

Faculti Summary

<https://faculti.net/suitability-of-excavated-london-clay-as-a-supplementary-cementitious-material/>

The speaker discusses a major infrastructure project in London, focusing on the extensive excavation required due to tunneling that generates significant waste consisting mainly of London clay. Traditionally, this clay has been removed and used as landfill, leading to high costs and carbon emissions. The goal of the study was to explore innovative uses for this excavated London clay, particularly as a replacement for Portland cement in concrete, thereby reducing waste and embodied carbon.

The research involved detailed characterization of London clay and investigating its potential for transformation through calcination (heating) to create a reactive material usable in concrete. Despite the clay's low carbonate content, which poses a challenge for its reactivity, the study found that good quality concrete could be produced with 50-70% replacement of Portland cement using London clay, achieving strengths of 40-60 megapascals.

The most significant conclusion of the research indicates that waste clays, which are often discarded, can be effectively repurposed as supplementary cementitious materials, paving the way for further exploration of less reactive materials in concrete production. This video offers a sustainable solution to using excavation waste while maintaining concrete quality.