

CHF Experiments for IVR-EVC using 2-D Slice Test Section

Yong-Hoon Jeong, Won-Pil Baek* and Soon Heung Chang

Department of Nuclear and Quantum Engineering

Korea Advanced Institute of Science and Technology

* Korea Atomic Energy Research Institute

Abstract

This paper presents the first campaign of KAIST CHF experiments on IVR-EVC using real-scale (APR1400) 2-dimensional slice test section. In this study, we used forced flow. Through these experiments, the effect of mass flux on CHF at 90° area has been investigated and the gap effect on CHF has also been investigated by comparing the previous experimental data (such as ULPU and SULTAN) and SULTAN correlation. Generally, the measured CHF on 90° area are smaller than that of ULPU experiments. This seems to be due to the gap size effect, i.e. as the gap size is increased the corresponding CHF is increased. Because the gap size of this study (15 cm) is greater than that of ULPU (23.75 cm), the CHF of this study is generally smaller than that of ULPU. And, clearly, as the mass flux increases the corresponding CHF increases. For using SULTAN correlation, the gap size effect can be predicted and this correlation can be used to assess various design alternatives of APR1400 EVC design.