ABOUT THE SYMPOSIUM

Not long after ASTM Committee D35 on Geosynthetics formed its Subcommittee D35.04 Geosynthetic Clay Liners, the first symposium on Testing Acceptance Criteria for GCLs (STP 1308) was held in January 1996 in Atlanta. The event offered a review of what was then the current knowledge and understanding regarding this geosynthetic product group. In 2003, a second symposium took place in Denver under the theme "Advances in Geosynthetic Clay Liner Technology." This symposium proved to be extremely valuable and was a great success. Both the Subcommittee and the overall engineering community benefited from the symposium’s focus on new technical issues, developments, usage and concerns.

Eight years have passed since that gathering, and with more than two decades of projects and research to draw upon and a new wave of GCL innovation influencing the future direction of the material’s utilization, a third symposium is being planned for June 2012.

A major motivator for this new symposium is the advent of "multi-component GCLs." These materials can be defined as a "GCL with an attached film, coating, or membrane that decreases the hydraulic conductivity or protects the clay core or both." Either a thin plastic barrier is attached to one geotextile component of the GCL or a geotextile component is coated with a polyolefin polymer. In both cases, the added barrier extends the GCL’s range of use to a number of site conditions that were previously considered prohibitive (e.g., presence of roots, greater chemical threat, protection against desiccation, etc.). It is now the task of ASTM D35’s Subcommittee D35.04 to identify the proper tests for these newer multi-component GCLs, either by adopting/modifying existing test methods or developing new procedures to help designers, owners, operators, regulators, manufacturers and other stakeholders test these materials.
WEDNESDAY, JUNE 27, 2012

8:45 AM  
**Opening Remarks**  
K. von Maubeuge & J.P. Kline, Symposium Co-Chairmen

9:00 AM  
**Flow Rate Measurement in Coated Geosynthetic Clay Liners**  
N. Touze-Foltz, D. Croissant, C. Barral, D. Dufraisse, Cemagref, Antony, France; and K. von Maubeuge, NAUE GmbH & Co. KG, Espelkamp-Fiestel, Germany

9:20 AM  
**Hydraulic Testing of Multi-Component Geosynthetic Clay Liners**  
H. Ehrenberg and K. von Maubeuge, NAUE GmbH & Co. KG, Espelkamp-Fiestel, Germany

9:40 AM  
**Interface Transmissivity Measurement in Coated Geosynthetic Clay Liners**  
N. Touze-Foltz and A. Courté, Cemagref, Antony, France; and K. von Maubeuge, NAUE GmbH & Co., Espelkamp-Fiestel, Germany

10:00 AM  
**BREAK**

10:20 AM  
**Large-Scale Flow Testing through Seamed and Unseamed Samples of a Multi-Component Geosynthetic Clay Liner**  
C. Athanassopoulos, Cetco, Hoffman Estates, IL, USA; and Z. Yuan, SGI Testing Services, LLC, Norcross, GA

10:40 AM  
**Laboratory Investigations on Multi-Component Geosynthetic Clay Liner Overlaps**  
A. Müller-Kirchenbauer, & Partners, Geotechnical Engineering, Detmold, Hanover, Germany; C. Schlötzer, University Applied Science Lippe, Germany; and K. von Maubeuge, NAUE GmbH & Co., Espelkamp-Fiestel, Germany

11:00 AM  
**The Shrinkage Behaviour of Multi-Component Geosynthetic Clay Liners**  
A. Müller-Kirchenbauer, & Partners, Geotechnical Engineering, Detmold, Hanover, Germany; C. Schlötzer, University Applied Science, Lippe, Germany; and K. von Maubeuge, NAUE GmbH & Co., Espelkamp-Fiestel, Germany

11:20 AM  
**Testing of Damage during Installation of Multi-Component Geosynthetic Clay Liners**  
H. Ehrenberg and K. von Maubeuge, NAUE GmbH & Co. KG, Germany
11:40 AM
Abrasion Testing on Multi-Component Geosynthetic Clay Liners
B. Herlin, Terrafix Geosynthetics, Toronto, Ontario Canada; and B. Kennedy, TAG Environmental, Barrie, Ontario Canada

12:00 PM
Laboratory Investigations on the Desiccation Process of Geosynthetic Clay Liners under Different Test Conditions
C. Boley, and R. Hoeppner, Institute for Soil Mechanics and Geotechnical Engineering, and University of the Federal Armed Forces Munich, Neubiberg, Germany

12:20 PM
Factors Influencing Dimensional Stability of Multi-Component Geosynthetic Clay Liners
N. Yesiller, J. L. Hanson, and Gregory R. Olsen, California Polytechnic State University, San Luis Obispo, CA

12:40 PM LUNCH

1:40 PM
Boundary Effects of Gripping System on Internal Shear Strength Tests for Multi-Component Geosynthetic Clay Liners
X. Tang, and Z. Yuan, SGI Testing Services, LLC, Norcross, GA, USA

2:00 PM
Cyclic Shear Testing of a Multi-Component Geosynthetic Clay Liner
C. Athanassopoulos, Cetco, Hoffman Estates, IL, USA; and P. J. Fox, University of California San Diego, San Diego, CA USA

2:20 PM
Peel Strength, Internal and External Shear Behavior of Different Multi-Component Geosynthetic Clay Liners
K. von Maubeuge and H. Ehrenberg, NAUE GmbH & Co. KG, Germany

2:40 PM
Peel Testing and Moisture Effects for Coated/Laminated GCLs
G. T. Torosian, GeoTesting Express, Inc., Acton, MA, USA

3:00 PM
Direct Shear Testing Performed on Multi-component GCLs with Laminated/Coated Side Verses Fine Grained Sand
J. Youngblood, GSE, Houston, TX, USA; J. P. Kline, Geotechnics, Inc., East Pittsburgh, PA USA

3:20 PM BREAK
3:40 PM
**Multi-component Geosynthetic Clay Liners – A Product with New Possibilities**
T. Egloffstein, ICP Ingenieurgesellschaft, Karlsruhe, Germany

4:00 PM
**Carbonate Content of GCL Infill**
George R. Koerner, CQA GSI, Folsom, PA, USA

4:20 PM
**Diffusion through Polymeric Barriers Used in Composite GCLs**
S. Allen, TRI/Environmental, Inc., Austin, TX, USA

4:40 PM
**The Geosynthetic Concrete Cloth Layer (GCCL)**
J. Paulson, REDI Engineering & DISON C&S, Alphretta, GA, USA; and R. Kohlman, Milliken & Company, Spartanburg, GA

5:00
**Closing Remarks**
Kent von Maubeuge and J.P. Kline, Symposium Co-Chairmen

5:05 PM    SYMPOSIUM ADJOURNS