

## Modelling & simulation of the hydration process of cement for rapid concrete constructions

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### Abstract

*Hydration is series of exothermic reactions which occurs between cement and water. It is difficult to predict the exact behaviour of hydration process. It was modelled using Affinity Hydration model and was simulated using finite element approach and which was then validated with realistic parameters. Time dependent simulation has been carried out for various geometries to non-isothermal conditions inside the model. Modelling and simulation was performed in both polystyrene insulation and wooden insulation for different environmental conditions. Temperature, degree of hydration and rate of hydration was obtained using simulation and was verified with data from the realistic experimental data from literature.*

**Keywords:** Modelling & simulation, cement hydration Affinity Hydration model