



Media Release

Boral, UTS, Calix and SmartCrete CRC partner to develop next generation of low-carbon concrete using Australian calcined clay

Sydney, 8th August 2024 - [SmartCrete Cooperative Research Centre \(CRC\)](#) has joined forces with Australian construction materials company [Boral Limited \(Boral\)](#), the [University of Technology Sydney \(UTS\)](#), [Transport for NSW](#) and environmental technology company [Calix Limited \(Calix\)](#) to develop lower carbon concrete using Australian calcined clay.

The two-year, \$1.67 million research project, co-funded through the Commonwealth's CRC Program, focuses on developing, testing and optimising concrete mixes incorporating calcined clay as an alternative to Ordinary Portland Cement, targeting a substantial reduction in CO₂ emissions while meeting Australian building and construction standards.

A first batch of Boral clay has been successfully calcined by Calix's unique renewably powered electric calcination technology, demonstrating the potential of the approach to produce a low carbon intensity SCM.

Boral's Head of Sustainability and Innovation Dr Ali Nezhad highlights the industry's growing demand for low embodied carbon concrete and the importance of innovative solutions to ensure the concrete industry is well positioned to meet the increasing demand in the long term. The latter is particularly important amidst anticipated long term constraints on traditional Supplementary Cementitious Materials (SCMs) like fly ash and slag, as Australia transitions from coal-fired power generation

"We are committed to supporting our customers in their decarbonisation journey. Part of this commitment is to ensure we are well positioned to meet the growing demand for lower carbon concrete in the long term.

"As supplies of traditional SCMs like fly ash and slag become more constrained in the long term, finding reliable alternatives SCMs is crucial. With clay being one of the most abundant materials in Australia, calcined clay offers a promising solution. We are excited to collaborate with SmartCrete CRC, UTS, Transport for NSW and Calix to explore its potential and bring this technology to the Australian construction industry," said Dr Ali Nezhad.

UTS's research lead Dr Paul Thomas is collaborating with Boral to establish calcined clay as a readily available and viable low carbon concrete binder. Together, they will benchmark its performance against the materials properties such as durability and sustainability of existing cement technologies.

Dr Paul Thomas states that "combining UTS's research capabilities with Boral's industry experience ensures a comprehensive evaluation of calcined clay. This will not only establish its viability as a low-

carbon binder but also pave the way for its practical implementation within the construction industry.”

Dr Salwan Alassafi, General Manager of Research and Development at Calix, emphasised Calix’s commitment to deliver effective decarbonisation solutions for the global cement and lime industries.

“In addition to capturing unavoidable process emissions from traditional cement, the use of SCMs is an important decarbonisation pathway for the industry. Producing SCMs with renewably powered electric calcination is an exciting prospect to avoid both energy and process emissions,” said Dr Salwan Alassafi.

SmartCrete CRC CEO Clare Tubolets emphasises the collaboration’s significance in driving sustainable change.

“The partnership with Boral, UTS, Transport of NSW and Calix is not just about research – it is about actionable change. By leveraging our combined expertise, we aim to accelerate the adoption of calcined clay concrete, thereby significantly contributing to the sustainability goals of the construction sector,” said Clare Tubolets.

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About Boral

Boral is the largest vertically-integrated construction materials company in Australia.

Our network includes prized quarry and cement infrastructure, bitumen, construction materials recycling, asphalt and concrete batching operations.

We employ about 7,500 employees and contractors across our operations that span more than 360 sites nation-wide.

For more than 75 years we’ve been building something great in Australia - rarely a day goes by that you wouldn’t pass one of our sites or trucks, enter a building, use a road, bridge, tunnel, footpath or other critical infrastructure that our people and products have helped enable.

About University of Technology Sydney (UTS)

The University of Technology Sydney (UTS) is a leading university of technology located in the heart of Sydney’s innovation precinct. With more than 40,000 students, UTS has a distinct model of learning, strong research performance and a leading reputation for industry and professional engagement.

Underpinned by social impact and a continuing commitment to sustainability, UTS is rated among the top 100 universities worldwide and the No.1 ‘young’ university in Australia.

About Calix

Calix Limited is an environmental technology company solving urgent global challenges in industrial decarbonisation and sustainability.

Calix’s unique patented core platform technology delivers indirect heating of raw materials to enable efficient, precise, flexible and renewably powered mineral processing and capture of unavoidable industrial emissions.

With strong and increasing demand driven by global decarbonisation commitments, Calix is applying its core technology to the cement, steel, alumina, and critical minerals industries, as well as the direct air capture of atmospheric carbon dioxide, and the production of sustainable environmental products.

Leveraging its core platform technology and a global network of partners, Calix is urgently developing multiple businesses that deliver positive global impact. Because there's only one Earth.

Mars is for quitters.

About Transport for NSW

Transport for NSW leads the development of safe, integrated and efficient transport systems for the people of NSW. Our customers are at the centre of everything that we do, including transport planning, strategy, policy, procurement and other non-service delivery functions across all modes of transport - roads, rail, ferries, light rail and point to point.

About SmartCrete CRC

Smartcrete CRC is a for-impact Cooperative Research Centre (CRC) that empowers innovation collaborations to transition concrete for a sustainable Australia. Established in 2020, SmartCrete CRC collaborates across the concrete ecosystem, with partners ranging from concrete suppliers to asset owners. It invests \$21 million of Commonwealth funding in innovative R&D projects that spur sustainable design, use and management of concrete. More info at www.smartcretecrc.com.au.

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