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Network profile

Microfluidics community in the Netherlands enables breakthroughs in laboratory research, life sciences and process industry

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Controlling and handling of liquids is in the blood of the Dutch. This is true when it comes to either huge infrastructural constructions such as the Afsluitdijk or the Maeslant Storm Surge Barrier or when it comes to the handling of very small quantities of liquid or gas. In either case, the Dutch excel in this domain.

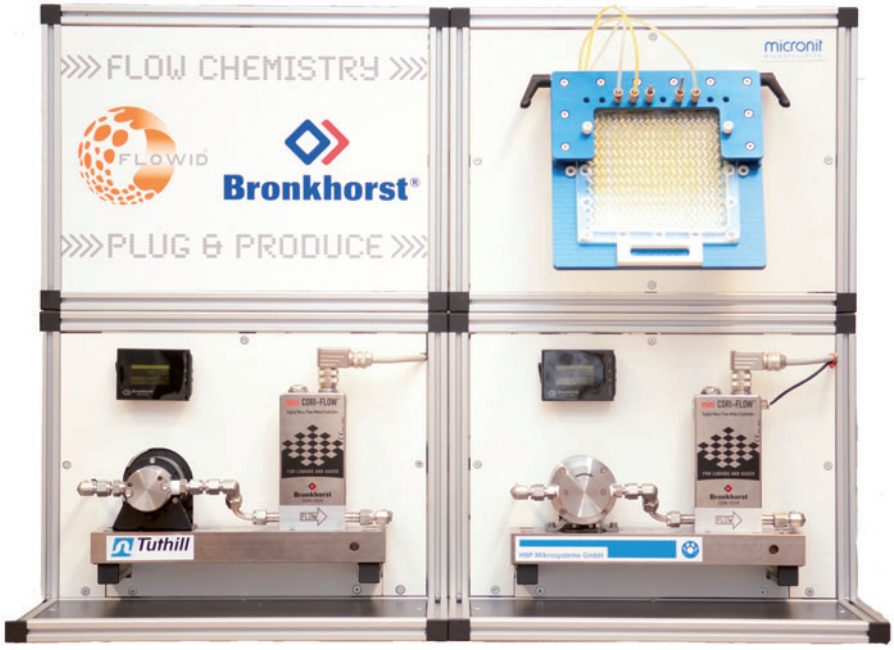
The Dutch Association for Microsystems and Nanotechnology MinacNed (www.minacned.nl) and the business cluster Microfluidics NL bring together Dutch specialist organisations in the area of microfluidics. Together they cover the complete microfluidic technology value chain from component level through to system applications.

Microfluidics is as a hotspot in microtechnology. The technology is developing fast, and continuously. Microfluidics is specifically enabling three application areas: research laboratory, life sciences and industrial processing.

Analytical laboratory equipment is the most basic application area for microfluidics. The importance of microfluidics for life sciences is growing. Market segments such as drug delivery through micro-nozzles or point-of-care diagnostics with lab-on-a-chip are already developed to a certain extent. New applications are also expected to arise in the chemical industry through microreactors, flow chemistry and process intensification. In the application area of process intensification, a major contribution from microfluidics may be expected in optimising the yield from raw materials and reducing energy use in production processes. Dramatic wins in terrains of sustainability are ahead.

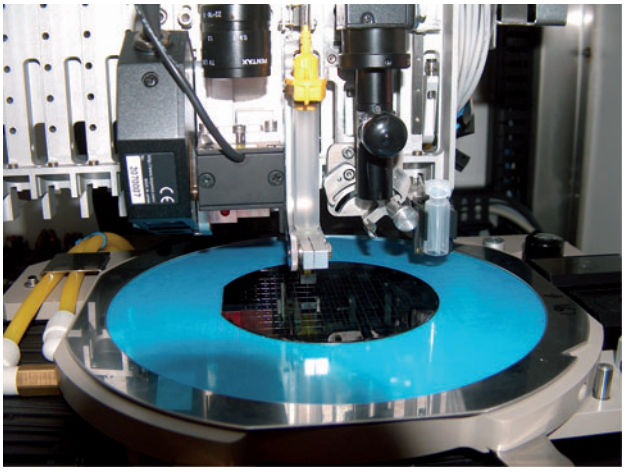
In the field of medical diagnostics, fast reaction times and the use of small sample sizes are both attractive features offered by microfluidics. The small size and low fabrication cost enables the transfer of diagnostics from the clinical laboratories closer to patients, thereby minimising response times. In systems biology main breakthroughs are expected, enabled by microfluidics. The injection of biocells can only be adequately executed by microfluidics.

Typically, microfluidic products can be divided into products to be used in production, where efficient mixing, material

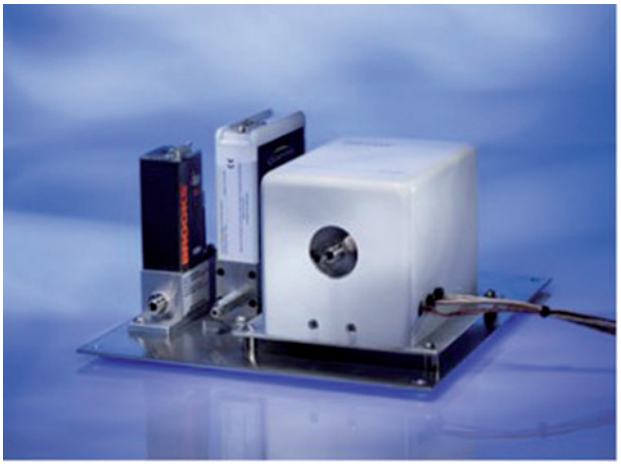


Plug and Produce Skid by Flowid, Future Chemistry, Bronkhorst High-Tech and Micronit Microfluidics.

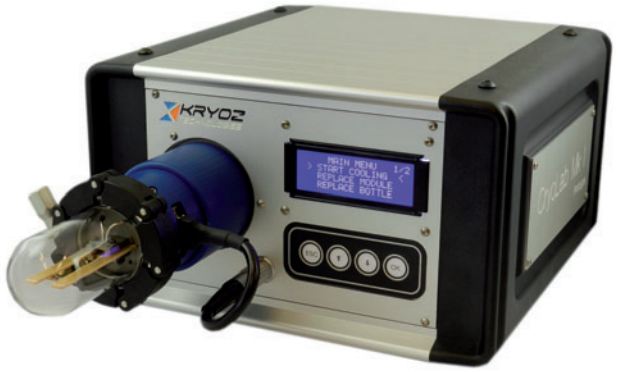
and heat transfer and more precise control of process are of importance, and products for more accurate measurement. A more precise measurement is needed when extremely small amounts of fluid must be detected. Examples in this domain are:



Microdispensing by MA3 Solutions.

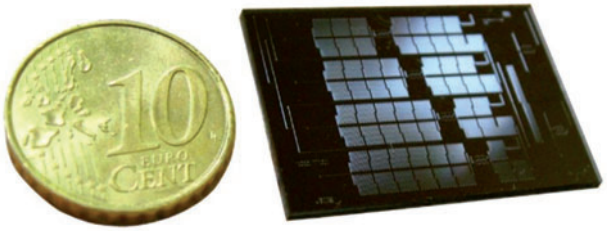


DLI (Direct Liquid Injection) Vapouriser by Brooks Instrument.



Kryoz CryoLab© by Kryoz Technologies.

High-throughput experimentation in microreactor chips by MESA and Institute.



MinacNed

MinacNed is the association of companies and institutes creating economic added value in the Netherlands based on joint activities among members and with relevant stakeholders in the field of microsystem technology and nanotechnology.

Within its vision, MinacNed sets itself the aim of having the Netherlands participate at an international level in all fields of enabling microsystem technology and nanotechnology and become and remain an international leader in a number of more precisely defined specialisms, such as microfluidics. MinacNed aims to realise an exponential increase in the applications of microsystem technology and nanotechnology in the Netherlands.

Activities

For the time being, MinacNed's basic activities comprise:

- *member meetings* to reinforce networks.
- *workshops* focussing on market development with specific groups of customers or potential customers of members/users of microtechnology and nanotechnology. Such workshops could be within the framework of development of joint roadmaps, as was the case in the past for Food and Nutrition.
- the annual *Netherlands' MicroNano Conference* in which, in addition to both objectives specified, we also strive for broad reinforcement of the image of the micro/nano industry, nationally and internationally. During the organisation of the Netherlands' MicroNano Conference, MinacNed collaborates with related organisations wherever possible.
- initiating and organising *specific clusters* within the association which need their own network and identity in the market, within the framework of MinacNed. Specific marketing activities can be set up for and with such clusters. When forming and running such clusters, collaboration with other industry organisations is possible, with the aim of preventing companies that fit in here having to join too many organisations at the same time.
- initiating, encouraging and to a certain extent facilitating the *formation of consortia* between members and groups of members with other stakeholders, focussed on joint R&D and/or marketing.

MinacNed Secretariat

MinacNed is affiliated to FHI, Federation of Technology Branches, within which a common secretariat, a common management, an administrative and a personnel unit are shared. Furthermore, this affiliation guarantees a connection with the application areas in the FHI branch associations for Industrial Electronics, Industrial Automation, Laboratory Technology and Medical Technology.

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