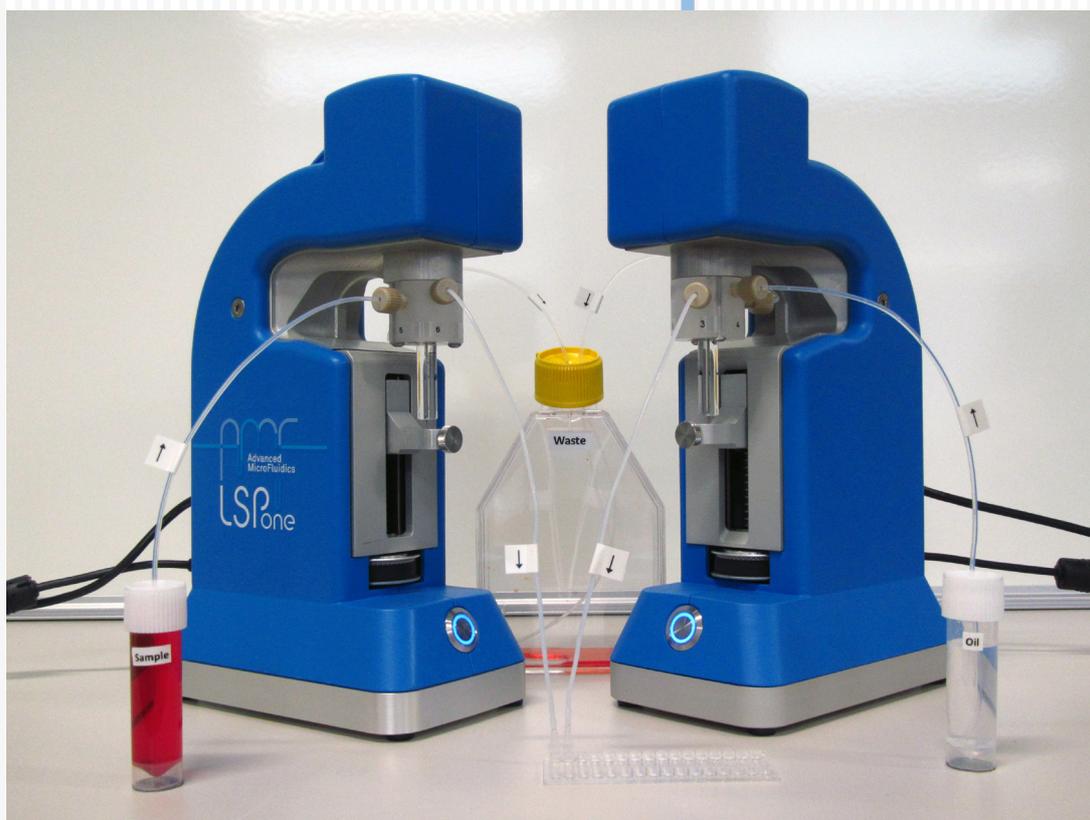


# APPLICATION NOTE

## USING THE LSPone WITH A CHIP

Advanced  
MicroFluidics  
Innovative  
automation solutions



### WHAT ARE WE DOING?

Our LSPone syringe pump can be used to interact with a chip. In this example, a droplet generation chip is used. It requires two simultaneous flows, thus two LSPone pumps.

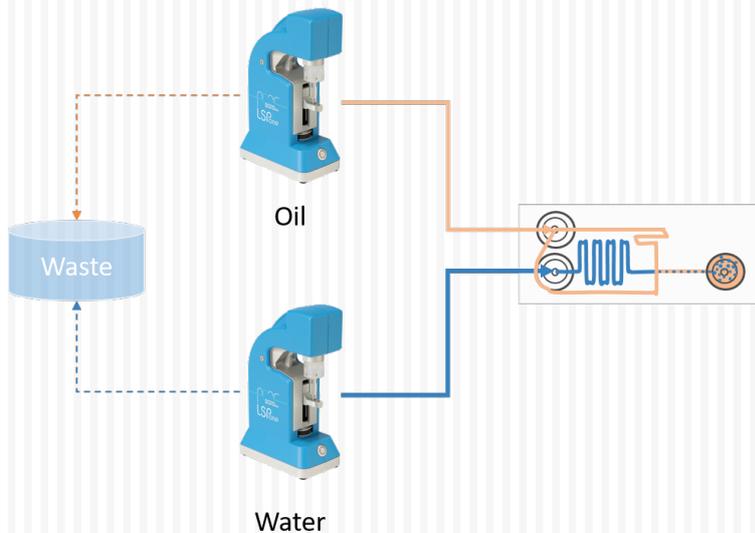
By changing the flow rates of both pumps, and more particularly the ratio between both flow rates, one can change the droplets' sizes. It is possible to connect multiple liquids at the entrance of the LSPone. This allows you to dilute liquids before doing droplets with the mixture. You could also automate a sequence of droplets of different liquids with a single syringe pump.

## HOW ARE DROPLETS FORMED?

The most common chip designs to create droplets are a t-shaped junction or a flow-focusing junction. In both cases, two different phases are required (oil and liquid) at specific flow rates.

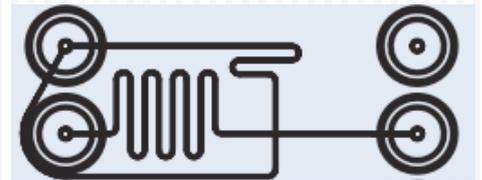


## SETUP



Chip used: droplet generation chip from microfluidic ChipShop (product number: 13-1007-0440-02), with a flow-focusing junction.

The top left part is connected to the oil, and the water passes through the serpentine in the middle. Thus water droplets are created in the oil carrier.



## POSSIBLE APPLICATIONS

- Encapsulation of cells, DNA or magnetic beads for research, analysis and diagnostics
- Protein crystallisation
- Drug delivery via polymer particles and drug formulation
- Bulk precision manufacturing of emulsions and foams for foods and cosmetics
- Nanoparticles, paints and polymer particles
- Droplet, emulsion, bubble or particle academic research

This list has been taken from Dolomites Microfluidics' website

## WHAT'S IN IT FOR YOU?

- An easy-to-setup pump (well, 2 even!)
- An intuitive software
- A simple, efficient apparatus for proof-of-concept droplet experiments
- A cost-friendly solution

### CONTACT US FOR MORE INFORMATION

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