Microscopy of Delayed Ettringite Formation



High magnification image of Fig. *. Internally cracked fully hydrated cement grain exhibiting the two-tone C-S-H rims. The microcracks have started from the darker C-S-H core and spread further in the lighter rim (micrograph courtesy of C. Famy).



Ettringite forms in gaps and in air-voids. Some unreacted ferrite phases can be observed (very bright). Sample stored for 4 hours at 20°C, heated at 90°C for 12 hours and subsequently stored in water for 600 days (micrograph courtesy of C. Famy).



Sample stored for 4 hours at 20°C, heated at 90°C for 12 hours, subsequently stored in water for 600 days and then reheated at 90°C for 12 hours and stored in water for 30 days. Upon subsequent exposure to water for 30 days, all the calcium monosulfoaluminate has transformed to ettringite which is observed mainly surrounding the aggregates. Unreacted ferrite and partly hydrated belite grains are still present (micrograph courtesy of C. Famy).