Supplementary Materials

ASTM type I Portland cement pastes were prepared at the water-to-cement ratios of 0.19, 0.24, 0.3, and 0.5 with a water curing temperature of 27℃. At the age of 7 days, 28 days, and 90 days, the chemically bound water was measured using the ignition loss method .

As the water-to-cement ratio decreases, the degree of hydration also decreases. Our proposed hydration model considers the effect of capillary water concentration and the contact between hydration products on the hydration rate. The calculation results of the hydration model are in good agreement with the experimental results.

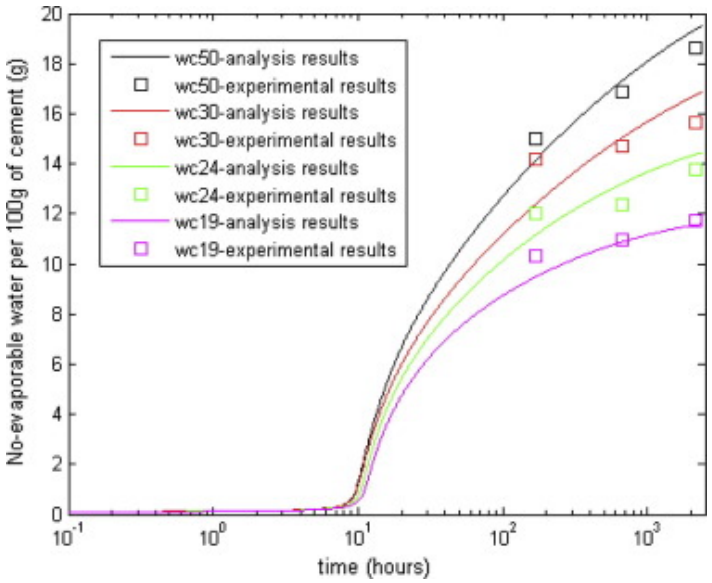


Figure S1. Chemically bound water contents for plain cement.