

Condensation of Vapor in the Presence of Non-Condensable Gas on a Vertical Tube

Authors : Shengjun Zhang, Xu Cheng, Feng Shen

Abstract : The passive containment cooling system (PCCS) is widely used in the advanced nuclear reactor in case of the loss of coolant accident (LOCA) and the main steam line break accident (MSLB). The internal heat exchanger is one of the most important equipment in the PCCS and its heat transfer characteristic determines the performance of the system. In this investigation, a theoretical model is presented for predicting the heat and mass transfer which accompanies condensation. The conduction through the liquid condensate is considered and the interface temperature is defined by iteration. The parameter in the correlation to describe the suction effect should be further determined through experimental data.

Keywords : non-condensable gas, condensation, heat transfer coefficient, heat and mass transfer analogy

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