



3rd Int. Workshop of the German Clay Group, DTTG

**“Qualitative and quantitative analysis
of clays and clay minerals”**

February 9 - 13, 2009

ETH Zurich
Institute for Geotechnical Engineering

ETH

Eidgenössische Technische Hochschule Zürich
Swiss Federal Institute of Technology Zurich

IGT

Institut für Geotechnik
Institute for Geotechnical Engineering

3rd Int. DTTG-Workshop Clays and Clay minerals analysis; 9-13 Feb 2009, ETH Zurich

Monday 9.2.	What is clay? Preparation for analyse and identification of clay minerals
08:30	09:00 Opening of the Workshop
09:00	10:00 Crystal structure of clay minerals and 1 dimensional modelling of XRD pattern
10:00	11:00 1 dimensional modelling of XRD pattern - Software demonstration (Sibylla, Newmod)
11:00	11:30 Coffee break
11:30	13:00 Diagnostic intercalation methods with exercise
13:00	14:00 Lunch break
14:00	15:30 Strategies of sample preparation (disaggregation, fractionation, XRD specimens, po, texture)
15:30	16:00 Coffee break
16:00	17:30 Sample preparation - Lab exercise
Tuesday 10.2.	XRD of clay minerals, QPA of clays with Rietveld method
09:00	10:00 XRD with specials in clay analysis
10:00	11:00 Rietveld refinement, principles in quantification
11:00	11:30 Coffee break
11:30	13:00 Modelling of 3-dimensional XRD patterns; handling of turbostratic disorder and mixed layers
13:00	14:00 Lunch break
14:00	15:00 Iron (hydr)oxides - basics, relevance, detection, quantification
15:00	16:00 Rietveld analyse: Program (AutoQuan/BGMN), device, mixture quantification - PC exercise
16:00	16:30 Coffee break
16:30	18:00 Complex quantitative analyse of clays (in part. Rietveld of bentonites) - PC exercise
Wednesday 11.2.	Physicochemical properties of clay minerals and their quantification
09:00	09:45 CEC
09:45	10:30 Layer charge distribution
10:30	11:00 Coffee break
11:00	13:00 CEC and Layer charge distribution - Lab exercise
13:00	14:00 Lunch break
14:00	15:30 Surface determination (specific, inner)
15:30	16:00 Coffee break
16:00	17:30 Reaction between solids and solution: Sorption, dissolution
Thursday 12.2.	Optical and thermal characterisation
09:00	09:45 Electronoptical characterisation (TEM, ESEM, EDX)
09:45	10:30 Infrared-Spectroscopy
10:30	11:00 Coffee break
11:00	13:00 Thermal Analyse with exercise
13:00	14:00 Lunch break
14:00	15:00 Presentation of posters of participants
15:00	15:30 Coffee break
15:30	17:30 FT-IR, ESEM - Lab exercise
18:30	Departure to Workshop dinner
Friday 13.2.	Geotechnical properties of clays - their characterisation and quantification
09:00	10:00 Rheology of clay suspensions
10:00	11:00 Rheology - Lab exercise
10:00	11:00 Coffee
11:00	13:00 Clays and Geotechnics (strength, compression, permeability, swelling, water uptake)
13:00	14:00 Lunch Break
14:00	17:00 Geotechnical tests (classification, strength, compression)

Speakers

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Posters/Projects

Use of clay mineral assemblage variations as tracers of soil with polygenetic origin.

Presented by L. Caner and co-workers

The determination of clay minerals in soil samples as a step for the sequential Si- extraction

Presented by A. Danilova

Raw material provenance and ceramic technology for manufacture of hellenistic ceramic from Greek settlement of Issa, island of Vis, Croatia.

Presented by M. Mileusnic

Interaction of calcium and clay minerals in marine sediments

Presented by C. Ockert and co-workers

Diagenesis of Malmian Marlstones (Mikulov Formation), Vienna Basin.

Presented by A. Schicker and co-workers

Use of reflectance spectroscopy for quantification of the mineral content in drill cores from the Olympic Dam deposit, South Australia

Presented by M. Tappert

Changes in the Mineral Composition of Paddy Soils upon Redox Cycles

Presented by V. Vogelsang