

EUROPEAN FOOD AND NUTRITION CONGRESS & WORLD COLLOID CONFERENCE

October 25-26, 2018
Vienna, Austria

Formation and properties of C-S-H-PEG nano-structures

Drame H

University of Ottawa, Canada

Results of an investigation of the intercalation potential of polyethylene glycol (PEG) with synthetic and pre-treated C-S-H are reported. The partial intercalation of PEG molecules in the interlayer of C-S-H is discussed. The effective and strong interaction of PEG molecules with the C-S-H surface was shown using XRD, ^{13}C CP and ^{29}Si MAS NMR, and DTGA. The position and character of the 002 low angles XRD peak of C-S-H are affected by drying procedures and concomitant chemical treatment preceding

intercalation and the reaction temperature. Recovery of the initial 002 position after severe drying and intercalation with distilled water or PEG is incomplete but is accompanied by an increase in intensity. It is inferred that the stability of C-S-H binders in concrete can be impacted by a variation in nanostructure dependent on curing temperature and use of chemical admixtures.

drameh@inaedadrietasda.net