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Reference: Supercritical Fluids

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Method of Forming Particles of Controllable Size Using Supercritical Fluids

Overview

Auburn University is seeking licensees for a new method of forming nanoparticles and microparticles of controllable size using supercritical fluids with enhanced mass transfer. The current invention provides a significantly improved method for the production of nano and micro-particles with a narrow size distribution. The processes of the invention utilize the properties of supercritical fluids and also the principles of vibrational atomization to provide an efficient technique for the effective nanonization or micronization of particles.

Advantages

- Sizes of the particles obtained by this technique are easily controlled
- This technique can be successfully used to obtain nanoparticles of materials that usually yield fibers or large crystals in SAS method
- Microencapsulation via co-precipitation of two or more materials can also be achieved
- This technique allows for the control of particle size, particle size distribution and particle morphology

Description

The processes and methods involved in the invention can be used for producing nanoparticles of a wide variety of materials such as polymers, chemicals, pesticides, explosives, coatings, catalysts and pharmaceuticals. The invention relates to a method for the production of micron or nanometer size particles by precipitation, wherein a dispersion containing the substance of interest is contacted with a supercritical fluid antisolvent under near or supercritical conditions in order to maximize micro or nanoparticle formation. The invention also provides techniques to control the particle size, particle size distribution and particle morphology. The invention also includes supercritical fluid coating or composite material particle formation, wherein encapsulation of one substance by another substance or co-precipitation of more than one substance in the form of micro or nanoparticles are achieved in the supercritical fluid antisolvent.

Status

- Issued U.S. Patents [6,620,351](#)

Licensing Opportunities

- This technology is available for [immediate non-exclusive licensing](#) through Auburn's customizable "[Ready to Sign](#)" licensing program.
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