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CEMENT AND CONCRETE RESEARCH

Discussion

Reply to discussion of the paper "Determination of grinding aids in Portland cement by pyrolysis-gas chromatography-mass spectrometry"[1]

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The authors wish to thank Dr. Bensted for helping to underscore the complexities associated with how grinding aids interact with the various clinker minerals, and the subsequent implications on their measurement in Portland cement. Our paper attempted to demonstrate that relatively strong binding forces operate between the typically polar grinding aid compounds, as evidenced by the low recovery rates obtained from thermal desorption—even with the aid of derivatization. Furthermore, there should be ample opportunity to extend this initial investigation far beyond our introductory experiments by identifying other thermal desorption protocols, coupled with more powerful derivatizing treatments that are capable of displacing strongly absorbed interground cement additives. The significant potential associated with derivatization-thermal desorption (or pyrolysis)-gas chromatography-mass spectrometry is the ability to rapidly identify and estimate a wide range of grinding aid compounds in a single analysis. This capability is now being exploited in our laboratory to address questions of uncertainty as to which grinding aid formulation was used in a particular cement.

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[1] Cem Concr Res 28 (1998) 1335–1345.

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