



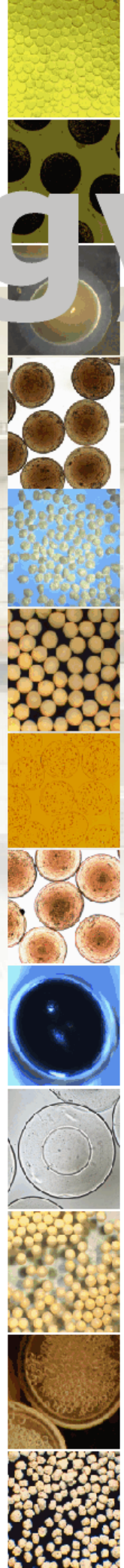
geniaLab[®]

Technology

R&D

Your **partner** in process development!

geniaLab is your partner for process development for particle formation, formulation, encapsulation, and immobilisation



geniaLab[®] is a specialist in particle formation, encapsulation, immobilization and formulation of a variety of compounds. The main focuses are toll-production of particles on industrial scale, development and manufacture of tools and equipment for R&D as well as the provision of related services.

geniaLab[®] offers its services in process development mainly based on its patented technologies of JetCutting and LentiKats[®]. We develop encapsulation or formulation procedures for vitamins, fragrances, powders, pigments, biocatalysts, probiotics, or other active substances based on a variety of biopolymers, synthetic polymers and melting material.

geniaLab[®] employs a highly qualified staff of scientists, engineers, and technicians with several years of experience in process development, employing encapsulation technology, chemical engineering, microbiology and analytics.

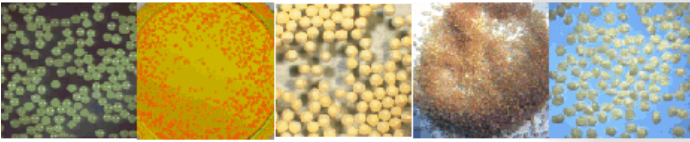
geniaLab[®]
BioTechnologie - Produkte und Dienstleistungen GmbH

© geniaLab 2004

Droplets and Particles by JetCutting

Basically all fluids that can be pumped can be processed with the JetCutter to defined droplets. Especially for viscous fluids JetCutting outmatches many of the competing technologies. Yet polymer solutions on basis of polyvinyl alcohol (PVA) or various biopolymers were processed successfully, as well as molten material like waxes or sugars.

Also slurries with high loading of insoluble material can be pressed.



wax, pigmented gum, pectinate, oil in alginate, alginate-coated amino acids

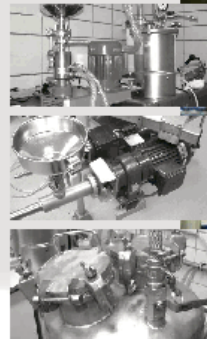
Application

JetCutting is the method of choice when small uniform particles have to be produced.

Especially when fluids, e.g. (bio)polymer solutions or waxes, of elevated viscosity have to be processed, JetCutting does a great job.

Compared to many other techniques for particle formation high throughputs are achieved by JetCutting.

JetCutting has been applied for a wide range of areas such as food, chemical and pharmaceutical industries, cell immobilisation (bioconversion, therapeutics), waste water treatment, agro-biotechnology ...



Capability of JetCutting

Throughput

With our patented JetCutter technology very high throughputs can be realized. They are rising with increasing particle size and bead formation frequency:

bead Ø / mm	bead formation frequency / Hz		
	1'000	5'000	10'000
0.2	0.02	0.08	0.15
0.6	0.41	2.04	4.07
1.0	1.89	9.42	18.8
2.0	15.1	75.4	151

throughput in kg/(h·nozzle), fluid density 1 kg/L

Material

Preferably viscous materials up to several thousand cP, paste-like material, suspensions highly loaded with insoluble powder, molten material.

Particle Sizes

JetCutting is capable for producing particles of a wide range of diameter. Particles between 100 µm and 5 mm have been prepared successfully by our JetCutters.

Viscosity

Due to the mechanical cut the JetCutter can cope with fluids of considerable viscosity of 10.000, 15.000 or even more cP. Fluids having a viscosity like shampoo, honey or even liquid pastes were tested successfully.

Size Distribution

By controlling the cutting tool's speed and the flow rate of the fluid very uniform droplets are formed.

Bioencapsulation

geniaLab[®] offers the huge know how of being for many years "inside" bioencapsulation technology. We have experience in a large variety of (bio)polymers and biocatalyst systems.

geniaLab[®] mainly uses proprietary technologies like JetCutting for bead formation or special entrapment in PVA hydrogels like LentiKats[®] or geniaFoam[®].

geniaLab[®]'s Facilities

For particle formation we run permanent set-ups of different JetCutter machines for working with a huge variety of fluids (aqueous, molten, suspensions, aseptic), pumps and pressure vessels (0.5 to 1000 L) and equipment for fluid preparation.

For characterisation and quality assessment we offer an analytical lab with microscopes, Brookfield viscosimeter, spectro-photometry, HPLC...

For biotechnology we run a fermentation lab with two Braun 30 L fermentors, various incubators, microbial labs (S1) with sterile work bench, autoclave, anaerobic jar box, centrifuges...



For our production of equipment we offer complete mechanical and electronical workshops allowing quick adjustment of set-ups to your special needs.

Our Offer

geniaLab[®] offers the complete range of service to assist you in process development when it comes to particle formation, encapsulation, or immobilisation.

We create novel products that add value to your application, e.g. by controlled release, protecting sensitive compounds, adding eye-appeal.

We evaluate our technologies for your existing particle formation processes for optimisation including sample preparation.

We can do broad process development ranging from procurement of raw materials to packaging of the product - giving the data basis for your cost estimations.

Please get into contact with us -
Together we will find solutions for your tasks!

