

International Conference on Calcium Aluminates

1-3 June 2020

This is a list of provisional titles for which abstracts have been received and the authors have been asked to submit completed manuscripts for review by the end of July 2019 and as with the previous Calcium Aluminate Conferences, these manuscripts will be peer reviewed prior to acceptance for publication. Every effort will be made to include late manuscripts it is important that they are received in good time to allow for the editing process so that the Proceedings can be given to the delegates when they arrive at the Conference. The titles are grouped provisionally according to subject matter, but the order shown here may not reflect the mode of presentation, the conference programme and the order in the published Proceedings.

CALCIUM ALUMINATES PHASES

Ternary solid solution of CA - SrA - BaA

Herbert PÖLLMANN

University of Halle, Germany

Synthesis and properties of calcium rare earth aluminates

Chimednorov OTGONBAYAR and Herbert PÖLLMANN

University of Halle, Germany

F- and SO₄- containing calcium sulfoaluminate $3\text{CaO}\cdot 3\text{Al}_2\text{O}_3\cdot x\text{CaF}_2\cdot (1-x)\text{CaSO}_4$ with $0 \leq x \leq 1$

Sabrina GALLUCCIO and Herbert PÖLLMANN

University of Halle, Germany

Thermodynamic data for ye'elemite

Barbara LOTHENBACH

Empa, Dübendorf, Switzerland

Investigation of the effects of fuel types on gehlenite and mayenite phases and performance of calcium aluminate cements

Berrak AVCIOĞLU and Metehan SEVEROĞLU

Çimsa Cement Research and Application Center, Turkey

Temperature programmed reduction (TPR) and oxidation (TPO) of cementitious materials

Stefan STÖBER, Herbert PÖLLMANN

University of Halle, Germany

Phase composition and hydration behaviour of a high silica calcium aluminate cement

Ingrid MIKANOVIĆ¹, Dubravka MARETIĆ², Ronny KADEN³ and Günther WALENTA¹

¹Calucem GmbH, Germany, ²Calucem d.o.o, Croatia and ³University of Halle, Germany

An investigation of the chemical distribution of minor elements in high alumina cements by a multidisciplinary approach

Marco CANTALUPPI¹, Fiorenza CELLA², Wojciech KAGAN², Nicoletta MARINONI¹ and Fernando CAMARA¹

¹University of Milan, Italy and ²Górka Cement SP. Z O.O, Poland

New calcium aluminate cements with advanced performance and reduced CO₂ footprint

Ronny KADEN¹, Ingrid MIKANOVIĆ¹, Dubravka MARETIĆ², Günther WALENTA¹ and Stefan STÖBER¹,

¹Calucem GmbH, Germany, ²Calucem d.o.o, Croatia

The effects of cooling parameters on performance properties of calcium aluminate clinker

Melike SUCU and Metehan SEVEROĞLU

Çimsa Cement Research and Application Center, Turkey

Investigation of the relationship between mineralogical content and rapid hardening property of calcium aluminium cement

Murat AYDIN, Metehan SEVEROĞLU and Suphi URAL

Cimsa, Turkey and Çukurova University, Turkey

HYDRATION

Synthesis and characterization of ss CAH₁₀ – SrAH₁₀

Herbert PÖLLMANN

University of Halle, Germany

Time-resolved investigation of Calcium Aluminate Cement hydration in mix with CaCO₃

Julian GOERGENS, Tanja MANNINGER and Friedlinde GOETZ-NEUNHOEFFER

Friedrich Alexander University, Erlangen, Germany

Calorimetry studies on blending of calcium aluminate cement with ground granulated blast furnace slag

Yun BAI¹, Shaoyan LI¹ and Raman MANGABHAI²

¹University College London, London, UK, ²Mangabhai Consulting, UK

Hydration kinetics of CA₂-CA-filler mixes analysed by in-situ XRD and pore solution composition

Andreas KÖHLER, Juergen NEUBAUER and Friedlinde GOETZ-NEUNHOEFFER

Friedrich Alexander University, Erlangen, Germany

Setting shrinkage measurement during cement hydration

Stefan KUIPER¹, Geert WAMS¹, Alexandra SPIES¹, Dagmar SCHMIDTMEIER², Sebastian KLAUS² and Andreas BUHR²

Almatis BV, The Netherlands, Almatis GmbH, Germany

Deeper insight into hydration kinetics of calcium aluminate cement: results

Friedlinde GOETZ-NEUNHOEFFER, Florian HUELLER and Juergen NEUBAUER

Friedrich Alexander University, Erlangen, Germany

Hydration modelling

Herve FRYDA

Imerys Aluminates Research Center, France

The effect of temperature on the formation of the structure of the hydrated calcium aluminate cement with microsilica

Valentin ANTONIVIČ, Renata BORIS, Rimvydas STONYS and Jurgita MALAIŠKIENĖ

Vilnius Gediminas Technical University, Vilnius, Lithuania

SPECIFICATIONS AND TEST METHODS

Modifications to test methods and review of specifications for calcium aluminate cement: A North American perspective

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¹Jensen Hughes, Chicago, Illinois, USA, ²Oregon State University, Corvallis, Oregon, USA, ³The University of Texas at Austin, Austin, Texas, USA

ADMIXTURES

Specific biopolymers as accelerator for alumina cement

Alexander ENGBERT and Johann PLANK

Technical University Munich, Germany

The effect of calcium nitrate and microsilica on the property of calcium aluminate cement

Hong-xia WANG¹, Gui-zhi DIAO¹, Guang-hua LIU¹, Hong-xia WANG², Guang-wei LIU³ and Danielle VAN NES⁴

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New insights in Li salt mechanisms

Herve FRYDA

Imerys Aluminates Research Centre, France

Effect of Li₂CO₃ on early CA-cement hydration in mix with CaCO₃: Hydrate and liquid phase analysis

Tanja MANNINGER, Friedlinde GOETZ-NEUNHOEFFER

Friedrich Alexander University, Erlangen, Germany

Hydration control of CAC using alkali carboxylic compounds

Herbert PÖLLMANN

University of Halle, Germany

BLENDED SYSTEMS

The influence of CA addition on the hydration kinetics of C₃S dominated mixtures

Juergen NEUBAUER, Jörg NEHRING and Friedlinde GOETZ-NEUNHOEFFER
Friedrich Alexander University, Erlangen, Germany

Quantification of phase compositions of complex mixtures of CAC with OPC, anhydrite and metakaolinite

Herbert PÖLLMANN and Sabrina GALLUCCIO
University of Halle, Germany

Effect of metakaolin on binders based on Portland cement, calcium aluminate cement, and calcium sulphate

Sarra EL HOUSSEINI¹, Karen SCRIVENER¹ and Barbara LOTHENBACH²
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Investigation of calcium aluminate cement - Portland cement - anhydrite in ternary system and determination of ratio of calcium aluminate cement to Portland cement

Bahadır ÖZTÜRK, Ayten ÇAPUTÇU, Metehan SEVEROĞLU and Berrak AVCIOĞLU
Çimsa Cement Research and Application Center, Turkey

Use of high ettringite producing ternary blend systems for use in thermochemical energy storage

Aaron J STRAND and Matthew ADAMS
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Impact of freeze-thaw cycling on bond interface of high ettringite producing cement systems

Matthew ADAMS, Noah THIBODEAUX and John A. REIF Jr
New Jersey Institute of Technology, Newark, New Jersey, USA

Exploring the ternary binder diagram for set on demand concrete

Lex REITER, Timothy WANGLER and Robert J FLATT
ETH Zurich, Zurich, Switzerland

Blended Calcium Aluminate Cements for digital fabrication with concrete

Arnesh DAS, Lex REITER and Robert J FLATT
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Stability of Ettringite in Blended Systems with CAC-PC-C \ddot{S}

Jason H IDEKER, Anika SARKAR
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Impact of hemihydrate & anhydrite combination on phase evolution and performance in self-levelling compound containing new generation CAC 50

Ronny KADEN¹, Ingrid MIKANOVIC¹, A. REIL¹, Markus SCHMIDT¹, Dubravka MARETIC², and Günther WALENTA¹,
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Influence of sulphate source on hydration kinetics and phase formation of CAC-rich and OPC-rich ternary binders

Elsa QOKU and Thomas BIER
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Hydration mechanism of amorphous calcium aluminates in ettringite systems

Herve FRYDA
Imerys Aluminates Research Center, France

DIVERSE APPLICATIONS

Applicability of calcium aluminate cement based material under deep sea conditions

Keisuke TAKAHASHI¹, Mari KOBAYASHI¹ and Yuichiro KAWABATA²

¹Ube Industries, Ltd., and ²Port and Airport Research Institute, Japan

Characterization of different types of bauxite, their effect on calcium aluminate cement phase quantity and investigation of refractory properties

Metehan SEVEROĞLU and Berrak AVCIOĞLU

Cimsa Cement Plant – Çimsa Cement Research and Application Centre, Turkey

Towards understanding the ageing behaviour of SLU formulations: Impact of prehydration on individual components and role of admixtures

Florian HARTMANN, Alexander ENGBERT and Johann PLANK

Technical University Munich, Germany

Performance of rapid-repair (ettringite-based) concrete in a harsh marine environment

Ted MOFFATT¹, Michael D. A. THOMAS¹, Racheal LUTE² and Kevin FOLLIARD²

¹UNB Fredericton Campus, Canada, ²The University of Texas at Austin, Texas, USA

Research about properties of cost effective structural heat resistant concrete using HAC and EAF slag aggregates

Mohammad JR Hossein ABADI¹, Ahmad EMAMI² and Mariyam MOBARAKEH³

¹Najaf Abad Azad University, Iran, ²Iran Refractory Cements and ³Aghigh University of Geotechnics, Iran

The use of CAC for the remediation of a Pb contaminated soil: The role of sulfates

Silvia CONTESSI¹, Loris CALGARO², Maria Chiara DALCONI¹, Enrico GARBIN¹, Giorgio FERRARI³ and Gilberto ARTIOLI¹

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Calcium Aluminate for digital construction and 3D printing

Herve FRYDA

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Interaction of molten slag with calcium aluminate cement mortar

Fernando F. DE MENDONCA FILHO and Oğuzhan ÇOPUROĞLU

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Amorphous flash calcined alumina – effect on shrinkage and set of Portland cement

Ludo. C. VAN NES BLESSING

Caltra bv, The Netherlands

ASPECTS OF DURABILITY

Electric resistivity testing method to assess conversion in calcium aluminate cement concrete systems

Marwa KORAYEM, Aaron J STRAND and Matthew ADAMS

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Impact of conversion on permeability in calcium aluminate cement concrete systems

Marwa KORAYEM and Matthew ADAMS

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Decoupling the effects of hydrate mineralogy and porosity resulting from conversion on calcium aluminate cement corrosion resistance

W. LIU, A.W.H. CHEUNG and Marjorie VALIX

The University of Sydney, NSW 2006, Australia

Investigation of mechanical, durability, thermal and microstructural properties of calcium aluminate cement based mortars containing mineral admixtures

Murat TUYAN

Izmir Democracy University, Karabaglar/Izmir, Turkey

Aggregate impacts on chemistry, conversion, and strength in calcium aluminate cement concrete

Matthew P. ADAMS¹ and Jason H. IDEKER²

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A presentation on the durability of 50-year-old concrete using alumina cement in Japan

Taiichiro MORI¹, Daiki SHIMAZAKI¹, Y SASAGAWA¹ and Etsuo SAIKAI²

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Influence of relative humidity exposure on the microstructure of hardened calcium aluminate cement paste

Sandra WAIDA, Mirco WAHAB and Thomas BIER

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SEWERAGE APPLICATIONS

On the thermodynamic modelling of converted and non-converted CAC and their resistance to biodeterioration in sewer

Alexandra BERTRON

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Towards a better understanding of biodegradation mechanisms of calcium aluminate based cementitious materials in sewer conditions

Matthieu PEYRE-LAVIGNE, A. ABOULELA, A BUVIGNIER, Cédric PATAPY and Alexandra BERTRON

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On the resistance of CAC materials to biogas systems

Alexandra BERTRON

University of Toulouse, INSA, Toulouse, France

Microbial activity in calcium aluminate based materials

Eva KRÄNZLEIN, Paul BRUMM, N SHAHEEN and Thomas BIER

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The performance of 70-year old concrete sewer pipe with a calcium aluminate cement-based lining

Moses KILISWA

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Development of a calcium aluminate cement (CAC) based engineered cementitious composites (ECC) with relatively low fibre content

Wei FAN¹, Z. ZHUGE¹, X. MA¹, C.W.K. CHOW¹ and N. GORJIAN²

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Comparative Acid Resistance of a one-part geopolymer and calcium aluminate cement mortar

C. SEEDAO, M.E. FISHER and Marjorie VALIX

The University of Sydney, NSW 2006, Australia

CAC based-based binder for microbiologically induced corrosion resistant concrete and mortars

Markus SCHMIDT¹, Ingrid MIKANOVIC¹, Dubravka MARETIC², Ronny KADEN¹, Günther WALENTA¹, Danilo PASSALACQUA³, Francesco SURICO³, Fiorenza CELLA³ and Davide SALVIONI³

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Conversion free CAC based-based binder for microbiologically induced corrosion resistant concrete in sewer applications

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Effect of Class F fly-ash on the corrosion resistance of calcium aluminate cement mortar

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Host structure requirements to promote adhesion of calcium aluminate cement mortar

Y.J. IN and Marjorie VALIX

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