Technological leap in Celstran® LFT and MuCell® technology

Celstran® LFT structural components

The very good material properties of Celstran® LFT can now be exploited even more successfully in components produced by the MuCell® process. This is ensured through a new screw design developed in partnership with Trexel, Inc. and processing parameters specially optimized to the MuCell® process.

Large lightweight moldings and structural profiles can now be produced from Celstran® LFT with virtually no warpage.
**MuCell® technology with Celstran® LFT**

Microcellular foam plastics can be produced by mechanical or chemical dispersion of a gas, normally carbon dioxide or nitrogen, in the polymer melt. Nucleation and expansion of the gas bubbles as the mold cavity is filled create a closed-cell microfoam, so enabling lightweight components. Unlike with conventional short-fiber-reinforced materials, in Celstran® LFT, the long fibers mechanically interact with each other in the molded component. They form a glass fiber framework that restricts anisotropic shrinkage and significantly reduces warpage. This property profile makes Celstran® ideally suitable for use in structural components with high mechanical property requirements.

As a result of the newly developed screw design and optimized processing parameters, the long fibers in Celstran® LFT can now be processed much more gently in the MuCell® process. The result is a significant improvement in component properties and new opportunities for designers and injection molders to create large structural components virtually warpage-free, while saving weight at the same time.

### Comparison between the standard and new screw

![Comparison between the standard and new screw](image)

- Fewer mixing flights
- Optimization of the non-return valve
- Lower compression

### Comparison of properties obtained in the MuCell® process with conventional and optimized parameters

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<th>MuCell® traditional parameters</th>
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**Celanese and MuCell® technology:**

As a Trexel licensee, Celanese has been investing considerable effort in the physical microfoam injection molding process (MuCell®) for some years now and was one of the first polymer producers to do so. Now, Celanese operates its own MuCell® plant in its Plastics Technical Center and has acquired a wealth of experience in this technology.

**Suitable Celanese plastics for the MuCell® process:**

- Celanex® PBT
- Hostaform® POM
- Fortron® PPS
- Celstran® LFT

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