

Abstract

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Investigation of Heat Transfer Characteristics in Evaporation under Frosting Conditions

Frost formation on the cold surface of evaporator coils of air conditioning and refrigeration equipment reduces the heat transfer rates between the refrigerant and the space that needs to be cooled. The interaction between frost formation and heat transfer is complex. It has been shown that the type of frost, its rate of formation, its surface roughness, etc., influence the heat transfer characteristics of an industrial evaporator under frosting conditions. Parametric studies covering the effects of air velocity, air humidity, and air inlet temperature on frost formation and heat transfer rates were conducted.