

FLUIDNATEK[®]

by Biolnacia

LAB TOOLS

USE CASES

FLUIDNATEK™ Lab Tools are research instruments designed for the fabrication of small spherical and fibrous particles (with diameters ranging from the micro to the nanoscale) as well as for the creation of thin film coatings. The particle manufacturing process of FLUIDNATEK™ tools relies on **eStretching (electrospray and electrospinning)**.

Using physical forces, instead of chemical, **micro & nano particles** of many different materials can be obtained: biopolymers, proteins, carbohydrates, macromolecules, synthetic and natural polymers, sol-gel materials, ceramics and glasses.



APPLICATIONS

The instruments provide the scientists with a very flexible platform for their research in diverse areas such as:

BIOTECHNOLOGY

- Tissue Engineering
- Immobilization and stabilization of microorganisms
- Scaffolds
- Controlled Release

MATERIALS SCIENCE

- Energy
- Catalysis
- Coatings
- Sensors

MEMBRANES

- Filtration
- Selective separation of fluids
- Textiles
- Food Packaging

MICRO & NANO ENCAPSULATION

KEY BENEFITS

▶ FUNCTIONAL

Maximized productivity of scientists and technologists.

Remote control and monitoring from the desk.

Low death-volume. Ideal to work with very expensive products.

Unique to FLUIDNATEK™: **high throughput coaxial (and multi-axial) processing.**

▶ USER-FRIENDLY

Control from touch screen.

Intuitive software and user-friendly design.

PLUG & PLAY accessories.

▶ VERSATILE

Work with many types of materials and solvents.

Field upgradable with optional accessories.

▶ ROBUST

Extensively **peer tested** by our worldwide customers.

Chemically resistant design for use with most organic solvents.

▶ CUSTOMER-DRIVEN

FLUIDNATEK™ has a long track record in providing customized solutions that **meet your special needs** and **fit your budget.**

▶ QUALITY & SAFETY

FLUIDNATEK™ is **compliant** with the required **regional and industrial standards.**

Proper solvent exhaust system removes the risk of fire and explosion.

TECHNICAL DATA

▶ FUNCTIONAL HIGHLIGHTS

BIPOLARITY. Two power supplies. Up to 60 kV.

ACCURATE DOSING. From 0,73 µl/h to 1.257 ml/h.

NOZZLE. One liquid phase.

COLLECTOR. Flat stainless steel of 300 x 300 mm².

DISTANCE REGULATION (nozzle-collector) . 0-30 cm.

TOUCH SCREEN.

REMOTE CONTROL.

▶ ACCESORIES (optional)

Taylor cone visualization system.

Automated **nozzle linear motion.** 300 mm stroke.

Customized **rotating collectors** (drum, disc, mandrel).

Different nozzles: **coaxial, tri-coaxial, side-by-side.**

Blown or gas assisted eStretching.

Liquid heating.

▶ HIGH THROUGHPUT (optional)

Paralell injection for **high throughput.**

Continuous feeding of liquids.

Conveyor and roll to roll systems.

▶ CABINET CONDITIONING (optional)

Optimal for biological research.

Relative Humidity and Temperature control.

From 5% to 95% RH, and from 5°C to 50°C.

Anaerobic cabinets for oxygen-free applications.

Laminar Flow & Biological Safety cabinets.

▶ OTHER TECHNICAL DATA

Dimensions: 100 cm x 100 cm x 180 cm (l x w x h).

Input: 120-230V, 50/60Hz, 6A max. May require a

compressed air connection (6-8 bar) and water supply.

Working conditions: 20-40°C, 30-70% RH

eStretching

The eStretching technology relies on the application of strong electric forces to liquids. When a high enough voltage (tens of kV) is applied to a liquid flowing through a capillary tube,

a micro-jet is obtained. Downstream, the jet may break-up into tiny droplets (**electrospray**) or undergo a

whip-like motion (**electrospinning**), yielding to either **micro/nano spheres or fibers**, that are deposited on a collector.

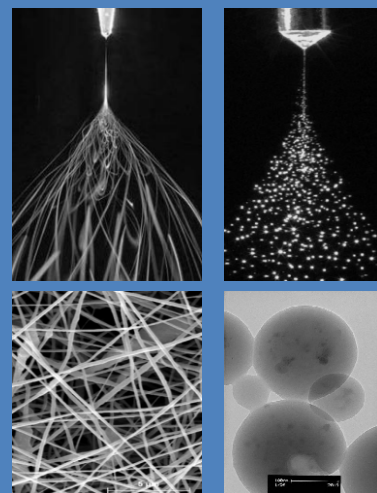
Similarly, a **coaxial** liquid jet can be obtained

if two liquids are flown through a coaxial nozzle. The **co-eStretching** enables the production of **Core-Shell and Hollow spheres and fibers.**

The **simplicity and flexibility** of the technology make it an interesting research tool for the development and production of

novel micro & nano materials for many different applications.

This processing technique is ideal for the **deposition of thin films and layers** and allows an **accurate control of the coating structure** (porosity) and **thickness** (from tens of nanometers).



MCiK
SINCE 2002
엠 · 씨 · 아이 · 케이®
MATERIAL CHARACTERIZATION
INSTRUMENTS, KOREA
TEL : 02-3143-2740
FAX : 02-3143-2753
E-mail : infor@mcik.co.kr
<http://www.mcik.co.kr>