

Thermodynamic Properties Measurement of CF₃I

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Trifluoroiodomethane (CF₃I) is expected to be a non-flammable refrigerant with a low-GWP, but the currently available experimental data of the thermodynamic properties are limited. *PvT* properties, saturated densities, and critical parameters of CF₃I were measured with two kinds of experimental apparatus. The *PvT* properties were measured in the temperature range from 300 to 405 K and at pressures up to 6.4 MPa along seven isochores between 48 and 1788 kg m⁻³ by the isochoric method. The saturated-vapor and saturated-liquid densities were determined by the visual observation of meniscus disappearance in the temperature range from 374 K to the critical temperature and the density range from 785 to 1551 kg m⁻³. In addition, the saturated densities were also graphically determined by the intersections of the vapor-pressure curve and the isochores of *PvT* properties. The critical temperature and density were determined as $T_c = 396.495 \pm 0.010$ K and $\rho_c = 865 \pm 5$ kg m⁻³ on the basis of the meniscus disappearing level as well as the intensity of the critical opalescence.