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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 | 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](#)

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