

Program

Advances in Cement and Concrete X: Sustainability

**July 2-7, 2006
Davos, Switzerland**

Conference Chair

Karen Scrivener
EPFL, Switzerland

Conference Co-chairs

Paulo Montiero
University of California, USA

Shunsuke Hanehara
Iwate University, Japan

ECI

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Sunday, July 2, 2006

17:30 – 19:30	Registration at the Cresta Sun Hotel
18:30 - 20:00	Welcome reception at the Cresta Sun Hotel
20:00	Dinner at the Cresta Sun Hotel
	Conference Overview: Karen Scrivener ECI Overview: Dick Fein Announcements: Barbara Hickernell

NOTES

- **Please observe “No Smoking” at ECI technical sessions, meals and social hours.**
- **Speakers should allow time at the end of their presentation for questions and discussion.**
- **Please silence your cell phone during technical sessions.**
- **All lunches, dinners and receptions will be at the Cresta Sun Hotel.**
- **Breakfasts will be at the hotel where you are staying**
- **Posters should be put on display on Monday and remain on display all week. Poster presenters are asked to be with their posters and available to answer questions during the poster session on Tuesday evening.**

Monday, July 3, 2006

- 06:45 – 07:45 Breakfast (at your hotel)
- 08:00 **SESSION I: New Chemistries/New Performance**
Session Chair: Donald MacPhee, UK
- 08:00 – 08:45 SUSTAINABLE CEMENTITIOUS BINDERS: NEW CHEMISTRIES,
NEW PERFORMANCE
Donald MacPhee, University of Aberdeen, Scotland
- 08:45 – 9:30 INNOVATIVE CEMENTITIOUS SYSTEMS BASED ON THE
ALKALINE ACTIVATION OF ALUMINOSILICATE MATERIALS
Angel Palomo, Eduardo Torroja Institute, Spain
- 10:00 - 10:30 Coffee Break
- 10:30 – 11:15 THE ROLE OF INORGANIC POLYMER TECHNOLOGY IN THE
DEVELOPMENT OF 'GREEN CONCRETE'
John Provis, University of Melbourne, Australia
- 11:15 – 11:30 DIFFERENCES IN ELEVATED TEMPERATURE PERFORMANCES
OF GEOPOLYMERS MADE WITH METAKAOLINITE AND FLY-ASH
J. Sanjayan, Monash University, Australia
- 11:25 – 12:00 Discussion
- 12:15 – 13:30 Lunch (at Cresta Sun Hotel)
- 13:30 – 16:30 *ad hoc* discussions/free time for recreation
- 16:30 – 17:00 Coffee Break
- 17:00 - **SESSION II: Innovative Cementitious Systems**
Session Chair: Ellis Gartner, France
- 17:00 – 17:40 APPROACHES TO THE DEVELOPMENT OF “SUSTAINABLE”
HYDRAULIC CEMENTS
Ellis Gartner, Lafarge Central Research, France
- 17:40 – 18:20 INNOVATIVE PRODUCTION SYSTEM OF CEMENT, ECOCEMENT
CONTRIBUTING TO SUSTAINABLE SOCIETY
Hiroshi Hirao, Taiheiyo Cement Corporation, Japan
- 18:20 – 19:00 COMPARISON OF TOTAL PERFORMANCE BETWEEN EU AND
JAPANESE CEMENT FOR GENERAL USE OF COMMON
CONCRETE
Shunsuke Hanehara, Iwate University, Japan
- 19:00 – 19:30 Discussion
- 20:00 Dinner followed by Social Hour

Tuesday, July 4, 2006

- 06:45 – 07:45 Breakfast (at your hotel)
- 08:00 **SESSION III: Improved Mechanical Performance**
Session Chair: Victor Li, USA
- 08:00 – 08:40 SUSTAINABLE INFRASTRUCTURE ENGINEERING:
INTEGRATING MATERIAL AND STRUCTURAL DESIGN WITH
LIFE CYCLE ANALYSIS
Victor Li, University of Michigan, USA
- 08:40 – 9:20 DUCTILE CEMENT-BASED COMPOSITES FOR MORE DURABLE
REINFORCED CONCRETE
Folker Wittmann, Aedificat Institute Freiburg, Germany
- 09:20 – 10:00 ECC SHEAR BEHAVIOUR CHARACTERISATION
GPAG van Zijl, University of Stellenbosch, South Africa
- 10:00 - 10:30 Coffee Break
- 10:30 – 11:10 PROPOSAL OF CORROSION RATE ANALYTICAL MODEL OF
REINFORCED CONCRETE WITH CRACK
Shinichi Miyazato, Kanazawa Institute of Technology, Japan
- 11:10 – 11:25 PROPERTIES OF NEW ULTRA HIGH PERFORMANCE FIBER
REINFORCED CONCRETE
Noriaki Matsubara, Kajima Technical Research Institute, Japan
- 11:25 – 12:00 Discussion
- 12:15 – 13:30 Lunch (at Cresta Sun Hotel)
- 13:30 – 17:00 *ad hoc* discussions/free time for recreation
- 17:00 - 17:30 AN ALTERNATIVE VIEW ON CONSTRUCTION,
Kurt Rhyner, Group Sofionas
- 17:30 – 19:00 **POSTER SESSION** (with wine and beer)
Poster Chair:
- 20:00 Dinner followed by Social Hour

Wednesday, July 5, 2006

- 06:45 – 07:45 Breakfast (at your hotel)
- 08:00 **SESSION IV: Role of Supplementary Materials in Durability**
Session Chair: Mike Thomas, Canada
- 08:00 – 08:50 USE OF HIGH VOLUME FLY ASH CONCRETE IN GREEN BUILDINGS
Mike Thomas, University of New Brunswick
- 08:50 – 9:40 SELECTING THE PROPER BINDER TO IMPROVE THE DURABILITY OF CONCRETE EXPOSED TO AGGRESSIVE ENVIRONMENTS
Jacques Marchand, Laval University, Canada
- 09:40 - 10:10 Coffee Break
- 10:10 – 10:30 TEST METHODS TO ASSESS THE ABILITY OF SUPPLEMENTARY CEMENTING MATERIALS TO MITIGATE ASR INDUCED EXPANSION
Jason Ideker, University of Texas, USA
- 10:30 – 10:50 HIGH PERFORMANCE HIGH VOLUME FLY ASH CONCRETE: LABORATORY INVESTIGATION AND FIELD IMPLEMENTATION
Victor Garas , Georgia Institute of Technology, USA
- 10:50 – 11:10 HYDRATION ANALYSIS OF BLAST FURNACE SLAG CEMENT BY USING XRD-RIETVELD METHOD
Kazuo Yamada, Taiheiyo Cement Corporation, Japan
- 11:10 – 11:30 MODIFICATION OF THE PORE NETWORK OF CEMENTITIOUS MATERIALS BY THE USE OF METAKAOLIN
Karen Scrivener, EPFL, Switzerland
- 11:30 – 12:00 Discussion
- 12:15 – 13:30 Lunch (at Cresta Sun Hotel)
- 13:30 – 16:30 *ad hoc* discussions/free time for recreation
- 16:30 – 17:00 Coffee Break

Wednesday, July 5, 2006 (continued)

- 17:00 - **SESSION V: Life Cycle Costing**
Session Chair: Armon Katz, Israel
- 17:00 – 17:40 THE IMPACT OF ENVIRONMENTAL CONSIDERATIONS ON
CONCRETE TECHNOLOGY
Armon Katz, Technion, Israel
- 17:40 – 18:20 MEASURING THE LIFE-CYCLE ENVIRONMENTAL AND
ECONOMIC PERFORMANCE OF CONCRETE: THE BEES
APPROACH
Barbara Lippiatt, National Institute of Standards & Technology,
USA
- 18:20 – 19:00 THE CO₂-UPTAKE BY CONCRETE IN 100-YEAR PERSPECTIVE
Claus Pade, Danish Technological Institute, Denmark
- 19:00 – 19:30 Discussion
- 20:00 Dinner followed by Social Hour

Thursday, July 6, 2006

- 06:45 – 07:45 Breakfast (at your hotel)
- 08:00 **SESSION VI: Role of Cementitious Systems in Waste Management**
Session Chair: Julia Stegemann, UK
- 08:00 – 08:40 STABILISATION/SOLIDIFICATION FOR MANAGEMENT OF WASTES AND CONTAMINATED LAND – OPTIMISATION OF FORMULATIONS
Julia Stegemann, University College, London
- 08:40 – 9:20 CEMENT/WASTE INTERACTIONS; ASSESSING THE ROLE OF CEMENT IN WASTE MANAGEMENT
Annette Johnson, EWAG, Switzerland
- 09:20 – 10:00 EVALUATION AND ASSESSMENT OF CEMENTITIOUS MATERIAL PERFORMANCE FOR LONG-TERM CONTAINMENT OF WASTES
Andy Garrabrants, Vanderbilt University, USA
- 10:00 - 10:30 Coffee Break
- 10:30 – 10:50 FORMULATING A LOW-ALKALINITY, HIGH-RESISTANCE AND LOW-HEAT CONCRETE FOR RADIOACTIVE WASTE REPOSITORIES
Maud Codina, France
- 10:50 – 11:10 SOME ASPECTS OF THE USE OF SLUDGE INCINERATOR ASH FOR THE PRODUCTION OF CONCRETE
Jorn Bodker, Danish Technological Institute, Denmark
- 11:10 – 11:30 TITLE - TBA
Neil Milestone, Sheffield University, UK
- 11:30 – 12:00 Discussion
- 12:30 Pick up boxed lunches and board coach for Optional excursion to the Sertig Valley (picnic lunch, music, walking to waterfall, short hikes in the mountains)
- 18:30 Return to Davos
- 19:30 Reception
- 20:00 Banquet followed by Social Hour

Friday, July 7, 2006

- 06:45 – 07:45 Breakfast (at your hotel)
- 08:00 **SESSION VII: The Future of Cementitious Materials**
Session Chair: Karen Scrivener, Switzerland
- 08:00 – 08:55 CEMENT PRODUCTION AND CO₂ EMISSION
Alain Capmas, ATILH, France
- 08:55 – 09:50 CEMENT & CONCRETE FOR LOW-COST HOUSING PROJECTS
IN THE DEVELOPING WORLD: ARE THEY SUSTAINABLE
MATERIALS?
Fernando Martirena, Universidad Central de las Villas, Cuba
- 10:00 - 10:30 Coffee Break
- 10:30 – 11:25 SUSTAINABLE BINDERS. LEARNING FROM THE PAST AND
FROM THE LIVING WORLD
Henri Van Damme, ESPCI, France
- 11:25 – 12:00 Closing Discussion
- 12:15 – 13:30 Lunch (at Cresta Sun Hotel) and departure

POSTER PRESENTATIONS

1. ESTIMATING CONCRETE DURABILITY BY THE DRYING TEST
Hsien-Sheng Peng, National Chung-Hsing University, Taiwan
2. RECYCLED CONCRETE AND MIXED RUBBLE AS AGGREGATES: INFLUENCE OF COMPOSITIONAL VARIATIONS ON THE CONCRETE PROPERTIES
Cathleen Hoffmann, EMPA, Switzerland
3. RAPID METHOD FOR TESTING THE WASTE IMMOBILISATION ABILITY OF DIFFERENT CEMENTITIOUS MATRIXES
Marta Castellote, Eduardo Torroja Institute, Spain
4. PERFORMANCE OF INHIBITORS IN CONCRETE TO CONTROL REBAR CORROSION
Ha-WonSong, Yonsei University, South Korea
5. REUSING THE FINE FRACTION OF CRUSHED WASTE CONCRETE
Frank Winnefeld, EMPA, Switzerland
6. DISCUSSION OF EFFECT ON CHEMICAL RESISTANCE OF SLAG BASED CONCRETE
Linda H. Xu, The University of Melbourne, Australia
7. ULTRAFINE PARTICLES TO SAVE CEMENT AND IMPROVE CONCRETE PROPERTIES
Björn Lagerblad, Swedish Cement and Concrete Research Institute, Sweden
8. RECYCLING WASTE CLAY BRICK IN CEMENTITIOUS SYSTEMS – A COMPARATIVE EVALUATION OF GROUND CLAY BRICK FOR ASR DURABILITY
Fatih Bektas, Iowa State University, USA
9. CHLORIDE INDUCED CORROSION OF REINFORCED CONCRETE COVERED BY HPFRCC BOARD
Shinichi Miyazato Kanazawa Institute of Technology, Japan
10. TOWARDS AN OPTIMAL USE OF CEMENT IN CONCRETE: APPLICATIONS IN DEVELOPING COUNTRIES
J. Fernando Martirena, Universidad Central de las Villas, Cuba
11. A DESIGN STRATEGY FOR PROMOTING CONCRETE DURABILITY BY APPLYING SUPERPLASTICIZER AND POZZOLANIC MATERIAL
Kung-Chung Hsu, National Taiwan Normal University, Taiwan
12. HIGH PERFORMANCE HIGH VOLUME FLY ASH CONCRETE: LABORATORY INVESTIGATION AND FIELD IMPLEMENTATION
Victor Garas, Georgia Institute of Technology, USA
13. DURABILITY STUDY OF CERTAIN ASPECTS OF FLY ASH CONCRETE EXPOSED TO SULPHATE ENVIRONMENT
Rakesh Kumar, M.N.N.I.T.S., India
14. THE ACCELERATED TEST METHOD FOR DURABILITY OF OFFSHORE CONCRETE STRUCTURE
Wen-Po Tsai, National Chung-Hsing University, Taiwan
15. ACTIVATION OF BELITE CEMENTS BY NANOMATERIALS
Igor Campillo, Labein-Tecnalia(NANOC), Spain

16. CONTROL OF DEGRADATION OF C-S-H GEL IN ORDINARY PORTLAND CEMENT PASTES BY THE ADDITION OF NANOMATERIALS
Juan José Gaitero, Labein-Tecnalia(NANOC), Spain
17. SUSTAINABLE RE-USE OF AIR-POLLUTION-CONTROL (APC) RESIDUES IN CEMENT BASED MATERIALS
Mette Rica Geiker, Technical University of Denmark, Denmark
18. QUANTIFICATION OF THE BENEFITS OF USING FLY ASH TO PREVENT EARLY-AGE CRACKING
Kyle Riding, The University of Texas at Austin, USA
19. FLY ASH-BASED GEOPOLYMER CONCRETE
Martin Lucuk, EMPA Dübendorf, Switzerland
20. HYDRATION MECHANISMS OF SUPER SULPHATED SLAG CEMENT WITH DIFFERENT CHEMICAL COMPOSITIONS
Astrid Gruskovnjak, EMPA Dübendorf, Switzerland
21. PRODUCTION OF SINTERED FINE SEDIMENT LIGHTWEIGHT AGGREGATE
Tsong Yen, National Chung-Hsing University, Taiwan
22. MINIMIZING THE CEMENT CONTENT IN ECOLOGICAL CONCRETE BY IMPROVING PARTICLE PACKING
S.A.A.M. Fennis, Delft University of Technology, The Netherlands
23. THE USE OF NON-TRADITIONAL RAW MATERIALS FOR BURNING PORTLAND CLINKER
Petr Sulovsky, Masaryk University, Czech Republic
24. WASTE, SECONDARY AND NATURAL RAW MATERIALS USED AS POSSIBLE COMPONENTS INTO BLENDED CEMENTS
Theodor Stanek, Institute for Research of Building Materials, Czech Republic
25. NEW INVESTIGATIONS OF SUPERSULFATED CEMENT AS SUSTAINABLE BINDING MATERIAL
Thomas Matschei, University of Aberdeen, Scotland
26. RECYCLING OF CONSTRUCTION MATERIALS AS AGGREGATE IN CONCRETE
Fouad M. Khalaf, Napier University, Scotland
27. LOW PH CALCIUM ALUMINATE CEMENT. SUPERCRITICAL CARBONATION
Lucia Fernandez-Carrasco, Polytechnic University of Catalunya, Spain
28. PERFORMANCE OF PALM OIL RUSK ASH AS A PARTIAL CEMENT REPLACEMENT - ENGINEERING PROPERTY
Abas Noorfaisal, University Sains Malaysia, Malaysia
29. INCREASING THE COMPRESSIVE STRENGTH OF HIGH PERFORMANCE CONCRETE BY ADDING NANO-SILICA POWDER
Yeong-Nain Sheen, National Kaohsiung University of Applied Sciences, Taiwan