Method and Apparatus for Producing Colloidal Nanoparticles in a Dense Medium Plasma

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The Wisconsin Alumni Research Foundation (WARF) is seeking commercial partners interested in developing a method for producing large quantities of nanoparticles in a dense fluid medium.

OVERVIEW

Nanoparticles are important components in the development of sensor, aerosol, filter, biomedical, dielectric, optical and electronic applications. Various procedures to produce nanoparticles exist; however, these methods are not economical for industry, which requires the production of large quantities of nanoparticles.

THE INVENTION

UW-Madison researchers have developed a method for producing a colloidal dispersion of nanoparticles of at least one conductive material in a dense fluid medium. The dense fluid medium is a liquid at the operating conditions of a plasma reactor. Specifically, the nanoparticles of the conductive materials can be produced by generating a plasma reaction between two electrodes made of the desired conductive material, which are immersed within the dense fluid medium. Preferred materials for the electrodes include carbon, copper, silver, gold and platinum. The electrodes may also be made of different materials to produce colloidal suspensions with more than one conducting material.

APPLICATIONS

• Production of large quantities of nanoparticles

KEY BENEFITS

• Simple
• Convenient
• Low-cost method
• Produces large quantities needed for industrial applications, such as water treatment or treatment of biological fluids
• Colloidal silver is effective as a bactericide
• Can be used to control viruses and spores

ADDITIONAL INFORMATION

Tech Fields
Materials & Chemicals - Metals
Plasma Processing - Materials processing

CONTACT INFORMATION

For current licensing status, please contact Mark Staudt at mstaudt@warf.org or 608-960-9845.