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The Measurement of the Critical Heat Flux for Annuli Submerged in a Pool of Saturated Water

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Abstract

To understand boiling phenomena and the effect of gap condition on CHF, experiments have been accomplished with various gap sizes and inclination angle at atmospheric pressure using annulus test section. Inclination angle is changed from horizontal to vertical. The annular gap size is varied from 0.5 to 3.5 mm and the channel length is 200 mm. From experimental results, CHF increases with gap size and inclination angle. One-dimensional two-phase model was derived and friction factor correlation is suggested. Correlation for inclined narrow channel is compared with other gap CHF data.