Environmentally Friendly Manufacturing of Nano, Micro and Sub-micro Fibers with Hybrid CAB System

Tech ID: 21818 / UC Case 2006-682-2

ABSTRACT

Researchers at the University of California, Davis have developed a novel and high throughput production process of making nano/submicro-sized fibers.

FULL DESCRIPTION

Researchers at the University of California, Davis have developed an environmentally friendly manufacturing method for nano, micro and sub-micro fiber. The process uses a hybrid cellulose acetate butyrate (CAB) system, with CAB as a matrix material. By extruding *in-situ* micro or submicrofibrillar CAB and polymers (polyolefin, polyesters, and proteins) into regular size fibers, CAB serves as a sacrificial matrix and other polymers as micro/nano-fibrills in the matrix in coarse fiber form. After removal of CAB with acetone extraction, micro, as well as, submicro fibers can be produced.

APPLICATIONS

- Producing nano, micro or submicro fibers from polyester, polyolefin, and many other polymers
- Biomaterials including tissue engineering in bio-medical applications, functional textiles, filtration media and nano sensors

FEATURES/BENEFITS

- CAB is recyclable and reusable
- Produce nanofibers faster than current technologies
- Mass produce nanofibers in continuous yarn forms
- Possible to make woven fabrics from the nanofibers (current processes can only make non-woven fabric)

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	8,105,682	01/31/2012	2006-682

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OTHER INFORMATION

KEYWORDS

Textiles, Submicron fibers, Nanofibers, Polypropylene microfibers, Cellulose Acetate Butyrate (CAB), Biocompatible, Tissue engineering

CATEGORIZED AS

- **Biotechnology**
  - Health
- **Materials & Chemicals**
  - Textiles
- **Medical**
  - Other
- **Nanotechnology**
  - Materials
  - NanoBio

RELATED CASES

2006-682-2, 2011-620-1

ADDITIONAL TECHNOLOGIES BY THESE INVENTORS

- Fumigant Detoxification via Reusable Cotton Material
- Pesticide Detection: Methyl Iodide and Methyl Bromide
- Non-melting, Sustainable, Reusable, Plastic-Free and Biodegradable Food Coolant Cubes
- Photo-Rechargeable Antibacterial/Antiviral Materials

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