

Rheology of Limestone Calcined Clays Cement Pastes. A Comparative Approach with Pure Portland Cement Pastes

Lukas Gebbard, Blandine Feneuil, Marta Palacios
and Nicolas Roussel

Abstract In this work, we measure and compare the rheological behavior of suspensions of limestone calcined clays cement paste and pure Portland cement pastes at the same solid volume fraction. The limestone calcined clays cement pastes are prepared with two different calcined clays. We first focus on the influence of clay particles on the suspensions yield stress and viscosity in steady flows and we discuss the influence of these particles on both interaction forces and packing properties. We then study the effect of adsorbing polymer addition on these three systems and analyze our results in terms of polymer adsorption or depletion. We finally measure the evolutions of the rheological properties at rest and conclude on the effect of clay particles on early structuration/nucleation features of these suspensions.

L. Gebbard · M. Palacios · N. Roussel (✉)
Institut für Baustoffe (IfB), ETH Zürich, Zürich, Switzerland
e-mail: dr.nicolas.roussel@gmail.com

B. Feneuil · N. Roussel
Université Paris Est, IFSTTAR, Laboratoire Navier, Marne la Vallée, France

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