Whether warmly welcome or an unwelcome guest, foam occurs almost everywhere that liquids are in motion. The DFA100 gets to the bottom of foam properties and provides knowledge that makes a contribution to foam generation or foam avoidance. With its conventional and newly developed, meaningful foam decay parameters, a flexible, modular design and intelligent software with repeating and parallel measurement options, the DFA100 is a competent partner in the foam testing laboratory.

Cleansers / Detergents
Depending on the application, foam is either indispensable or unwanted in mechanical cleaning processes. The efficiency of foaming agents and foam stabilizers or defoamers is tested with the DFA100.

Antifoamers / Defoamers
Antifoaming agents are used in printing ink, washing and dishwashing agents – even in leather manufacture. Their effectiveness can be checked with the DFA100.

Fire fighting
Light water – medium-expansion foam – high gas-fraction foam: fire fighting foams for different fields of application vary chiefly in their water content. Drainage time and the liquid fraction can be measured with the DFA100.

Body care
Bath additives, shampoo, shaving foam – a particular foaming and stability behavior is expected in each care sector. Measurements with the DFA100 help to achieve the required properties.

Surfactant development
The parameters developed for the DFA100 describe stable and unstable foams according to the same dynamic decay model and can be correlated with characteristics such as the modulus of elasticity. This makes the DFA100 a useful tool in surfactant research.

Process water and wastewater
Foam interferes during pumping and stirring and increases space requirements in tubes and boilers. Analyses with the DFA100 make a contribution to foam reduction.

Food
Whether permanent edible foam, short-term stable foam in beer and cappuccino or rapid foam generation in sparkling wine – food covers the whole range of foam stability. The DFA100 provides results for short and long foam decay periods.

Biotechnology
Mixtures in bioreactors contain natural surfactants and form unwanted foam. The DFA100 is used for optimizing process control.

Foam plays an important role in numerous products and technical processes – either intended or as an unwanted side effect. In both cases measurements with the Dynamic Foam Analyzer DFA100 provide help. Foam parameters oriented on foam decay kinetics as well as traditional foam parameters provide practically relevant information about foam formation, stability and decay. Easily exchangeable modules for reproducible foam generation and contact-free measurement, quick cleaning and flexible software, which permits several independent measurements to be made simultaneously, ensure a high degree of usefulness in the laboratory.

Antifoamers	/	Defoamers
Cleansers	/	Detergents
Body care
Surfactant
development
Process	water	and	wastewater
Food
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A scientific instrument used for foam generation and foam avoidance
The DFA100 combines the highest degree of usefulness for the foam testing laboratory with scientific requirements. The instrument is easy to handle and clean, flexible thanks to its modular components and intended for high sample throughput – and is precise in the generation and analysis of the foam.

- Contact-free (optical) measurement of foam height
- Foam generation with controlled gas flow or by stirring
- Simple cleaning
- Quick exchange of different columns and filter plates
- Sample volume from 20 ml
- Measurements also possible on very unstable foams
- Fully automatic measuring procedure
- Plug and play operation thanks to USB architecture
- Compact design (base area 25×28 cm)
- Thermostattable measurements up to 90°C

**Technical data**

<table>
<thead>
<tr>
<th>Parameter</th>
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**Accessories**

- Quick fit unit for mounting glass column and agitator gas
- Quick fit unit for mounting glass column and sparging gas
- Glass columns with different diameters (e.g., for measuring very unstable foams)
- Thermostattable double-walled glass columns
- External temperature sensor for directly measuring the sample temperature
- Filter plates with differing porosities
- Liquid Content Module to measure the liquid content in foams

**Scientific**

During the measurement both foam generation and foam decay are analysed. The curves of both processes are described by a mathematical model with robust statistics. Precisely adjustable foam generation conditions ensure very good measuring curve reproducibility.

Analysis of the decay curve makes it possible to evaluate decay and drainage separately. The height of the liquid level is also followed in parallel to the foam height. From this curve additional information about dry stable foams can be obtained. Time values for decay kinetics, together with numerous further common parameters on foamability and foam decay, are the results of a single measurement:

- Start of decay and time of highest decay speed
- Decay half-life value
- Decay time values for 10, 20 and 30 mm (NIBEM method)
- Decay-time-dependent foam height analogue to Ross-Miles
- Specific volume, foam capacity and foam density
- Maximum height values

**Intelligent**

The software offers extensive functionality with user guidance oriented on the working procedure:

- Live observation and evaluation
- Flexible parameterization
- Time or foam-height-controlled end of foam generation and the measurement
- Parallel measurements on several columns
- Automatic, statistically evaluated repeat measurements
- Comfortable data and project management
- Simple comparison between any measurements
- Subsequent evaluation of the whole measurement which is recorded in the image

**Flexible**

The module PA4550 for the Dynamic Foam Analyzer DFA100 from KRÜSS measures the liquid content of the foam via its conductivity. For metastable foams, indirect examination of foam stability by measuring the alteration in the liquid content is particularly time-efficient.

The measurement is made using electrodes arranged in parallel at seven different heights of the foam column, so that drainage is followed as a function of time and height.

The software records independent measurement curves for all electrodes and gives the maximum moisture content as a percentage together with the half-value time for each measuring height.

The electrodes are arranged on two strips that are inserted in the standard measuring column and connected up in only a few seconds. In the moisture determination measuring mode the standard optical foam height measurement is also carried out simultaneously.

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Dynamic Foam Analyzer DFA100

Practical

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We reserve the right to make technical alterations.

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Determining the liquid content at seven different heights
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### DFA100 - Dynamic Foam Analyzer

**A scientific instrument used for foam generation and foam avoidance**

**Foam generation**
- Body care
- Fire fighting
- Polymer foams
- Foam cleaning
- Food industry
- Flotation

**Foam avoidance**
- Defoamers
- Washing and cleaning
- Paints and inks
- Paper manufacture
- Polymerization
- Biotechnology