DGK Workshop 'The Rheologie of Cosmetic Emulsions'

Beiersdorf AG in Hamburg
November 3-4

Due to the increasing importance of rheology in the cosmetics industry, the Analysis Group of the DGK (German Society for Research and Applied Cosmetics) organised a two-day workshop entitled 'The Rheology of Cosmetic Emulsions' on 3rd and 4th November at Beiersdorf AG in Hamburg.

The very well organised workshop was chaired by Dr. Claudius Rapp (Head of the DGK Analysis Group) and held in the Rheology / Thermal Analysis Department of Beiersdorf AG under the leadership of the physicist Rüdiger Brummer. The 39 participants from the industry and universities and nine exhibiting companies found open and competent speakers and a staff who candidly discussed the practical aspects of problems relating to viscosity.

The opening address by Prof. Dr. E. Windhab from the ETH Zürich already made clear how extremely important it is to measure process-relevant and product-specific viscosity data and that this is precisely the problem that rheology must deal with. With several practical examples Prof. Winhab illustrated the many ways in which rheology can make an important contribution to the development of a product or process control.

Dr. Willenbacher from BASF showed in his talk how differences in droplet size affect the rheology of an emulsion. Using the example of polymer dispersions, he explained the conditions under which a distribution of small droplets among large drops minimises viscosity.

Figure 1:
Dipl. Physiker R. Brummer

Figure 2:
View in the auditorium

With the question: "How do you feel?" Dr. Issberner from Henkel KgaA dispelled any reservations remaining. As the name implies, the skin feeling is the sensation the consumer experiences when applying a product. For example, the consumer expects a cream to be much thicker than a lotion. Viscosity measurements can be used to define product categories and hence reduce time-consuming and expensive panel tests.

Dr. Hochstein from the Karlsruhe University showed that it is impossible to cover all the interesting rheological measuring ranges with one measurement. A variety of systems are used, including cylinder, parallel plate and cone plate systems but also the capillary viscometer. Comparative measurements are possible only if the specified boundary conditions (e.g. DIN standard) are maintained.

In his very practice-oriented talk Dipl. Ing. Griebenow gave the participants tips on what to watch out for when doing a measurement. Starting with calibration and validation of the measuring instrument, he went on to discuss the right filling technique and determination of the maximum measuring time as well as maintaining a structural recovery time prior to every measurement.

The second day began with a talk by Prof. Dr. W.-M. Kulicke from the TMC Hamburg on the topic of dynamic mechanical frequency measurements. The emphasis was on the viscoelastic properties of cosmetic emulsions that cannot be detected by means of the viscosity function. Information on the network structure can only be obtained from the G' and G'' moduli.

Dipl. Ing. Frank Hetzel used practical examples to show how information on changes in the gel network of cosmetic emulsions can be detected by means of dynamic mechanical thermal analysis. Similarly, the dependence of structures on temperature can be detected using oscillation measurements.

In the closing address, Dipl. Physiker Rüdiger Brummer combined theory and practice. He showed which instruments were able to measure a wide variety of viscosity data, starting with Newtonian flow behaviour with single point measurements and ending with the most modern oscillation instruments. In addition, he provided participants without a modern rheo-

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meter in their laboratory with information on instrument manufacturers, universities and special institutes that do contract work in rheology. He also said that the oldest 'general purpose' instrument is still the most sensitive, the HAND. Nonetheless, he is convinced that the technological future belongs to oscillation rheology.

Rounding off the workshop was the opportunity to have special samples measured by the instrument manufacturers and discuss the results with the experts. Refreshments during the two-day event were supplied by the Beiersdorf AG. The DGK hosted an evening for all the participants in a famous Hamburg restaurant near Hamburg's most famous church, St. Michael's.

The overwhelmingly positive feedback from the workshop participants and instrument manufacturers delighted not only the speakers but also those organising and arranging the workshop who would like to take this opportunity to thank all those (including the invisible ones in the background) helping to make the workshop a success.

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Rheological Societies or Groups and their Home Page (if existing):

Austrian Group of Rheology

Belgian Group of Rheology

British Society of Rheology
www.ncl.ac.uk/rheology/bsr/index.html

Bulgarian Society of Rheology

Czech Group of Rheology

Dutch Rheological Society
www.mate.tue.nl/nrv/index.html

European Society of Rheology
www.ncl.ac.uk/rheology/esr/

French Group of Rheology

German Society of Rheology
www.bam.de/partner/drg/drg.html

Hellenic Society of Rheology
esperia.iesl.forth.gr/~hsr/HSRwebpage.html

Israel Society of Rheology

Italian Group of Rheology
www.dicamp.univ.trieste.it/sir/

Japanese Society of Rheology
cmasuko2.yz.yamagata-u.ac.jp/SRJ/SRJ.html

Nordic Rheology Society
www.sik.se/nrs/

Polish Society of Engineering Rheology

Portuguese Society of Rheology

Romanian Society of Rheology

Slovene Society of Rheology

Society of Rheology (USA)
www.rheology.org

Spanish Group of Rheology
reologia.us.es/index.html

Swiss Group of Rheology
www.AR.ethz.ch/FR/

Vinogradov Society of Rheology
rheo.ips.ac.ru/

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