

Experimental Study of Thermal Conductivity of R245fa

A.J. Grebenkov,^{C,S} V.V. Saplitza, O.V. Beliaeva, and V.P. Petrushkevich
Joint Institute for Power and Nuclear Research, Minsk, Belarus
greb@sosny.bas-net.by

The objective of the present research is to provide critically evaluated accurate data on the thermal conductivity coefficient of refrigerant R245fa (1,1,1,3,3-pentafluoropropane) in a wide range of parameters relevant to commercial air conditioning systems. In order to achieve this objective, an experimental study, that includes direct measurements of thermal conductivity in the liquid phase of R245fa over the temperature range 285 to 395 K and at pressures up to 8 MPa, and direct measurements in the gas phase of R245fa over the temperature range from 285 to 435 K and at pressures from 100 kPa up to the saturation pressure, was conducted. The obtained information, along with other reliable and verified data on the transport properties of R245fa, was fitted with appropriate property correlation models. The results of this study will allow for the significant improvement of reference data (e.g., NIST REFPROP Database) on the thermal conductivity of R245fa.