grade nitrogen into supercritical fluid. The supercritical fluid (N^2) ensures that there is the solubility of a liquid and diffusivity of a gas. This maximizes the efficiency and promotes the low amounts of N^2 in the parison which allow for the largest processing window and best efficiency.

The SCF system precisely meters the supercritical fluid using Trexel's proprietary protocols. It takes some basic outputs from the blow molding machine and provides a metered dose each shot thus to keep the expansion rate accurate shot to shot. The system will learn the behavior of the blow molding machine and make required corrections in a matter of shots. There is an onboard statistical process control and monitoring system which reports back the results of the learning sequence as the shots are performed.

The B-Series SCF delivery system is available in two different configurations and two sizes depending on the size of the parison and the accumulator head.

- B-120 or B-320- For continuous screw rotation, Accumulator head and extrusion blow-molding.
- B-100 or B-300- For intermittent screw rotation, Accumulator head blow molding.

"We are excited about the interest we have received so far. Trexel's know-how, our specialized gas delivery system, and our proprietary process package combine to



deliver results which were not previously attainable to these markets,” said David Bernstein, Interim CEO of Trexel, Inc. “We are bringing an efficient sustainability solution to markets that are eagerly searching for ways to reduce their environmental impact.”

About Trexel, Inc.

Trexel, Inc., headquartered in Wilmington, MA, has led the development of the MuCell® microcellular foaming injection molding technology and has pioneered many plastic processing solutions. The MuCell® technology provides unique design flexibility and cost savings opportunities by allowing plastic part design with material wall thickness optimized for functionality and not for the injection molding process. The combination of density reduction and design for functionality often results in material and weight savings of more than 20%. The numerous cost and processing advantages have led to rapid global deployment of the MuCell® process in automotive, consumer electronics, medical, packaging and consumer goods applications. Process deployment as well as equipment is supported by teams of highly qualified engineers through Trexel subsidiaries in North America, Europe, and Asia.

Trexel extended its product offering with the TecoCell® system. TecoCell is a unique chemical foaming and nucleating agent technology that provides uniform microcellular structure to molded parts.

For more information, please visit www.trexel.com.

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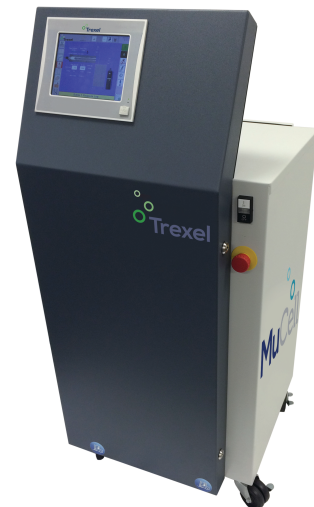
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Caption for Photo: B-Series SCF Delivery System for Blow Molding Applications reduces production cost while increasing environmental sustainability.





Caption: Example bottle with 50% PCR in the core layer made with the MuCell process. The bottle has significant light-weighting of the package while meeting impact strength and toplow requirements.