

TecoCell H1 is a chemical foaming and nucleation system targeted for use with polyolefin and polystyrene materials to provide assistance to the injection molding process with attributes including:

- Lower melt viscosity
- Faster cycle times
- Lighter parts
- Lower clamping pressures
- Lower molded in stress
- Better dimensional stability
- Elimination of sink marks
- Elimination of voids in thick sections
- Larger process window

### Equipment:

Although TecoCell can be run on a typical injection molding machine if the nozzle is adjusted to a lower temperature, it is recommended to use a shut off nozzle and a tool with either a cold runner system or a valve gate to prevent drool.

### Processing Parameters:

TecoCell H1 has a single activation temperature of 393°F (200°C). The activation process must take place in the higher compression area or metering section of the screw. This will prevent the CO<sub>2</sub> gas from escaping through the material feed throat.

**Preferred Melt Temperature:** 420°F-500°F

### Typical Barrel Profile:

Temperatures are given as a minimum to insure reaction of foaming agent, higher temps might be needed if part or material requirements dictate.

Section	Temperature °F	Temperature °C
Zone 1	385	195
Zone 2	410	200
Zone 3	420	215
Standard Nozzle	380	190

**Mold Temperature** is generally cooler than the typical settings.

**Injection Speed** should be set be as fast as possible to achieve maximum foaming agent expansion.

**Shot Size** should be reduced about the amount desired for the weight reduction of the part. Generally up to 10%. Thinner walls and longer flow length give lower weight reduction.

**Screw Speed** should be set at higher speeds to enhance mixing.

**Back Pressure** should be set high enough for proper mixing of the concentrate and to prevent back flow of CO<sub>2</sub> gas.

**Hold Pressure** should not be used as it will interfere with the foaming system. The elimination of this step in the molding process will reduce cycle times.

**Venting** must be located at the end of the fill and generous to prevent short shots in the part.

**Clamping Pressure** should be decreased to at least ½ the force used with the typical process. This will assist in the venting of the tool and prevent wear at the parting line.

**Blending in concentrate** should be done with a typical volumetrics or gravimetric feeder and should be used at 1-2.5%. Lower levels will not be effective and higher levels could cause excessive gassing on the surface of the part.

### General Discussion:

Surface finish of rough or swirled look can sometimes be seen with the use of TecoCell. A “stippled” grain on the part, lowering the % CFA used, increasing the hold pressure or increasing the mold temperature will all help to improve the surface aesthetics of the molded part.

The foaming activation of the TecoCell system is generally at 5-10% weight savings. The amount of savings will be controlled by factors in the part and mold design. The wall thickness, flow length, vent placement, gate placement and other part design features will be factors in the amount of foaming action that occurs in an injection molded part.

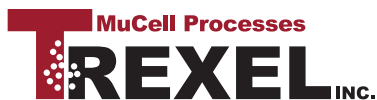
## About Trexel

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 recently extended its product offering with the TecoCell® system. TecoCell is a unique chemical foaming technology that provides uniform microcellular structure to injection-molded parts.

For more information, please visit [www.trexel.com](http://www.trexel.com).

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