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

CONTACT

Pooja N. Bhayani pnbhayani@ucdavis.edu tel: .



INVENTORS

- ▶ Sun, Gang
- ▶ Wang, Dong

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

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ADDITIONAL TECHNOLOGIES BY THESE INVENTORS

- ► Fumigant Detoxification via Reusable Cotton Material
- ▶ Pesticide Detection: Methyl Iodide and Methyl Bromide
- ▶ Photo-Rechargeable Antibacterial/Antiviral Materials

University of California, Davis

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1 Shields Avenue, Mrak Hall 4th Floor,

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Davis,CA 95616

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Fax:

530.754.7620

530.754.8649