

Setting of mineral foams

J. Trosseille, C. Martinet, G. Panczer, M. Le Merrer ^[1]

^[1] Institut Lumière Matière, CNRS, University of Lyon, Université Claude Bernard Lyon 1,
CNRS, F-69622, Villeurbanne, France

E-mail: marie.le-merrer@univ-lyon1.fr

ABSTRACT

Foaming and solidifying a suspension of reactive grains, e.g. a fresh cement paste, is a convenient and attractive way to elaborate mineral porous materials that reduce drastically our energy demand: less raw material, no high temperature sintering and improved thermal insulation for building materials. However, to tune their mechanical and thermal properties, it is crucial to control the material structure (cell size, open or closed cells, etc), which itself results from the interplay between the foam aging and the dynamics of mineral setting, proceeding through dissolution-precipitation. We here focus on the latter phenomenon and investigate the setting kinetics of a plaster (gypsum) foam, using either rheological measurements or infrared spectroscopy to probe solidification in the foam geometry and in presence of surfactants.