

**International Workshop on Calcium Sulfoaluminate Cements**  
Murten, Switzerland, June 4-6, 2018, Final program, Version 2018-05-22

**Monday, 04.06.2018**

10:00 Start of registration

12:30 Lunch

13:30 **Opening of the Workshop**  
*Winnefeld F., Empa, Dübendorf (CH)*

**Session 1 – Clinkering**

**Chair: A. Telesca**

13:40 **Keynote: Clinkering of calcium sulfoaluminate clinkers: polymorphism of ye'elimite**  
*de la Torre A.G., University of Malaga (ESP)*

14:20 **On the heat of formation of ye'elimite using density functional theory ab-initio calculations**  
*Pisch A., University of Grenoble (FRA)*

14:40 **The stabilisation of  $\alpha'$  dicalcium silicate in calcium sulfoaluminate clinker**  
*Elhoweris A., Gulf Organisation for Research and Development, Doha (QAT)*

15:00 **Phase singularities in C-S-A-F-s-(H) systems**  
*Palou M.T., Slovak Academy of Sciences, Bratislava (SLK)*

15:20 **The potential of microscopy for the investigation of the CSA clinker microstructure**  
*Mutke S., Wilhelm Dyckerhoff Institute, Wiesbaden (GER)*

15:40 Coffee break

**Session 2 - Clinkering**

**Chair: J. Skibsted**

16:10 **Characterisation and hydration of ye'elimite containing cements - effect of iron**  
*Bullerjahn F., HeidelbergCement Technology Center, Leimen (GER)*

16:30 **Use of bauxitic industrial by-products for the production of belite-calcium sulfoaluminate clinker**  
*Kompouri D., National Center for Scientific Research Demokritos, Athens (GRE)*

16:50 **Ternesite-calcium sulfoaluminate cement prepared with phosphogypsum: Synthesis, characterization and hydration**  
*Huang Y., Chongqing University (CHN)*

17:10 **Synthesis and characterization of calcium sulfoaluminate cements produced by different chemical gypsums**  
*Telesca A., University of Basilicata, Potenza (ITA)*

**Flash presentations (2 min) of selected poster contributions**

**Poster Nr.**

17:30 **Molten salt synthesis of ye'elimite** **CL-1**  
*Hanein T., University of Sheffield (UK)*

**The  $\beta \rightarrow \gamma$  transformation of  $\text{Ca}_2\text{SiO}_4$**  **CL-2**  
*Saidani S., University of Limoges (FRA)*

**Calcium sulfoaluminate cement clinker influence on the hydration of Portland-limestone cement** **HY-1**  
*Ma S., Nanjing Technical University (CHN)*

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	<u>Poster Nr.</u>
<b>Impact of addition of commercial inorganic salts on CSA cement performance</b> <i>Marchi M., HeidelbergCement I.lab, Bergamo (ITA)</i>	HY-2
<b>Optimize ettringite formation as a way to reduce environmental footprint</b> <i>Berger S., Kerneos, Vaulx-Milieu (FRA)</i>	HY-3
<b>5 year of experience of an European technical approved CSA cement</b> <i>Gastaldi D., Buzzi Unicem, Casale Monferrato (ITA)</i>	DA-1
<b>18:00 Poster session with reception</b>	
<u>Posters without flash presentation:</u>	<u>Poster Nr.</u>
<b>Solid-state synthesis of pure ye'elimite</b> <i>El Khessaimi Y., University of Limoges (FRA)</i>	CL-3
<b>Comparison of different preparation methods for ye'elimite clinker synthesis</b> <i>Chitvoranund N., EPFL, Lausanne (CH)</i>	CL-4
<b>Ye'elimite synthesis from phosphogypsum</b> <i>El Hafiane Y., University of Limoges (FRA)</i>	CL-5
<b>Microstructure of belite sulfoaluminate clinker and its influence on clinker reactivity</b> <i>Žibret L., Slovenian National Building and Civil Engineering Institute, Ljubljana (SLO)</i>	CL-6
<b>Hydration and technical properties of blended-calcium sulfoaluminate cements</b> <i>Marroccoli M., University of Basilicata, Potenza (ITA)</i>	HY-4
<b>Effect of limestone fineness on CSAB cement hydration</b> <i>Moon J., Seoul National University (KOR)</i>	HY-5
<b>Calcium sulphoaluminate cement vs. calcium aluminate cement- sulphate based binder. Comparison of the hydration kinetics and phase assemblage</b> <i>Qoku E., Techn. University of Freiberg (GER)</i>	HY-6
<b>Flexural strength of mortars containing calcium sulfoaluminate cement</b> <i>Trauchessec R., University of Nancy (FRA)</i>	PR-1
<b>Study of the volume change properties of different OPC/CSA mortar systems</b> <i>Colonna D., University of Salento, Lecce (ITA)</i>	PR-2
<b>Prediction of thickening time of Class G cement slurries incorporating calcium sulfoaluminate (CSA) cement</b> <i>Lee N., Korea Institute of Civil Engineering &amp; Building Technology (KICT), Gyeonggi-Do (KOR)</i>	PR-3
<b>A comparison between calcium sulfoaluminate cement and fly ash-based geopolymer as sustainable binders for non-structural and structural mortars</b> <i>Telesca A., University of Basilicata, Potenza (ITA)</i>	PR-4
<b>Optimization of sulfate in calcium sulfoaluminate cements for engineering applications</b> <i>McCague C., University College London &amp; Mineral Products Association, London (UK)</i>	PR-5
<b>Overview of recent BYF studies</b> <i>Albert B., LafargeHolcim R&amp;D Center, St Quentin Fallavier (FRA)</i>	DA-2
<b>19:30 BBQ at Centre Loewenberg</b>	

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**Tuesday, 05.06.2018**

**Session 3 - Clinkering**

**Chair: A. Pisch**

- 08:00** **Keynote: Progress and future perspectives of CSA cements in China**  
*Sui T., Sinoma Research Institute, Beijing (CHN)*
- 08:40** **Characterization of calcium sulfoaluminate cement components and hydration reactions by  $^{19}\text{F}$ ,  $^{27}\text{Al}$  and  $^{29}\text{Si}$  MAS NMR spectroscopy**  
*Skibsted J., Aarhus University (DEN)*
- 09:00** **An alternative method of producing alite calcium sulfoaluminate cement**  
*Hanein T., University of Sheffield (UK)*
- 09:20** **Evaluation of properties of alite-calcium sulfoaluminate (A/CSA) cement produced from asian ash**  
*Robl T., University of Kentucky, Lexington, KY (USA)*

09:40 Coffee break

**Session 4 - Hydration**

**Chair: J. Moon**

- 10:10** **Advanced synchrotron studies of ye'elimite-based cement pastes**  
*Aranda M.A.G., ALBA Synchrotron, Barcelona (ESP)*
- 10:30** **Hydration of a calcium sulfoaluminate clinker with ternesite**  
*Carmona-Quiroga P.M., Instituto de Ciencias de la Construcción Eduardo Torroja, Madrid (ESP)*
- 10:50** **Modelling of the hydration and performance evolution of BYF cement**  
*Zajac M., HeidelbergCement Technology Center, Leimen (GER)*
- 11:10** **The effect of metakaolin and limestone on the hydrate phase assemblages and hydration kinetics of calcium sulfoaluminate – metakaolin – limestone blends**  
*Pedersen M.T., Aarhus University (DEN)*
- 11:30** **CSA and slag: towards CSA composite binders**  
*Bertola F., Buzzi Unicem, Casale Monferrato (ITA)*
- 11:50** **Study of nucleation and growth processes of ettringite in supersaturated diluted solutions**  
*Poupelloz E., University of Burgundy, Dijon (FRA)*

12:10 Lunch

**Session 5 - Hydration**

**Chair: M. Palou**

- 13:10** **The influence of  $\text{Li}_2\text{CO}_3$  on the development of the water content in the Al-hydroxide-gel of ye'elimite binders**  
*Jansen D., University of Erlangen-Nürnberg, Erlangen (GER)*
- 13:30** **Study of calcium sulfoaluminate cements and Portland cement blends**  
*Bolaños-Vásquez I., National University of Colombia, Medellín (COL)*
- 13:50** **Hydration kinetics in a high OPC ternary CSA system**  
*Wolf J.J., University of Erlangen-Nürnberg, Erlangen (GER)*
- 14:10** **A possible alternative to alkali activation in low clinker cementitious materials**  
*Boscaro F., ETH Zürich (CH)*
- 14:30** **Strategies to extend calcium sulfoaluminate cement concrete working time**  
*Burriss L.E., Ohio State University, Columbus, OH (USA)*

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14:50 Coffee break

**Session 6 - Properties**

**Chair: F. Götz-Neunhoeffer**

**15:20 Design of self desiccating binders using calcium sulfoaluminate cement: influence of the cement composition and calcium sulfate source**

*Farcy O., CEA Marcoule, Bagnols-sur-Cèze (FRA)*

**15:40 Further insights into calcium sulfoaluminate cement expansion**

*Hargis C.W., University of North Florida, Jacksonville, FL (USA)*

**16:00 Early-age expansion of ordinary Portland cement-calcium sulfoaluminate cement blends**

*Chaunsali P., Massachusetts Institute of Technology (MIT), Cambridge, MA (USA)*

**16:20** Announcements conference dinner

**17:15** Departure by bus to Murten

**18:00 Reception and conference dinner on a ship of the "Drei Seen Schifffahrtsgesellschaft AG" on Lake Murten**

**Wednesday, 06.06.2018**

**Session 7 - Properties**

**Chair: C.W. Hargis**

**08:30 Keynote: Potential of calcium sulfoaluminate cements for stabilization / solidification of radioactive waste**

*Cau Dit Coumes C., CEA Marcoule, Bagnols-sur-Cèze (FRA)*

**09:10 Rapid hardening high-belite calcium sulfoaluminate (HB-CSA) cement: A low CO<sub>2</sub>-cement**

*Zhou J., Hebei University of Technology, Tianjin (CHN)*

**09:30 CSA-based fast hardening concretes**

*Fourmentin M., Sigma Béton, L'Isle d'Abeau (FRA)*

**09:50 Improved workability of CSA cement by polymer encapsulation**

*Siriwatwechakul W., Thammasat University, Pathum Thani (THA)*

10:10 Coffee break

**Session 8 - Durability and Application**

**Chair: T. Matschei**

**10:40 Corrosion behaviour of carbon steel in CSA: principles and methods**

*Lorenzi S., University of Bergamo (ITA)*

**11:00 Further insights in the carbonation resistance of calcium sulfoaluminate cement mortars**

*Winnefeld F., Empa, Dübendorf (CH)*

**11:20 Accelerated foamed concrete based on CSA cement**

*van Nes Blessing L., Caltra B.V., Mijdrecht (NED)*

**11:40 Belitic calcium sulfoaluminate cement in America: a 60-year history of development, chemistry, and applications**

*Bescher E., University of California, Los Angeles, CA (USA)*

**12:00 Closure of the Workshop**

*Winnefeld F., Empa, Dübendorf (CH)*

12:10 Lunch