ABSTRACT

This study discusses the numerical evaluation of heat transfer on thermal storage tank with water as medium. The dimension of tank is 30 cm diameter and 50 cm height. For study case, the tank is insulated by polyfoam layer with various thickness. The tank is located in 25 °C of ambient temperature and the initial condition of water inside the tank is 80 °C. The numerical evaluation is conducted for 4 hours. For validation, the result is than compared with the experiment. The error of numerical evaluation are obtained 8 %, 1.9 %, 1.5 %, 2.1 %, 2.7 % and the heatloss are 19.3 J/s, 11.8 J/s, 8.6 J/s, 7.7 J/s, 2.9 J/s for 0, 0.5, 1, 2, 5 cm thickness of insulation layer respectively.

Keywords : *heat rate, heat transfer, thermal energy storage tank, thermal insulation.*