

Fast and easy distinction of mobile water from crystalline bonded water of Ettringite in cementitious materials.

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Abstract

Using an adapted reaction procedure for the reaction of Calcium Carbide with water one can easily distinguish mobile water from crystalline bonded water of Ettringite in cementitious materials. To avoid transport limited reaction rates between Calcium Carbide and water, the cementitious material as well as the Calcium Carbide has to be crushed into fine powder before reaction can be conducted. Time resolved data collection is performed by using a wireless pressure sensor to allow dynamic as well as static reaction procedures. As reference for samples having different fractions of Ettringite, oven drying till weight stability was conducted at temperatures between 40 to 105°C.