SM15L_12114

XXI International Congress of Theoretical and Applied Mechanics
Warsaw, Poland, August 15–21, 2004

Thermo-Hydro-Chemical-Mechanical Analysis of Concrete at High Temperatures

Stefano Dal Pont[(1)], B.A. Schrefler[(2)], A. Ehrlacher[(1)]

(1) *ENPC-LAMI, Marne La Valle, France*
(2) *Universita di Padova, Padova, Italy*

This paper presents an experimental and numerical analysis of a hollow cylinder submitted to high temperatures. The evaluation of heat and mass transfers, evolution of the phases constituting the porous medium, mechanical performances of concrete are taken into account in a full three phases coupled analysis. A hollow cylinder has been heated up to 523.15K (250$^{\circ}C$) at a 5K/h velocity on the internal side and submitted to gas pressure/temperature measurements. A numerical simulation of the cylinder has been performed, showing a good correlation with the experimental observations.

View the extended summary