

Award-winning paper in 2021

Papers published in *Advances in Cement Research* are eligible for awards from the Institution of Civil Engineers. Papers from any of the ICE journals can be nominated for several awards. In addition, each journal has awards dedicated to their specific subject area.

On Friday 14 October 2022, ICE president Ed McCann presented an award to the following paper published in *Advances in Cement Research* in 2021. The editorial panel nominated their best papers and an awards committee chaired by Tim Broyd allocated the awards.

Advances in Cement Research Prize

The Advances in Cement Research Prize, awarded for the best paper published in *Advances in Cement Research*, was awarded to Kadhim *et al.* (2021).

Abstract

Among the several schemes that have been reported to be a satisfactory alternative to Portland cement is alkali-activated cement, which has recently started to receive greater consideration in construction sectors. Conventional two-part alkali activation has many drawbacks, including that the activating solution is viscous, problematic and is not user friendly to

handle. Thus, the aim of this research is to produce a one-part alkali-activated metakaolin/natural pozzolan, by using an earth alkaline source (rich in calcium oxide) from waste material (lime kiln dust), as an activating precursor to break the alumina-silicate crystalline phases. Thermal treatment of materials at two levels of treatment (450°C and 950°C) was used as an assisted activation approach. Analytical techniques, including X-ray powder diffraction, thermogravimetric analysis, Fourier transform infrared spectroscopy and scanning electron microscopy, were utilised to investigate the performance of the developed materials at a molecular level. Reduction of crystalline peaks, as well as the appearance of new wollastonite minerals within the calcined lime kiln dust, contributed to the development of 27 MPa compressive strength after 28 days. The dissolution that occurred through the pozzolanic reaction as well as thermal treatment evidently contributed to transform crystalline to amorphous phases.

REFERENCE

Kadhim A, Sadique M, Al-Mufti R and Hashim K (2021) Developing one-part alkali-activated metakaolin/natural pozzolan binders using lime waste. *Advances in Cement Research* **33(8)**: 342–356, <https://doi.org/10.1680/jadcr.19.00118>.