Compatibility studies between N-A-S-H and C-A-S-H gels. Study in the ternary diagram Na$_2$O–CaO–Al$_2$O$_3$–SiO$_2$–H$_2$O

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1. Introduction
In the context of addressing environmental issues, specifically reducing CO$_2$ emissions, the possibility of diluting Portland cement with high volumes of SCMs (Supplementary Cementitious Materials) is currently being considered. However, by diluting the PC (Portland cement) content, the ability to activate the SCM is reduced and the use of additional alkaline activator offers a possible solution.

The study of alkali activation of aluminosilicates is a relatively new field when compared with traditional Portland cement-containing systems [1–4]. Alkali-activated aluminosilicates are differentiated from hydrated Portland cements by their higher initial alkalinity and the absence of lime. This is already sufficient to define quite different hydration products from the different systems so that predictions of...