



Press release

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### **PTI develops first lightweight foamed PET bottle/jar blow molding process for food, beverage applications**

**Holland, Ohio** (May 19, 2009) —Plastic Technologies, Inc. (PTI) has developed the first lightweight foamed polyethylene (PET) bottle/jar blow molding process. Marketed under the oPTI<sup>SM</sup> (pronounced “opti”) brand name, the process is based on MuCell® technology licensed from Trexel, Inc.

The capability will now provide food and beverage brand owners with a broader range of PET container aesthetics and performance capabilities than previously possible. For example, the process enables white or silvery colored bottles to be made without additives which can limit package recycling. Containers also have a unique surface feel and provide tactile “traction” which minimizes slipping. This process also blow molds details more prominently which enables decorations, such as embossed logos, to stand out better.

The oPTI<sup>SM</sup> bottle technology provides desirable features for those brand owners looking for a distinctive new visual presence, while at the same time retaining the recycling benefits that inclusion in the clear PET waste stream offers.

“White oPTI<sup>SM</sup> bottles provide an environmentally-friendly option to conventional bottles which use additives to achieve a similar tint. Instead of being a contaminant to the clear recycling stream, white foamed bottles will mold into a transparent bottle after remelting and subsequent processing,” explains Frank Semersky, vice president, PTI.

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In addition to white or silver, blue and green hues also can be used since those color streams already exist in traditional PET recycling. The technology also is capable of producing bottles in a variety of pastel colors (amber, yellow, pink, etc.). However, these cannot be recycled as part of the clear PET stream. Containers can be made from slightly translucent to opaque depending on the desired aesthetics and performance characteristics.

Because the foam process adds stiffness, lightweighting of up to 5 percent is also feasible without significant loss of performance. Further, the technology can produce bottles with significant light barrier characteristics—up to 95 percent reduction in transmitted light.

PTI's oPTI<sup>SM</sup> bottle capability is based on using the MuCell® microcellular foam injection molding technology to mold preforms, which then can be blow molded on conventional equipment. The bottles are made in four basic steps:

- Nitrogen is injected into the melt through the barrel on a modified perform molding machine to form a single-phase solution of polymer and gas.
- Foam is produced as cavity-fill pressure is dropped below nucleation pressure during the injection cycle.
- Foam cells expand as gas is diffused into bubbles. Processing conditions are used to control cell growth in the finished perform.
- The preforms are blow molded on conventional, unmodified blow molding machines to produce the foam bottles.

“Initial evidence is that at higher gas levels, foam containers can withstand hot filling without excessive shrinkage. This means that hot-fill applications are within the realm of possibility,” Semersky says. “We also can run foam bottles with a variety of barrier additives to meet shelf life concerns.”

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In addition to PET, the foam bottle technology is applicable to other resins such as polylactic acid (PLA) and polyethylene naphthalate (PEN). Potential applications include a wide range of bottles and jars in food, beverage, personal care, household chemical, etc. markets.

PTI is already well known as the ‘think-tank’ for companies wishing to develop new PET containers. Its state-of-the art pilot production and testing capabilities, coupled with the company’s technology knowledge, enables PTI to offer package development services which are second-to-none. This latest announcement is in keeping with the company’s strategy to expand far beyond traditional rigid container packaging.

Plastic Technologies, Inc. (PTI) is recognized worldwide as the preferred source for preform and package design, package development, rapid prototyping, pre-production prototyping, and material evaluation engineering for the plastic packaging industry. For more info: [www.plastictechnologies.com](http://www.plastictechnologies.com).

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