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Numerical study of heat transfer in a multilayer wall

Sofiane Boulkroune, Mohamed Chaour, Mounira Bourebia, Djoubeir Debbah, M.tayeb Abed ghars, kahalerras Mounir

Abstract : We proposed a study digital, by finite difference, heat transfer in a multilayer wall (three layers) subjected to radiation condition on the inner side and taking into account the exchange of heat by conduction, convection on both sides. The operation of the digital code is developed on cases related to the problem in the ovens. The numerical results are shown examples of materials used in a cupola furnace in real conditions of functioning (fluxes, losses convectives, etc). They also analyse, the influence, on the transfer of warmth, some key parameters of the system as the choice of materials, the optimization of their thickness and also the variable nature of the flow.

Keywords : Heat transfer, cupola, Heat Insulation.