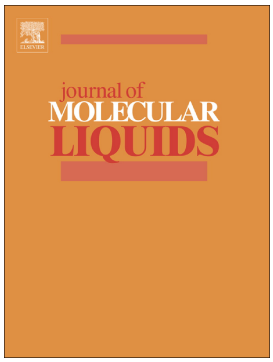

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Abstract

In current article, Lorentz forces influence on NEPCM solidification phenomena in a storage porous unit is reported with numerical method via FEM. Nanotechnology and magnetic field are employed to expedite this unsteady process. Roles of Hartmann number, Rayleigh number and volume fraction of NEPCM have been reported. Outputs reveal that solid fraction rises in presence of Lorentz forces. Full discharging time reduces with augment of volume fraction of CuO-water and Hartmann number.

Keywords: Phase change material; Finite element method; Magnetic field; Nanoparticle; Porous media; Solidification.

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