

## Micromanipulation for Industrial Application -2

The last Narishige Web News discussed an example of industrial application in which a micromanipulator is used. This issue of Narishige Web News discusses applications in which a microinjector is used.

### Make a Tiny Drop



By using a microinjector together with micromanipulators, you can make a tiny drop of adhesive agent or a marker in a desired location.

A glass pipette is made with a pipette puller. The very thin pipette tip is filled in a desired fluid from the back. The fluid might not reach the very pipette tip due to its viscosity or other factors. In such case, a capillary with filament is used.\*<sup>1</sup>

Using a micromanipulator, bring the tip of a pipette to a point directly above the desired location. Then, positive pressure is applied with a microinjector to let the fluid out, while the pipette is lowered to reach the surface. \*<sup>2</sup> When the fluid has formed a drop in a desired size, you apply negative pressure with the microinjector and also raise the pipette. The size of drop is adjustable.

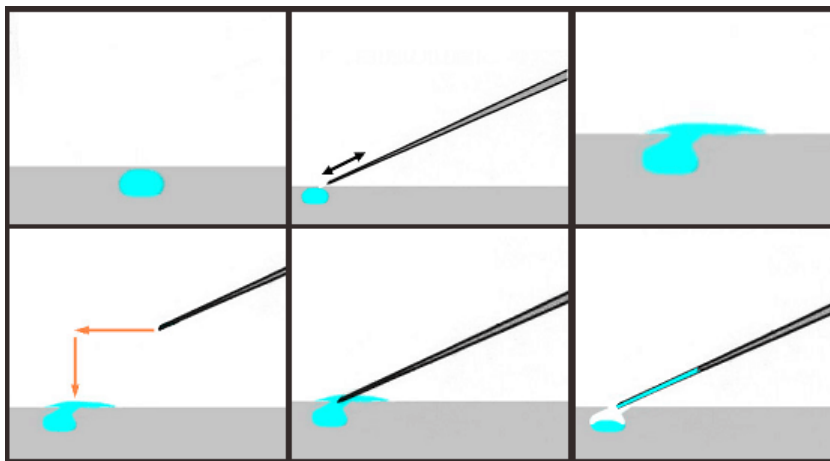
\*1 Difference between capillaries with filament and those without

A capillary with filament has literally a glass filament inside the wall. It allows fluid to reach the very pipette tip with the aid of capillary action when a pipette tip is very small.

\*2 Fluid does not drop onto the surface?

Despite positive pressure applied, fluid only goes up along the wall and does not drop onto the surface. The pipette tip needs to be in contact with the surface with positive pressure applied.

### Collect a fluid sample



A fluid sample can be also collected for analysis.

For example, when a fluid in question is located under a surface, a joystick micromanipulator is helpful for piercing and boring a hole to expose the fluid. If a glass pipette is not strong enough to penetrate the surface, you can also use a metal needle or surgical knife to expose the fluid in advance.

Then, a pipette tip is brought into the fluid and negative pressure is applied with a microinjector to get the fluid into the pipette.

In this way, Narishige micromanipulators and microinjectors are used to deal with micro-world tasks also in industrial fields. Narishige can help you also by making customized parts which are optimized to your particular purpose.

If you have any questions or need further information, please contact us.

Narishige Group Website

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