



The fundamentals of contact angle,
surface energy and surface tension

Welcome to a day of surface science



We hereby have the pleasure of inviting you to a day of surface science

Cromocol Scandinavia AB together with KRÜSS GmbH take pleasure in inviting you to participate in a seminar focusing on contact angle, surface energy, surface tension and practical demonstrations of instruments and measuring methods. Work with our seminar team to gain a better in-depth understanding about wetting in processes such as coating, pretreatment and cleaning. As well as surface tension (SFT), interfacial tension (IFT) and the fundamentals of liquid foam behavior and structure.

The seminar takes place at RISE in Borås, Sweden, on the 20th of September 2018

Course instructors for the seminar are Dr. Daniel Frese and Malte Snoyek from KRÜSS GmbH together with Dennis Zielinski from Cromocol Scandinavia AB.

Special guests from:

SAAB Group and Research Institute of Sweden to talk about some interesting applications.

CONTACT ANGLE

Apply our expertise to your measurement tasks

Wettability, adhesion, surface free energy: when it comes to the surface properties of solids, contact angle measurements are an indispensable tool for material research and quality assurance. We would like to share our scientific expertise with you at this seminar and provide helpful knowledge for applying contact angle measurement techniques. Some of the seminar topics are:

- Illustrations of how contact angle, surface free energy and adhesion are related
- Detailed explanation of various measurement techniques
- Introduction of application tasks and solutions
- Demonstration of all methods described in lectures
- Example applications from research and development



OUR KNOWLEDGE FOR YOUR SOLIDS ANALYSIS

The seminar content will also include the relationships between wetting, contact angle and surface free energy (SFE), as well as the influence of polar and dispersive SFE components on wetting and adhesion. You will be introduced to the scientific background for determining SFE using various models and will learn how to apply those models on the basis of numerous concrete examples.



Drop Shape Analyzer



SURFACE TENSION MEASUREMENT

Put our expertise to work for your analysis

Whether used for quality assurance or scientific research, tensiometry is the key measurement technique for analyzing the surface and interfacial phenomena of liquids. In this seminar, we will share our knowledge in this field, introducing you to the theory and practice of all of the methods commonly used for characterizing liquid surfaces.

- Fundamentals and applications of tensiometry
- Static and dynamic methods for measuring surface and interfacial tension of liquids
- Demonstration of all methods described in lectures
- Example applications from research and development presented by guest speaker
- In-depth technical discussion



UNDERSTANDING AND MEASURING INTERFACIAL EFFECTS

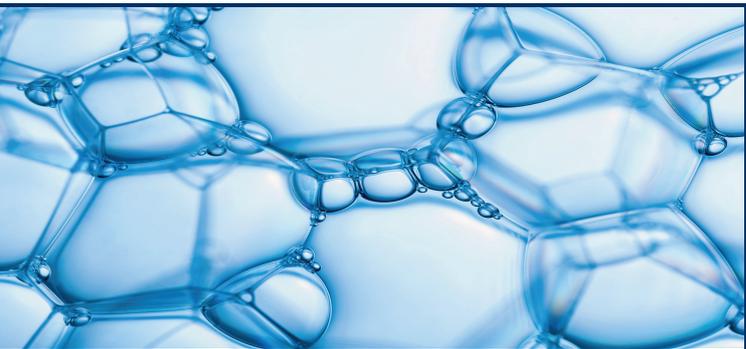
By attending our seminar, you will gain a more in-depth understanding of surface tension (SFT) and interfacial tension (IFT). You will also familiarize yourself with mechanisms of surfactant action and learn more about characterizing surfactants. We will use concrete examples to illustrate the significance of surface tension in fast technical processes and show you how to apply static and dynamic analytical methods.

We will also provide practical demonstrations of the methods covered on our own instruments:

- Fully automated SFT, IFT and critical micelle concentration (CMC) determinations
- Spinning drop method (for very low IFT)
- Bubble pressure method (dynamic SFT)
- Drop volume method (dynamic IFT)
- Pendant drop method (optical SFT and IFT measurement on a drop)

Force Tensiometer





FOAM ANALYSIS

Use our expertise to answer your questions

Relevant in practice and exciting in theory: besides occupying manufacturers of foam-forming substances, foam analysis is important for suppressing foaming as well. In this KRÜSS seminar, we will share our knowledge of reproducible studies on liquid foams, introducing you to both the theory and practice of a variety of scientific methods.

KNOWING MORE ABOUT FOAM

Work with our seminar team to learn the fundamentals of liquid foam behavior and structure.

We will use concrete examples to familiarize you both with the relationship between surfactant properties and foam formation, and with the impact of surface tension. You will learn more about foam characterization methods for rapidly decaying foams and for those that remain stable for long periods of time. In addition, you will gain insight into applying interfacial rheology to interfacial behavior during deformation, and its impact on foam properties.

We will provide practical demonstrations of the methods covered on our own instruments:

- Analyzing foamability and foam stability by measuring foam height
- Measuring liquid content as a function of time and height
- Analyzing dynamic foam structure and bubble size distribution
- Studying interfacial deformation behavior: the oscillating pendant drop method

- A scientific, practical introduction
- Characterization of liquid foamability and of foam stability
- Liquid content and drainage
- Foam structure and its dynamic changes
- Considerations of interfacial rheology and its relationship to foam behavior
- Foam analysis measurements of sample systems
- Example applications from research and development presented by guest speaker
- In-depth technical discussion



Dynamic Foam Analyzer

REGISTRATION

Seminar venue	Research Institute of Sweden, Brinellgatan 4, 50462 Borås, Sweden
Seminar hours	September 20: 08.45 – 17.00
Participation fee	1400 SEK Payment by invoice after the seminar. Price includes documentation, lunch and coffee with refreshments.
Language	The seminar will be held in English
Accommodation	If you need accommodation we suggest two hotels: Scandic Plaza Borås Phone: +46 (0) 33 785 82 00 Allégatan 3, 503 32 Borås, Sweden www.scandichotels.se Comfort Hotel Jazz Phone: +46 (0) 33 799 45 00 Allégatan 21, 50332 Borås, Sweden www.nordicchoicehotels.se
Contact	For questions please contact: dennis@cromocol.se Phone: +46 (0) 33 - 235 000
Registration	Register by completing the form below and fax or email it to Cromocol Scandinavia AB before the 10th of September 2018. Hint: Copy the text from the form below in to an email, fill in and send it to us. E-mail: dennis@cromocol.se Fax: +46 (0) 33 135 095 The registration is binding.

Registration Form

Name: _____

Company: _____

Invoice address: _____

E-mail: _____

Phone: _____

Your order no. (optional): _____

Company VAT (if you are a new customer to Cromocol): _____

Special demands regarding food; vegetarian, allergies?: _____

ABOUT US

KRÜSS GmbH

At KRÜSS we see ourselves as a company which generates something new from technical know-how, scientific expertise and an abundance of passion every single day. With this background, we do not only produce first-class measuring instruments for surface and interfacial chemistry - we also offer a unique combination of product and scientific advice.

With our internally produced, high-precision mechanical systems and innovative technical solutions, we satisfy in a highly complex market. We help people in research, development and industrial quality control in a wide variety of company sectors and with the most diverse requirements. As a full-range supplier with a wide product portfolio, software-controlled measuring technologies for the contact angle and static and dynamic measurement of surface and interfacial tension are just as much part of our range as measuring instruments for investigating foams. At our qualified contract measurement laboratory, we repeatedly set ourselves the challenge of researching and finding new ways and measuring methods for our customers.

The combination of unique products and highly qualified advice has made us the global market leader in the field surface tension and interfacial tension measurement. But we are always searching for better solutions together with our customers. Our experience of the surfaces and interfaces of liquid and solid substances is what we provide on a personal basis in form of knowledge: in consultations, seminars, technical service, our Customer Support Lab and our Surface Science Center.



CROMOCOL SCANDINAVIA AB

Your supplier when quality is crucial. Cromocol Scandinavia AB is a company with main focus on test equipment and instruments for material and surface testing. The products we market are from world leading manufacturers, renowned for its quality and technical innovation.

We have great knowledge in our suppliers instruments and offer service and calibration for most of our instruments.

Our business today is focused on instruments and test equipment for material testing and quality control in industries like Automotive, Paint and Laquer, Plastic, Textile, Steel and Sheet metal, Food and packaging, Testing and Research Institutes, Universities, Photovoltaic and Solar Panels.

Our customers are mainly based in Sweden, Norway, Denmark and Finland.



We really hope that you find this invitation interesting and that you will have time to join our seminar. If you have any questions then please contact Dennis Zielinski at: dennis@cromocol.se

