

given by videoconference. The lecture was followed by technical sessions and lunch. F. Pinho opened the last afternoon activities with a keynote lecture on "Microfluidic flows of viscoelastic fluids".

Beside the auditorium where the technical session took place, there was an exhibition room with rheology equipments from the company sponsors: dpUNION, Altmann, Polimate and Reoterm. An acknowledge to the Brazilian and Rio de Janeiro government agencies CNPq, CAPES and FAPERJ is also very fair. The next Brazilian Rheology meeting will occur in 2013, and every two years from there.

Mônica F. Naccache
Pontifícia Universidade Católica do Rio de Janeiro
Rua Marques de São Vicente, 225
Rio de Janeiro, 22453-900, RJ, Brazil
naccache@puc-rio.br

Roney L. Thompson
Universidade Federal Fluminense
Rua Passo da Pátria 156, Sao Domingos
Niteroi, 24210-240, RJ, Brazil
rthompson@mec.uff.br

Characterization of Nano- and Microdispersions

BERLIN, GERMANY

JUNE 8, 2010

Starting few years ago LUM GmbH (Berlin, Germany) has been continuously performing application days in collaboration with the companies Thermo Fisher Scientific, Karlsruhe, Germany and Anasysta, Oberhausen, Germany. Based on the previous success of LUM's cross company seminars from the beginning of the century, this tradition has been renewed due to the constant demand from customers and interested parties from all branches of industry to get a comprehensive insight into the fascinating world of dispersion and particle characterization. The last application day "Characterization of nano- and microdispersions" was held in Berlin-Adlershof on June 8th 2010, in the neighbourhood of the LUM headquarters. Participants came from companies producing and developing different products, including cosmetics, ink & paint, food & beverage, carbon nanotubes and building materials. All had in common they were keenly interested in gaining knowledge about the different ways of particle and dispersion characterization.

Theoretical presentations in combination with relevant application data from real-life tasks were followed by practical instrument demonstrations allowing the participants to understand and deepen the theory and get a better understanding how different analytical methods can

solve tasks in Research & Development as well as in quality control applications. The main benefit of the application day is always a closer look from more than one side, i.e. using more than one analytical method to solve an analytical task concerning dispersion properties and behaviour. The brief general introduction into colloidal science and dispersion properties was held by Dr. A. Uhl (LUM) to set a frame for the topics to handle during the application day. Since the term of stability of a dispersion can be understood in many different ways, he introduced several stability concepts and terms and posed two application-centred questions, namely "Which properties or behaviour of a product should be stable?" and "For which period of time should they be stable?" Next was an in-depth look at destabilizing phenomena in dispersions, i. e. flocculation, sedimentation, creaming, coalescence, phase inversion and Ostwald-ripening.

Addressing the particular need of getting stability information faster than by visual observation of a real-time demixing, Uhl put the accelerated and direct stability analysis of dispersions into the focus of the following talk, where the concept of LUM's patented STEP-technology was explained in detail. This technology is applied first under normal gravitation in the LUMiReader®

© Appl. Rheol. 20 (2010) 377-378

This is an extract of the complete reprint-pdf, available at the Applied Rheology website
<http://www.appliedrheology.org>

This is an extract of the complete reprint-pdf, available at the Applied Rheology website
<http://www.appliedrheology.org>

Applied Rheology
Volume 20 · Issue 6

377

instrument, where an acceleration of separation is achieved by an inclination principle. Second, it is used applying a centrifugal field (LUMiSizer®, LUMiFuge®), where a physically accelerated demixing happens and the quantification of sedimentation and creaming processes is enabled. Stability information obtained from centrifugal measurements does not only show demixing stability but also reveals shear-thickening, shear-thinning or Newtonian behaviour of a dispersion. Detailed information about particle size distribution and dispersion properties, e.g. the flocculation degree is obtained, too. A short chapter about the determination of the hydrodynamic density using LUM's new LUMiCheck® instrument completed the talk. The audience appreciated the possibility to get more information on the analysis of dispersions in detail from the internet platform www.dispersionletters.com.

The lecture "Rheological analysis of stability and structure parameters" by Dr. E. Pietsch (Thermo Fisher Scientific) addressed first basics of rheology and rheometry. He gave a brief history of the company's worldwide activities, before launching a broad overview on rheological basics and quantitative and qualitative relationships between deformations and stresses. As he explained, rheological measurements have a broad range of application areas, as they allow the study of chemical, mechanical, and thermal treatments, the effects of additives, or the progress of a curing reaction. Thermo Fisher Scientific's rheometer HAAKE RheoStress 6000 was of course in the centre of attention, when Pietsch presented measuring instruments like rotational rheometers and rotational viscometers meeting the different application needs. The interesting part for the participants – hands on the analytical instruments – followed the talks. The participants, split into different groups had the chance to touch them all, interact with them and experience their bandwidth. The down-to-earth questions came first: "How easy to use is the software?", "Is the opening hatch hard to come by?", "How often do we need maintenance inspections?", showing participants already thinking of the further use of the devices in their own lab.

While working, the participants learned about the advantages of the different stability measurement approaches of LUM and Thermo Fisher Scientific. As it turned out, the LUMiSizer was successful in measuring very stable and highly viscous samples with very small particles. The first group to use the analyser was also especially interested in its ability to measure particle size distribution. The demonstration of the LUMiReader came to the fore its ability to accurately analyse fast demixing processes, previously monitored by the human eye. With the demixing tester LUMiCheck, presented in the same session, it became clear that the cute laboratory tester is used best to compare sample stability in a fast and simple way – up to eight samples at the same time. Additionally, the determination of particle density in liquid environment qualifies the LUMiCheck as an instrument closing a gap in the lab. Thermo Fisher Scientific's rheometer HAAKE RheoStress 6000 was used as the instrument of choice to analyse the rheological properties of cosmetic materials like skin lotion and shampoo. Dr. Pietsch explained how the rheometer could give information on, i.e. the effects of mineral components in cosmetic systems, which come in the form of thickeners, pigments and fillers used. This was of special interest to some participants from the cosmetic field, who liked the idea to employ rheological tests for new product development, mainly to shorten development time, improve quality and to monitor the up-scaling and quality characteristics. The hands-on experience on the analysing devices were found by all participants to be extremely interesting. It was felt by that the real success of the event was the hands-on work on real devices and to experience the results of one's work with them.

Sami Seyfert & Dr. Arnold Uhl
LUM GmbH
Rudower Chaussee 29
12489 Berlin, Germany
x49.30.67806030
info@lum-gmbh.de