

**Dynamic surface tension in inkjet research and development**

**Product:** SITA pro line t15+, SITA science line t100  
**Industry:** Inkjet inks and printing  
**Measuring principle:** Measurement of the dynamic surface tension

Characteristic properties of inkjet inks depend largely on the surfactants used as wetting agents. Such properties are:

- Wetting capacity
- Droplet size
- Penetration depth
- Drying behaviour
- Run-out behaviour

The comparative analysis of the dynamic surface tension of the inks and their components helps to adjust and optimise the products.

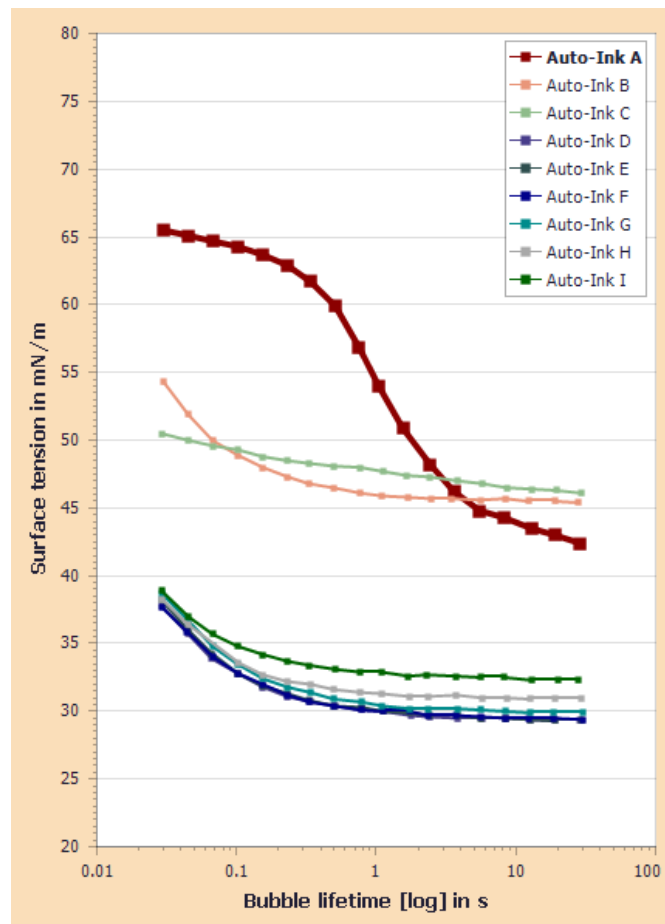
### ● Dynamic surface tension

Compared to static methods such as the ring method according to Du Noüy or the plate method according to Wilhelmy, the dynamic measurement of surface tension with very short contact times of a few milliseconds simulates the behaviour of the printing ink in practical use. The measurement parameter bubble lifetime reflects the surface age.

The SITA laboratory tensiometers SITA pro line t15+ and SITA science line t100 use the SITA LabSolution software to automatically record scans of the dynamic surface tension over a wide bubble lifetime range and compare several measurements at a glance. The results show, for instance, at which time a specific formulation reaches a desired surface tension. The comparison of different inks visualises differing wetting dynamics. In addition, the measurement shows a quasi-static surface tension for bubble lifetimes in the high seconds range.

### ● Automatic measurement

In order to increase concentrations automatically or to investigate a temperature behaviour on the wetting properties of an ink, further laboratory devices such as burettes and thermostats can be connected to the SITA tensiometers in the experiment via the SITA LabSolution software.



Picture 1: Dynamic surface tension of various inks



Picture 2: SITA science line t100