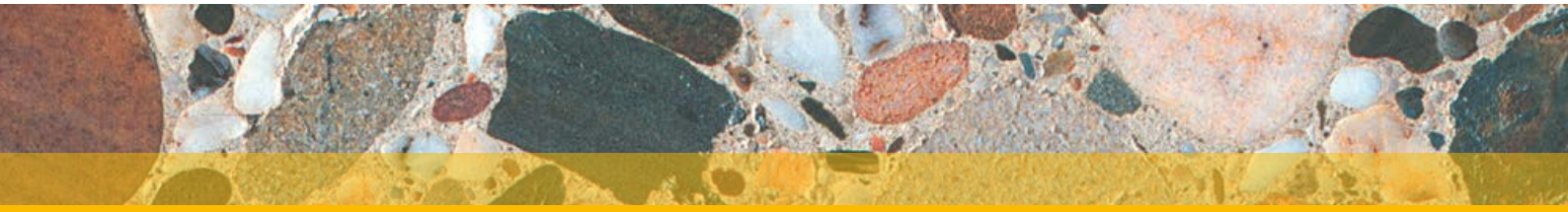
ecra

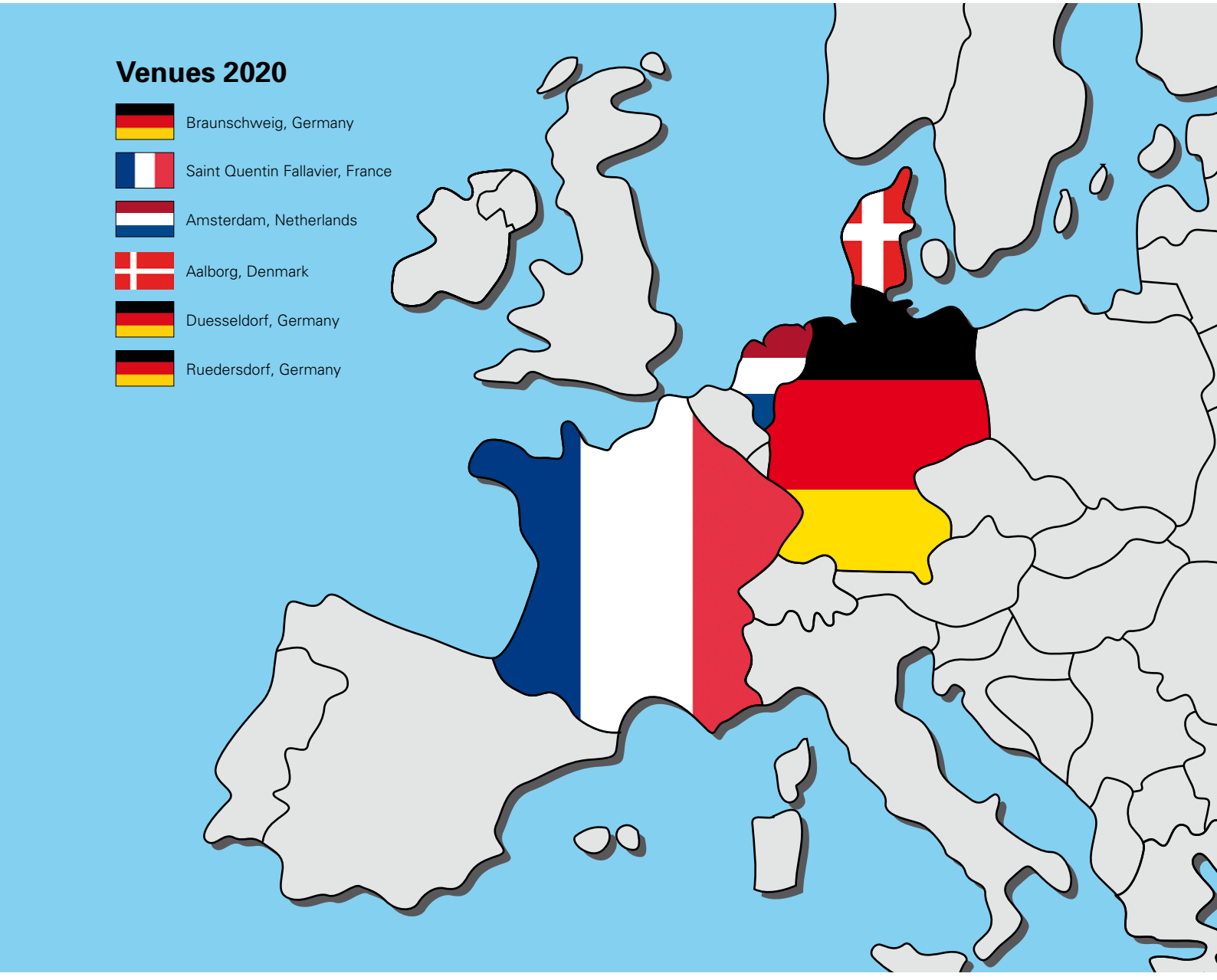
european cement research academy



PROGRAMME 2020

Seminars

www.ecra-online.org



European Cement Research Academy

Welcome to ECRA's seminar programme for 2020.

The most important challenges of our time for the cement and concrete industry are without doubt climate protection and the sustainable use of resources. We have reflected this in our choice of seminars for this year by putting particular emphasis on these vital issues.

Our seminar topics are as follows:

- Additive Manufacturing: Opportunities and Challenges for Tomorrow's Cement and Concrete
- Innovations in the Resource Efficiency of the Concrete Sector
- The Future Composition of Cement and Concrete: Resources in a Material-Constrained World
- Plant Performance and Process Optimisation
- CO_2 Value Chains: Prerequisites for a Future CO_2 Economy
- State-of-the-Art Calciner Technology

This year's venues are in Denmark, France, Germany and the Netherlands. As always, all seminars include ample time for discussion and an informal evening dinner where you can network and exchange views with colleagues from different countries. Each seminar also includes a half-day visit to a cement plant or an industrial partner to ensure the right balance between theory and practice.

For more information and to register, please visit www.ecra-online.org.

We look forward to welcoming you!

Martin Schneider

Managing Director

27–28 May 2020

S20-01
Additive Manufacturing: Opportunities and Challenges for Tomorrow's Cement and Concrete

Scope: *Which role will new technologies like the additive manufacturing of concrete or 3D printing play regarding the required properties of modern cements and concretes?*

Target group: *R&D, engineering, sales and marketing*

Digitalisation in the construction sector will bring new opportunities and will have a strong impact on the whole construction value chain. Promising new technologies like the additive manufacturing of concrete or 3D printing are emerging on the horizon. Research activities in this field have increased exponentially and various sophisticated solutions are being developed worldwide. Within the framework of this seminar, potentials for building with concrete through digital planning and production will be shown and discussed, and requirements for modern cements and concretes will be covered. An overview of digital fabrication approaches with concrete will also be given. Will additive manufacturing and 3D printing lead to new requirements for binders, and how are construction companies adapting to the new developments? These and other questions will be discussed. The seminar includes a visit to the Digital Building Fabrication Laboratory at the Technical University of Braunschweig.

Topics:

- Digital fabrication with concrete: Introduction and overview
- Particle-bed 3D-printing in concrete construction
- Shotcrete 3D-printing: Printing of large-scale concrete elements
- Digital fabrication with concrete: New requirements for binders?
- Integration of reinforcement in concrete 3D-printed components and structures
- 3D-design software as a requirement for additive manufacturing

Venue: Braunschweig, Germany
Nearest airport: Hannover

23–24 June 2020

S20-02
Innovations in the Resource Efficiency of the Concrete Sector

Scope: *Regional bottlenecks in the supply of raw materials for the production of cement and concrete already exist today. How does the concrete sector face this challenge in the long term?*

Target group: *R&D, engineering, sales and marketing*

As the world continues to urbanise, many countries will face challenges in meeting the needs of their growing urban populations, including for housing, transportation, energy systems and other infrastructures. Concrete makes a valuable contribution to this worldwide. The challenge will be to meet the enormous demand for concrete structures without a further significant increase in the demand for natural resources. Resource efficiency is increasingly becoming the focus of attention and can be implemented at three levels:

- Optimised mix design
- The lowest possible concrete content in the structure/component
- Flexible layout design for the longest possible use

If these approaches can be combined, the reduction in the use of resources may be even greater. The seminar will discuss what such a development would mean for cement and concrete manufacturers and includes a tour of the laboratories of the LafargeHolcim Innovation Center in Saint Quentin Fallavier, which is also the seminar venue.

Topics:

- Setting the scene: From the clinker factor to resource-efficient constructions
- Packing density optimisation: From the ivory tower into broad application?
- High performance concrete: Quality, market, building codes
- Resource efficiency through prefabrication: Clinker factor vs. cement performance
- Closing the loop: What contribution can recycling really make?
- Environmental Cost Indicators and CSC: Suitable systems for promoting resource efficiency?
- Innovative technologies: 3D printing, carbon reinforced concrete, gradient concrete etc.

Venue: Saint Quentin Fallavier, France
Nearest airport: Lyon

30 September / 1 October 2020

S20-03
The Future Composition of Cement and Concrete – Resources in a Material-Constrained World

Scope: *Perspectives for future resources for cement and concrete production when the availability of currently used materials decreases*

Target group: *Plant managers, product managers, R&D managers, quality managers, portfolio managers*

Climate protection, the circular economy and the sustainable use of resources are current and future challenges for the cement and concrete industry. The availability of "well-tried and proven" materials such as slag and fly ash will decrease in the coming decades in some regions. In addition, permits to mine sand and aggregates for concrete may become more restrictive. This seminar will deal with the current and future availabilities of cement and concrete constituents. The potentials and limits of new materials will be discussed. The focus will be on slags from different metallurgical processes, ashes from different incineration processes, calcined clay, limestone and recycled and activated materials. The seminar will comprise overview lectures and case studies, offering sufficient time for discussions with the participants. The seminar includes a visit to the modern recycling plant of the Dutch construction company Rutte Group in Amsterdam.

Topics:

- Demand and availability of raw materials for cement and concrete production
- New cement resources from the metallurgical industry
- Calcined clay and limestone: New combinations for modern cement and technical solutions
- Recycled concrete, bricks and roof tiles for cement and concrete production
- Practical experience with the use of fines from concrete recycling
- Use of ashes from different incineration processes
- Reaction grinding: A method to activate supposedly inert materials

Venue: Amsterdam, Netherlands
Nearest airport: Amsterdam

13–14 October 2020

S20-04
Plant Performance and Process Optimisation

Scope: *A comprehensive overview of optimisation potentials in plant operation*

Target group: *Production managers and process engineers, supervisors*

In addition to the everyday challenges of plant operation, the production process must be constantly checked with regard to economic operation and competitiveness. If necessary, the equipment has to be upgraded to be future-compatible by incorporating the latest technological developments or spare parts. The seminar will give a comprehensive overview of optimisation potentials in the clinker burning process and cement mill operation, covering the reduction of operation costs, the optimisation of the production rate and the fuel and power demand, quality improvement, environmental performance improvement and the use of alternative fuels. The seminar will take place at the Aalborg Portland A/S cement plant in Denmark and will include a tour of the plant.

Topics:

- Overview: KPI's and state-of-the-art operation
- Stable kiln operation (raw meal homogenisation, STD etc.)
- AFR optimisation by flame observation
- CFD Simulation to optimise calciner operation
- Optimisation of fuel and power demand by kiln control
- Optimisation of the cement grinding process
- Improvement of clinker quality
- Reduction of energy consumption

Venue: Aalborg, Denmark
Nearest airport: Aalborg

29–30 October 2020

S20-05
CO_2 Value Chains: Prerequisites for a Future CO_2 Economy

Scope: *Developments and perspectives for complete CCS and CCU value chains*

Target group: *Plant design engineers, technological research and development, climate and sustainability experts*

The abatement of CO_2 emissions from industry processes is recognised as a key challenge for this and coming decades to achieve carbon neutrality in the construction sector. CO_2 capture technologies in the cement sector are now ready for demonstration at industrial scale. They have been successfully studied since 2007 in the ECRA CCS research project and in recent EU research projects on CCUS. For their industrial application and investment decisions in the next decade, key questions remain: How can infrastructures for the transport, storage and use of CO_2 be developed and organised? Which framework is suitable for establishing the required complete and cross-sectoral value chains for CO_2 abatement by CCS and CCU? The seminar will highlight recent projects and technological developments in the field of CO_2 transport, storage and use and will address key questions regarding the societal and political framework. A visit to the "Carbon-2-Chem" project technology demonstration installed at ThyssenKrupp in Duisburg is planned.

Topics:

- CO_2 networks, hubs and value chains for transport and storage
- CO_2 use and demand in the chemical sector
- Safe permanent CO_2 storage
- Key legal questions and frameworks for CO_2 transport, storage and use
- CO_2 transport infrastructure access for remote cement plant locations
- Porthos project, linking sources and sinks via CO_2 hubs
- "Carbon2Chem" project presentation

Venue: Duesseldorf, Germany
Nearest airport: Duesseldorf

25–26 November 2020

S20-06
State-of-the-Art Calciner Technology

Scope: *The newest calciner designs with a focus on gasification and pre-combustion of alternative fuels*

Target group: *Process engineers, plant design engineers with experience in process engineering in cement manufacturing, combustion experts*

Virtually all new kiln installations in the cement industry designed worldwide today are equipped with precalcining technology. Precalciners provide particular flexibility, as NO_x and CO emissions are influenced by calciner operation, and alternative fuels can be fed at several firing places at different temperature levels. In addition to economic criteria, physical criteria (e.g. particle size) and chemical criteria (e.g. chlorine, sulphur, alkali and phosphate content) play a decisive role in the selection of alternative fuels as they can have an impact on the kiln operation and emissions. The seminar will give an overview of the current state of the art of calciner designs, the use of alternative fuels, and the possibilities of controlling NO_x and CO emissions by fuel, air or meal staging. Current state-of-the-art thermal pre-treatment systems for the burning or gasification of alternative fuels will also be presented. The seminar will take place at the CEMEX cement plant in Rüdersdorf and includes a plant tour.

Topics:

- Kiln operation with high-level use of alternative fuels in the calciner
- NO_x reduction and burnout optimisation in the calciner
- Different concepts for the pre-combustion or gasification of alternative fuels, e.g.
  - Hot spot combustion chamber
  - Hot Disk
  - Circulating fluidised bed
  - Step Combustor
  - Pyrorotor
  - Fire Bed Combustor

Venue: Ruedersdorf, Germany
Nearest airport: Berlin-Tegel

Registration

Registrations can only be made online via the ECRA website www.ecra-online.org. All current registration deadlines are shown on the website. Participants will receive written confirmation of their registration.

Participation fee

Unless stated otherwise, the participation fee per person for each seminar/workshop is 1,350 EUR for participants from ECRA member companies/ organisations.

There is a discount of 25 % for each additional participant from the same company address.

Cement associations which are ECRA members may delegate one participant to each seminar/ workshop free of charge.

Participants from companies or organisations which are not ECRA members will be charged double.

The participation fee includes lectures, handouts, refreshments, lunch, evening dinner and, where necessary and possible, group bus transfers to and from the nearest airport to the venue.

VAT application:
Invoices issued to recipients in Germany: The standard German rate of VAT, currently 19 %, will be applied.

Invoices issued to recipients in other EU countries: VAT will not be applied if the recipient provides a valid VAT registration number (reverse charge rule according to Art. 196, 205 EU-Directive 2006/112).

Invoices issued to recipients in non-EU countries: VAT will not be applied. A certificate of tax residence is required.

The above-mentioned VAT application rules apply only to the participation in ECRA seminars, workshops and training courses.

Hotel accommodation

Hotel accommodation is not included in the participation fee. ECRA will provide hotel recommendations, but participants must book their accommodation with the hotel directly themselves. In the event of the cancellation of a room reservation the terms and conditions of the hotel apply.

Payment

Participants will receive an invoice which is payable immediately upon receipt by bank transfer. Payment must be made in advance of the seminar/ workshop. Payment will be accepted in Euros only.

Cancellations

Participation fees will be refunded for cancellations made in writing up to seven days before a seminar/workshop takes place. No refund will be made for cancellations received after this date.

ECRA reserves the right to change the content of its seminars and workshops and to cancel these in the case of insufficient bookings or other circumstances beyond its control. In the case of cancellation by ECRA, participants are entitled to a full refund of their participation fee. ECRA is not responsible for any other loss incurred by a participant resulting from the cancellation or alteration of a seminar/workshop by ECRA.

These terms and conditions are governed by German law.

Duesseldorf, January 2020

For more information please visit www.ecra-online.org

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