



## Controlling the Size and Shape of Polymer Micropellets

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**WARF: P130088US01**

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**The Wisconsin Alumni Research Foundation (WARF) is seeking commercial partners interested in developing a method to form pellets from a polymer melt using high-speed gas.**

### Overview

Polymer-based pellets are utilized in plastics manufacturing. In particular, very small micropellets and powders are in special demand for processes like selective laser sintering (SLS), which requires particles of specific size and shape to build prototypes.

Controlling these properties is challenging. Previous approaches have been expensive, or work only for some polymers. Such problems have hindered the manufacturing and implementation of a variety of micropellet types.

### The Invention

UW–Madison researchers have developed a micropelletizing process for controlling the size and shape of polymer particles.

In the process, a thin melt of polymer material is extruded through a nozzle. The stream is fractured as it exits the nozzle using a blast of high-speed gas that generates drag force and breaks up the stream into droplets. The individual droplets cool and solidify into pellets. Factors like temperature, speed and extrusion rate are used to control droplet formation.

### Applications

- Plastics processing
- Laser sintering
- Polymer-based parts and medical devices

### Key Benefits

- Droplets have consistent size and shape.
- Process can be tuned to control droplet properties.
- Droplets can be repeatedly formed and solidified.

### Additional Information

#### For More Information About the Inventors

- [Tim Osswald](#)

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- [WARF reference number P100314US02 describes a micropelletizing process that utilizes Rayleigh disturbances.](#)

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#### Related Intellectual Property

- [View Continuation Patent in PDF format.](#)

#### Tech Fields

- [Materials & Chemicals : Polymers](#)

For current licensing status, please contact Michael Carey at [mcarey@warf.org](mailto:mcarey@warf.org) or 608-960-9867

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