

Condensation of HFC Refrigerants Inside a Single Circular Minichannel

Alberto Cavallini^S, Stefano Bortolin, Davide Del Col^C, Marko Matkovic and Luisa Rossetto
Dipartimento di Fisica Tecnica, Università di Padova, Padova, Italy

Condensation tests have been performed with low, medium and high pressure halogenated refrigerants in a 0.96 mm diameter circular channel to determine the local heat transfer coefficient. The heat transfer coefficient is obtained from local heat flux, saturation temperature and wall temperature. The heat flux is determined from the temperature profile of the secondary fluid in the test sector. The wall temperature is directly measured along the test section and the saturation temperature is measured in the adiabatic segments at the inlet and outlet of the test tube and checked through pressure transducers. The experimental data are compared against predicting models available in the open literature for condensation. This will provide an insight into the two-phase heat transfer inside minichannels to the designer of a minichannel condenser.