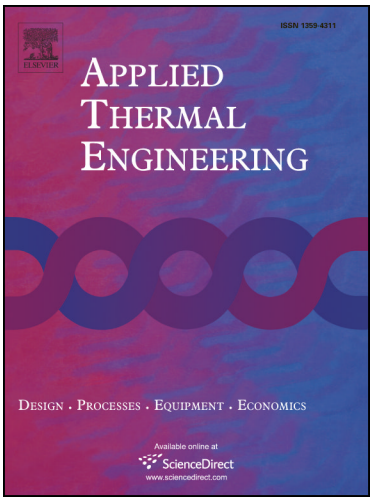

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An experimental study of frost distribution and growth on finned tube heat exchangers used in air source heat pump units

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Abstract

Many studies have been carried out on frost distribution and growth and their impacts on the performances of finned tube heat exchangers (FTHXs), the most commonly used structure for the outdoor coils of air source heat pump units. However, in almost all the studies, ethylene glycol water solution was used as refrigerant, which made the investigating of frost distribution and growth difficult due to the uneven temperature distribution along the tube length. Furthermore, quantitative experimental data for the frost distribution and growth on FTHXs have been insufficient. Therefore, in this paper, a quantitative experimental study using R410A as refrigerant on frost distribution and growth on two FTHXs with different fin pitches is reported. The study results demonstrated that the frost accumulated on an FTHX