

## Particle Measurement in the Petrochemical Industry



### Improving Efficiency with Real-Time Analysis

In order to be fully optimized, oil production and refinement require a certain knowledge about the phase fraction and its corresponding drop size distribution. Sopat can provide this key information to your business be it upstream or downstream. Our technology provides you with precise real-time data from the inside of your process. With this information, a vaster understanding of details of your process is gained, thus enabling optimized operation.

## Assistance from installation to operation

SOPAT GmbH is the industry specialist for particle and droplet measurement in multi-phase systems. With experts in areas including optics, software engineering, material sciences, as well as process and chemical engineering, we offer state-of-the-art technology.

As a forward-thinking company, our team has spent several years developing the SOPAT-System (Smart OnlineParticle Analysis Technology) with one specific goal in mind: to set new standards for the understanding and control of complex particulate systems. This commitment has resulted in our unique combination of photo-optical measurement technique, combined with innovative and automated image analysis software.



## Our products and services

- Complete SOPAT-System for automated particle detection and measurement
- Installation, employee training, service and maintenance
- Measurement trials on location (laboratory or production)
- Analysis of your samples in our laboratories



Existing particle sizing methods needing external sampling are extremely time-consuming and laborious. The technology and services offered by SOPAT, however, streamline this entire process. Our device, set up and tuned to your specific needs, offers the opportunity to expedite the entire data analysis process, when coupled with our particle evaluation software. This ensures dependable and accurate monitoring of your system, all occurring in real-time, whether it be in the laboratory or a larger, production-scaled process.

The technology offered by SOPAT can also be applied under extreme process conditions: high pressures, temperatures and corrosive environments are no problem. Results are then delivered accurately and in good time to meet the needs of your process. Measurements and data are presented in an intuitive manner and can be analyzed immediately.



The installation of Sopat equipment is quick and simple and gives you the opportunity to have measurements carried out on site. Alternatively you can have your measurements carried out by us on a contract basis. Send your samples to us, and our experts will analyze them in our laboratories. Testing is carried out professionally and confidentially, ensuring the greatest security of your data.



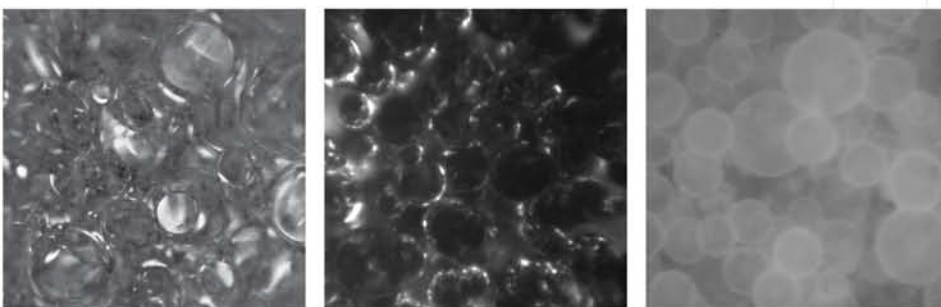
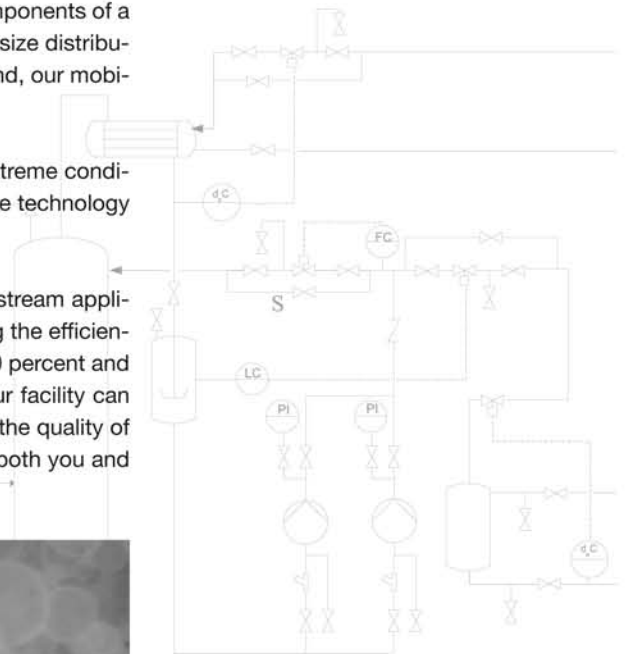
Installation of the SOPAT-VR for the determination of the size of dodecene droplets in H<sub>2</sub>O from a mini-plant. >

## Petrochemical industry

The success of upstream applications in the petrochemical industry depends particularly upon the ability and accuracy with which oil concentrations can be determined. SOPAT offers you the ability to have this information on hand and available at a moment's notice. Our image analysis and recognition software accurately differentiates between oil and other components of a dispersion, giving you the best results. With this, the oil concentration and drop size distribution in your feed water, for example, can be easily determined. Offshore or on land, our mobile technology is the solution to a whole range of applications.

The separation and processing of oil-water mixtures occurs most often under extreme conditions, including high pressures and temperatures. These pose no challenge to the technology available from SOPAT.

In coalescers, crude-oil distillation plants, separators and numerous other downstream applications, our devices enable the optimization of retention times, directly improving the efficiency of the entire process. By lowering the waste of your process by as much as 30 percent and increasing the production rate by as much as a quarter, the effectiveness of your facility can reach its full-potential. At the same time, you'll have complete knowledge about the quality of your product at all times, ensuring through high product purities. satisfaction of both you and your customers.



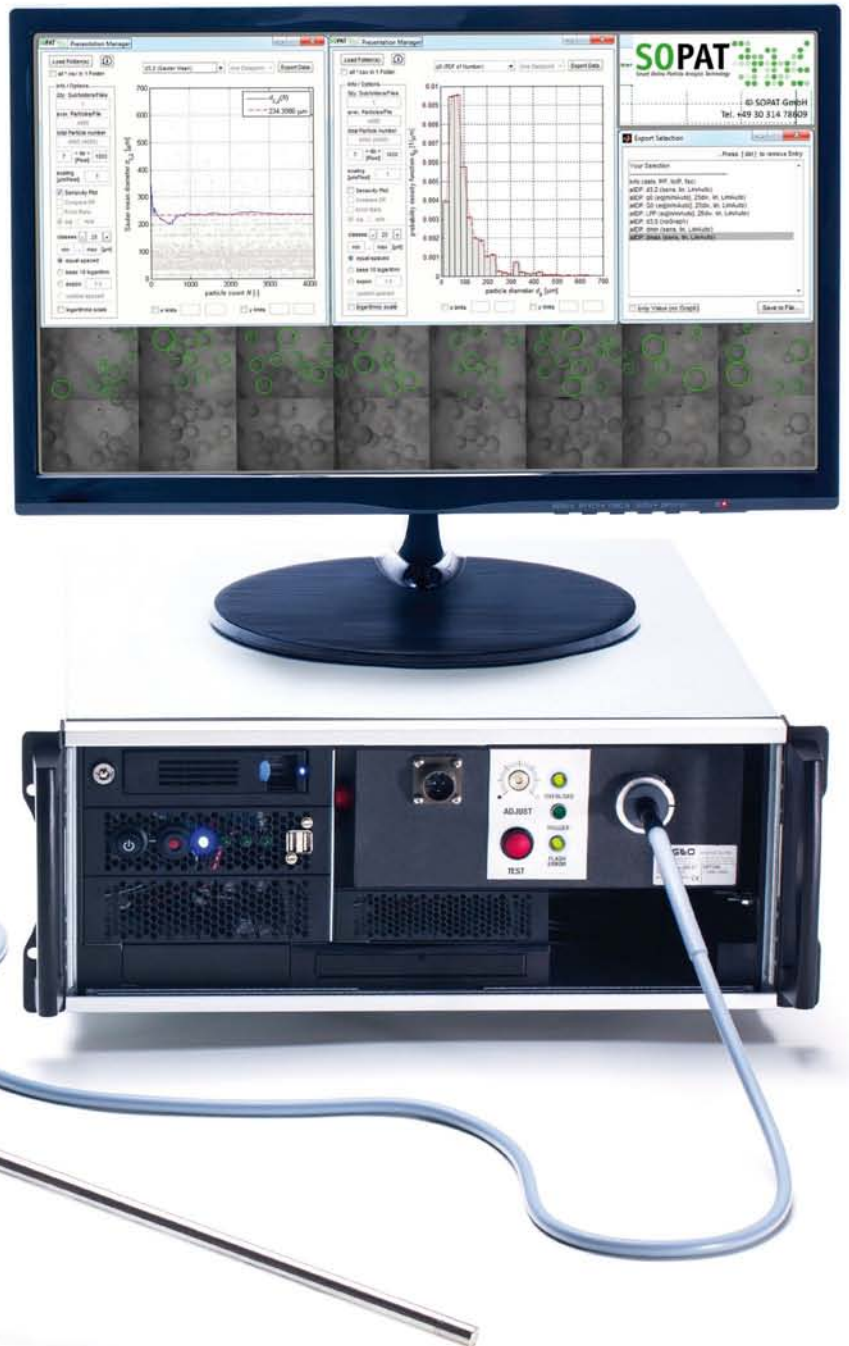
< n-Hexadecane in H<sub>2</sub>O, acquired in a separator, crude oil in saltwater and freshwater, taken in an industrial scrubber.

## Technology – precision via image analysis

SOPAT-VR is an in-situ microscope coupled with automatic image analysis software. This technology enables real-time analysis and evaluation of particle size distributions for systems ranging from 1 to 10,000  $\mu\text{m}$ . Our approach ensures a fully-automated and controlled process.

- Immediate error and fault detection
- Reduction of waste
- Better understanding of the process
- Improved process efficiency and reliability

Our user-friendly software comes pre-installed on a high-performance workstation, specifically selected to fit your application. The operation of the software is carried out using a clearly structured, easy-to-use, graphical user interface, providing a visualization of the various particle diameters and their size distribution. This provides you the ability to analyze even the smallest of particles.



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