

Isobaric Heat Capacity of Liquid R245fa by Flow Calorimeter from 280 K to 325 K

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We measured isobaric heat capacities of liquid R245fa with high reliability. Our group constructed a flow-calorimeter in 1996 for measuring specific heat-capacity at constant pressure of HFC liquid refrigerants. In 2014, Tanaka and Fujiwara reconstructed the apparatus of a flow calorimetry with an improvement for achieving a stable mass-flow-rate by introducing plastic accumulators and parallel needle valves. We confirmed that the apparatus is able to measure isobaric heat-capacities with unmeasurable level heat loss and repeatability within the uncertainty under simple operation. Isobaric-heat-capacity measurement was applied to liquid R245fa. The measurements were obtained at multiple points of state parameters, a pressure of 500 kPa in a temperature range from 280 K to 325 K. The expanded uncertainty (coverage factor of $k = 2$) for heat capacity is predicted to be from 0.40 % to 1.00 %.