RECORD CRITICAL HEAT FLUX FOR FLOW BOILING OF R123 IN A SINGLE MICROCHANNEL

Thalles Coimbra Borba Roldão, Universidade de São Paulo, thallescbr@usp.br
Cristiano Bigonha Tibiriçá, Universidade de São Paulo, bigonha@sc.usp.br

Abstract.
This paper presents new data for critical heat flux of flow boiling of R123 in microchannels. A single horizontal tube with an internal diameter of 1.1mm and heated length of 100mm was used. The experiments were conducted with values of mass velocity between 2000 and 4000 kg/m2s, a range above the data seen in the literature for this fluid, saturation temperatures from about 63 to 72°C and inlet qualities from -0,46 to -0,36. Hight critical heat fluxes, ranging from 582 to 851 kw/m2 were obtained. A record critical heat flux for flow boiling of R123 in a single microchannel was obtained. Predictive methods to estimate the critical heat flux were tested and mean absolute errors of 17.76% and 8,5% were obtained.

Palavras chave: *Critical Heat Flux, flow boiling, microchannel, R123.*