Study Of Rheoiogical Properties Of Margarine Springer

Honey Analysis - New Advances and Challenges discusses advances in honey research. Topics include the physicochemical characteristics of honey from stingless bees, the therapeutic properties of honey, melissopalynological analysis as an indicator of the botanical and geographical origin of honey, and methods for authenticating honey. Written by experts in the field, this book provides readers with an indispensable source of information, assisting them in future investigations of honey and beekeeping.

This thesis studies the effects of superplasticizers, polyacrylate latexes and asphalt emulsions, which differ in molecular/particle size from nanometers to microns, on the rheological properties of fresh cement pastes (FCPs), as well as the action mechanisms involved. It systematically investigates the rheological properties and microstructure of cement-based materials, and elucidates the adsorption behaviors of polycarboxylate polymers with different functional groups and their effects on cement hydration. Moreover, it reveals how the working mechanism of naphthalene sulfonate formaldehyde (NSF) differs from that of polycarboxylate ether-based (PCE) superplasticizers. Lastly, it develops a conceptual microstructure model and two rheological equations. These findings lend theoretical support to the development of new chemical admixtures and new, higher-performance, cement-based composites.

"The "strength" and "viscosity" of butter have been measured using a Ferranti-Shirley cone-and-place viscometer. The variation of these properties with position within an unblended block of butter, with the shearing history and temperature of a butter, and the difference between the matrix and grit of a gritty blend of butter were determined. The water contents of the different butters have also been determined." - Summary.

Knowledge of the rheological properties of non-Newtonian fluids is critical for modeling in polymer-processing equipment such as injection molders, extruders, and blow molders. Rheological measurements can be obtained through standard flows, such as shear flow and elongational flow. In our research, we modeled the rheological properties of polymeric fluids in several types of experiments: transient and steady shear flow, small amplitude oscillatory shear flow, transient elongational flow, and step-strain shear flow. The accuracy of modeling calculations depends critically on the performance of the rheological model used. Differential constitutive models with a single relaxation time can be used for exploratory fluid dynamics research and provide insight into the qualitative effects of viscoelasticity in complex flow fields. However, differential models with a single relaxation time give a poor quantitative description of rheological properties, since most non-Newtonian media exhibit not just one, but a whole spectrum of relaxation times; therefore multiple relaxation modes models were used in our research. One of the coupled linear relaxation models, the Two Coupled Maxwell Modes (TCMM) Model, was used to describe quantitatively shear-thickening

behavior, which can be observed under certain conditions for high molecular weight polymers dissolved in low viscosity solvents. In this case, the shear viscosity of the polymer solution increases with increasing shear rate. A full parameterization of the TCMM Model to the experimental data from the literature provided a thorough understanding of the significance of the model parameters and a clear insight into the peculiar behavior of shear thickening in dilute polymer solutions. The primary part of the research focused on models with linear springs. A typical, industrial-grade, low-density polyethylene polymer was studied using three types of multi-mode models: i) uncoupled linear relaxation models; ii) coupled linear relaxation models; iii) uncoupled non-linear relaxation models. The data from small amplitude oscillatory shear flow and steady shear flow were fitted to obtain the parameters of the different models using the Nelder and Mead Downhill Simplex method. Then the predictions for the other standard flows mentioned in the first paragraph were compared with experimental data. This allowed us to determine the degree of the performance of the different models with regards to the corresponding system studied. Overall evaluations of model performance were presented in detail. Finally, we tested the effects of spring type on the performance of the models described above. We replaced the linear elastic springs in all of the prior models with nonlinear springs to determine whether this would improve model performance in elongational flow. The Finitely-Extensible Nonlinear Elastic Spring Model was used to describe the nonlinear elastic springs. The result was negative, however: no improvement was obtained over the linear spring models and more parameters were present which required further fitting to experimental data.
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A special triaxial apparatus allowing for a gammametric measurement of local density is used to study the influence of experimental conditions in triaxial tests. Compression tests performed along different stress paths and classical extension tests provide reliable results on the rheological behavior of sand up to large strains and permit characterization of the limit state of perfect plasticity.