

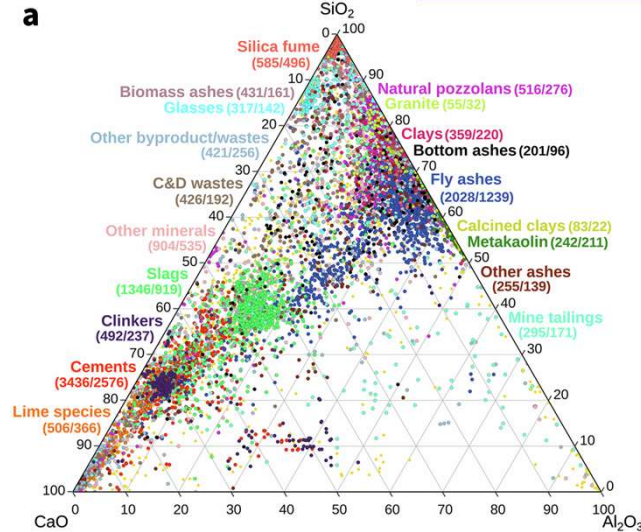
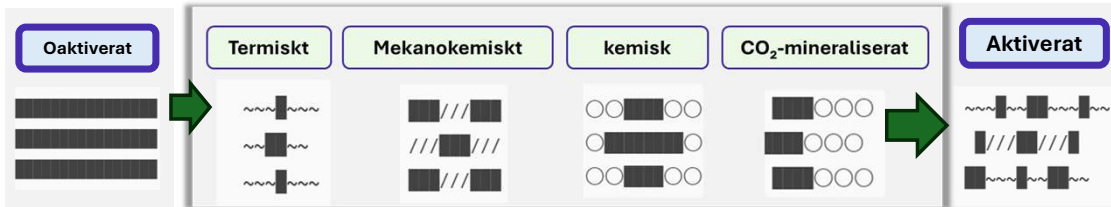
Framtidens bindemedel

Forskningsområdet byggnadsmaterial

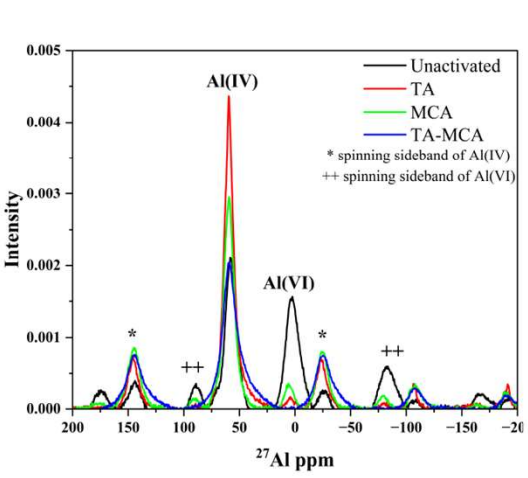


Huvudsaklig forskningsfokus

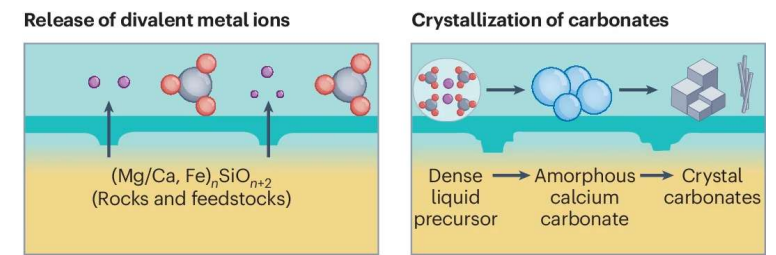
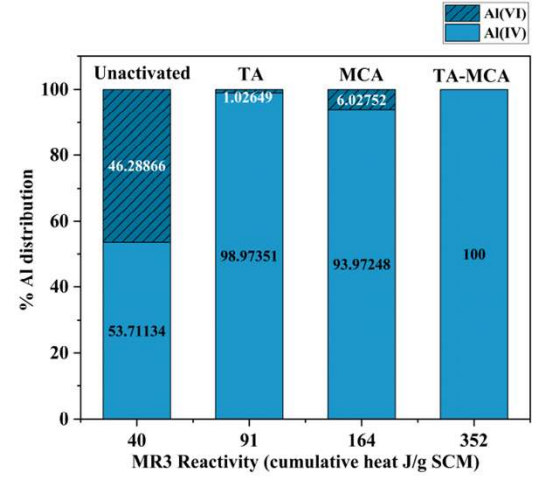
Hur styr porstrukturens utveckling i **klimateffektiva bindemedel** hydratiseringsprocesser, transportmekanismer och makroskopiska egenskaper hos **klimateffektivt betong**?



Mahjoubi., et al. 2025, Communication materials



Amrita Hazarika 2026, PhD thesis



Liming Huang, Arezou Babaahmadi, et al. 2026, Nature reviews materials

Framtidens bindemedel

Forskningsområdet byggnadsmaterial



Vad är ett klimatförbättrat betong?

Substitution med cementersättningsmaterial (SCM) samt alternativa cement som aktiveras genom mekanokemisk aktivering, alkalisk aktivering eller koldioxidmineralisering.

Hydratiseringens utveckling

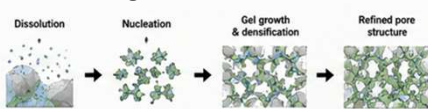
Por nätverk, transportegenskaper och beständighet

Hydratiseringskinetik

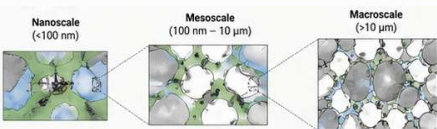
Low carbon binder (e.g., LC², SCM-rich)



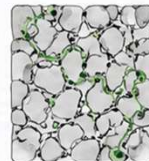
Portätning



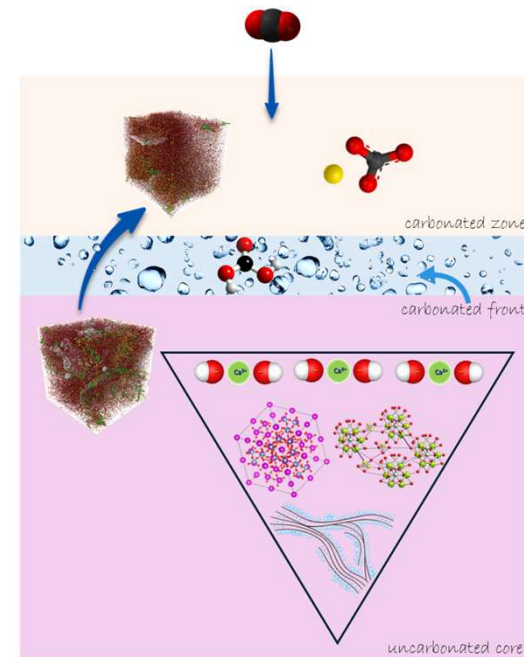
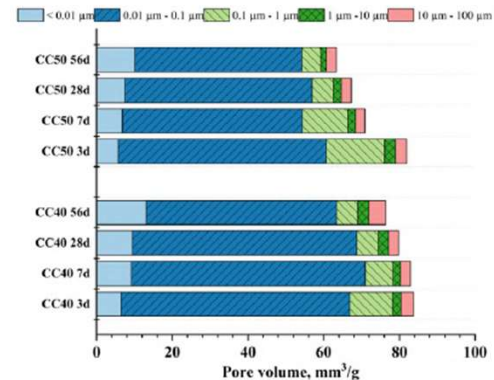
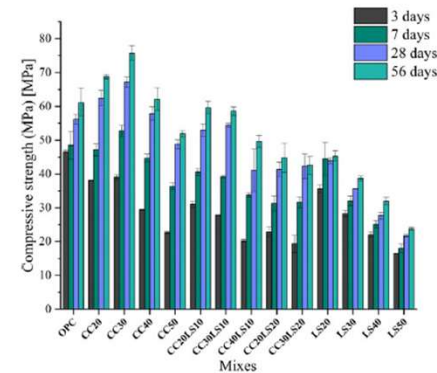
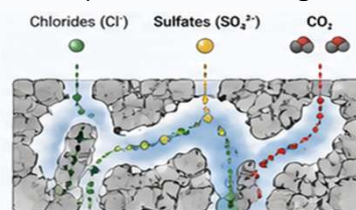
Fasernas samspel formar porstrukturen



Por-konnektivitet



jontransport och beständighet



Porstruktur, hållfasthet, krympning och sprickbildning

Hazarika, A., et al. 2025, *Cement and Concrete Research*

Sahar Iftikhar 2026, Licentiate thesis

Forskningsområdet byggnadsmaterial

Framåtdrivande forskning inom cementbaserad materialvetenskap



Utbildning inom ämnet

Transition of CEMENT GREEN
From Roman Times to Future

Green Cement Workshop
Time: 11:30-13:30, 5 November
Venue: Teknik park, TP-L11
Host: Building Materials Research Area
Sponsored by: Mapei

Free lunch sponsored by Mapei
Network with industry leaders and researchers

Lectures

Alastair T. M. Marsh
Scientist, EPFL
Transition of cementitious materials in history

Arezou BabaAhmadi
Associate Professor, Chalmers
Introduction to "Green cement" course

Panel Discussions

Niklas Johansson
Technic chief
Mapei AB

Nilla Olsson
Technical Specialist
NCC AB

Karin Kartfeldt Fedje
Adjunct Professor
Renova

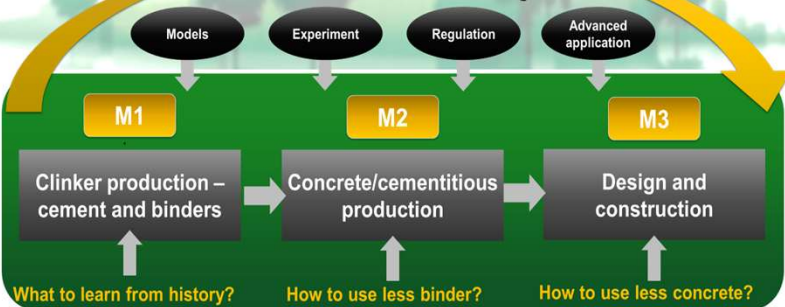
Clara Ivarsson
Technical sales
Thomas Concrete



Registration

GREEN CEMENT

Circular Economy: Recycling



Internationellt samarbete

TC-MCA
Mechano-chemical activation of cementitious constituents

TC-UMW
Upcycling Powder Mineral "Wastes" into Cement Matrices

TC-CUC
Carbon dioxide uptake by concrete during and after service life

TC-EBD
Test methods to evaluate durability of blended cement pastes against deleterious ions

TC-MCP
Accelerated Mineral Carbonation for the production of construction materials

International Union of Laboratories and Experts in Construction Materials Systems and Structures

Materials and Structures (2023), 18, 124
https://doi.org/10.1016/j.matstruc.2023.102694

RILEM TC REPORT

Measuring chloride binding in cementitious materials: A review by RILEM TC 298-EBD

Fabien Georget¹, Arezou Babashamadi², Alina Macher³, Marula Mruk⁴, Sabina Dolenc⁵, Qing Xiang Xiang⁶, Joseph Shijo⁷, Didier Soneck⁸, Pranay Saranani⁹, William Wilson¹⁰

RILEM Technical Letter (2023) 18: 124
https://doi.org/10.1016/j.rilem.2023.102694

Opening Letter of RILEM TC UMW: Upcycling Powder Mineral Wastes into Cement Matrices – Challenges and Opportunities

Arne Peys¹, Luca Valentini², Anirudha Baral³, Arezou Babashamadi⁴, Priyadarshini Perumal⁵, Marco Davolio⁶, Liberato Ferrara⁷, Antonios Kanellopoulos⁸, Theodore Haseini⁹*

Test methods for chloride diffusivity of blended cement pastes: a review by RILEM TC 298-EBD

Neven Ukrainczyk¹, Thomas Bernard², Arezou Babashamadi³, Liming Huang⁴, Christoph Zausinger⁵, Anthony Soliv⁶, Stéphanie Bonnet⁷, Fabien Georget⁸, Marula Mruk⁹, Sabina Dolenc¹⁰, Tobias Vilber¹¹, Pranay Saranani¹², William Wilson¹³

Received: 9 May 2023 / Revised: 18 August 2023 / Accepted: 20 September 2023 / Published online: 4 November 2023

Abstract
The use of supplementary cementitious materials (SCM) is an important part of the roadmap for reducing CO₂ emissions and extending the service life of reinforced concrete structures. To accelerate the adoption of SCMs, the RILEM Technical Committee 298-EBD evaluates scaled-down cement paste test methods to assess the effect of SCM on resistance to chloride and sulfate ingress and reactivity, which are critical to concrete durability. This review focuses on methods for measuring chloride diffusivity and is divided into four sections: diffusivity models and parameters, diffusion test methods (including NMR and chloride measurements), migration test methods and implications for future research. Key insights highlight the complexities of multi-species ionic and molecular diffusion/impregnation, including various binding interactions, and compares the different measurement methodologies. The review also addresses the test scale and aggregate effects, noting the pros and cons of testing at the paste, mortar, and

Keywords Upcycling, M1

1 Introduction
The utilization of the most technological socioeconomic and sustainable energy wind turbines, solar) lead to increased demand for extract the materials [1]. Moreover, recent sector will significant materials consumption increase in mining of carbonation and all volumes of mineral

This paper has been prepared by RILEM TC 298-EBD working group four (WG4) titled "Transport with and without reactivity". The paper has been reviewed and approved by all members of the TC.
Chair: Prof. William Wilson
Deputy Chair: Prof. Pranay Saranani
TC active members: Adnan Alabdali, Alana Pacheco, Alexandru Ovidiu, Alina Macher, Anthony Soliv, Arezou Babashamadi, Barkan Igci, Chandra Sekhar Das, Christian Pappas, Christoph Zausinger, Chuan-Yi Qian, Chuanbin Ouyang, Plamenovska, Dhanraj Subana Rajasingam, Didier Soneck, Diego Fouca de Souza, Douglas Henton, Fabien Georget, Elio Elio, Isaac Weiss, Karim Aichroune, Klavdij de Witold, Kamal Karimha Das, Larissa Bortone, Laurent, Yi Li, Liming Huang, Longshu Dudi, Manoj Kumarji, Marula Mruk, Matthew Bortin, Mito Geller, Melissa Bee Hahn, Neven Ukrainczyk, Pranay Saranani, Priyadarshini Perumal, Qing Xiang, Qian Wang, Ramiel Germano, Rita Homayonizadeh, Riccardo Marchetti, Robert Hoffinger, Sabina Dolenc, Sabina Krucinska, Shijo Joseph, Sulfate Anisim, Stéphanie Bonnet, Takahito Vivaldo, Thomas Bernard, William Wilson, Wujang Kueber, Xuesen Li, Yuxiang Duanqian

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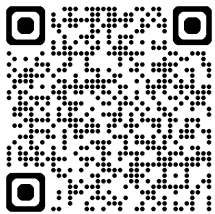
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