

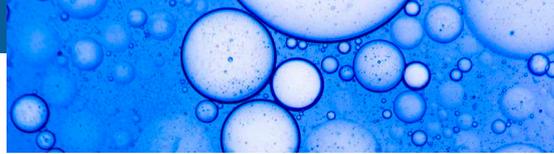
# SPINNING DROP TENSIOMETER – SDT



A NEW LEVEL OF  
INTERFACIAL TENSION  
MEASUREMENT

**KRÜSS**

Advancing your Surface Science



## HIGH-PRECISION INTERFACIAL TENSION MEASUREMENT – SIMPLE AS THAT

- **Measurement of interfacial tension in an extremely wide range**
- **Drop analysis using the Vonnegut and Young-Laplace methods**
- **Especially simple preparation with no changing of a septum**

For more than 30 years, we at KRÜSS have been providing customers all over the world with our spinning drop tensiometers to measure very low interfacial tension at the highest stage of precision and quality. Now, with the gathered know-how and application experience of three decades, we are launching a revolutionary novel instrument in this field reaching a completely new level of accuracy, usability and automation: the Spinning Drop Tensiometer – SDT. With its very wide measuring range and innovations that ensure exceptionally simple sample changes, the SDT provides reliable emulsion analyses for applications such as enhanced oil recovery (EOR).

High-quality components work hand-in-hand in the SDT: a software-controlled precision motor for rotation, a USB3 camera with an exceedingly high resolution and motorized position adjustment. With this and the software-controlled tilt function, keeping the drop in the center of the image is especially easy using the fully automated *Drop Positioning* option. Everything is fitted into an ergonomic housing with clearly arranged control elements – for safe and simple operation.

In addition to the standard Vonnegut evaluation, the SDT also analyses the drop shape using the Young-Laplace method. This makes it possible to work at a slower rotational speed and so expands the range of the instrument allowing easy measurement of high interfacial tensions. Such shape analysis is also especially robust and hence provides very reliable results.

### Innovations for fast sample preparation

Accurately dosing drops into the capillary made spinning drop measurements a time-consuming procedure – until now. Our SDT uses a unique concept for filling the capillary that ensures fast and simple changing of the samples. With this solution, which has a patent filed by KRÜSS, the capillary is first filled with surrounding liquid while dismounted. Its specially shaped cap serves as a holder for the drop, which enters the capillary when the cap is closed. One last quick movement and the capillary sits firmly in its holder. The laborious step of regularly changing a septum also belongs to the past.



## FOLLOWING PROCESS CONDITIONS. LEADING IN INTUITION.

- Diverse range of applications in surfactant and emulsion analytics
- Measurements under the temperature conditions of mixing processes or oil reservoirs
- Simple and intuitive software operation

## TASKS AND APPLICATIONS

- Development of emulsions
- Tertiary crude oil production
- Bioavailability of drugs
- Surfactant research
- Adsorption properties at phase boundaries

## MEASURING OPTIONS

- Measurement of interfacial tension in an extremely wide range starting from  $10^{-6}$  mN/m
- Analysis using the Vonnegut drop diameter method
- Analysis using the Young-Laplace drop shape curvature method
- Long-term measurements for investigating surfactant dynamics
- Temperature-dependent analyses



### Efficient and flexible temperature control

We have ensured an ideal choice of temperature settings so the actual conditions of a process or an oil reservoir can be reproduced when carrying out analyses with the Spinning Drop Tensiometer – SDT. The integrated electrical heating unit sets the target temperature quickly and accurately, keeps it constant and saves the need of an additional thermostat. The precise contactless infrared sensor measures the temperature and relays the thermal conditions very close to the drop.

### Intuitive, workflow-orientated software ADVANCE

Our ADVANCE software focuses on simple automation and intuitive operability. The clearly designed user interface follows the workflow of an analysis, from the preparation phase to actual measurement and on right through to evaluation. All relevant functions are visible: by avoiding the use of menus and pop-ups ADVANCE saves any unnecessary clicks and time-consuming searches for hidden elements.

Controlled by ADVANCE the SDT carries out fully automatic measurements using prepared and flexibly modifiable measuring templates. The intelligent and robust image evaluation algorithms of the software ensure accurate results. The respective drop image is allocated to each measured value and displayed. There is no need for the inconvenient saving, loading and management of image files anymore.



# ALWAYS CLOSE TO YOU

At KRÜSS, we combine technical know-how and scientific expertise with plenty of passion. That is why we not only produce high-quality measuring instruments for surface and interfacial chemistry – we offer a unique combination of product and scientific consulting. Our continuous know-how transfer ensures that not only we at KRÜSS keep pace with scientific developments, but also our customers.

In this way, we help you to optimize and make better use of your technologies. This has made us the global market leader in the field of surface and interfacial tension measurement. As a matter of course, we will gladly support you with further information as well. Feel free to ask us about publications, application cases, and helpful information about other KRÜSS products. We are always close to you.



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