

## Experimental Interfacial Tension of Refrigerants, HFC-32 and HFC-125 in a Mixture with Ionic Liquid, [C1C2im][Tf2N]

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The surface tension of two refrigerants, difluoromethane HFC-32 (CH<sub>2</sub>F<sub>2</sub>) and pentafluoroethane HFC-125 (CHF<sub>2</sub>CF<sub>3</sub>) in a mixture with ionic liquid, [C1C2im][Tf<sub>2</sub>N] has been measured as a function of temperature and pressure. The measurements were conducted under equilibrium conditions between the liquid and its saturated vapor phase. The pendant drop method used a high-pressure, high-temperature (HPHT) interfacial tension (IFT) cell with an internal volume of 10 cc and a capillary needle of 3.75 mm outside diameter. The surface tension was measured over a temperature range from 293.15 to 373.15 K and a pressure range from 1 to 9 bar. The accuracy of surface tension measurements was estimated to be within  $\pm 0.2$  mNm<sup>-1</sup>. The temperatures are accurate to within  $\pm 2$  K. The temperature dependence of the resultant data was successfully represented by van der Waals' correlations to within  $\pm 1.1$  mNm<sup>-1</sup> for each mixture. Available surface tension data for pure compounds are compared with the present data. No reported data for experimental interfacial tension was published before for refrigerants, HFC-32 and HFC-125 in a mixture with ionic liquid, [C1C2im][Tf<sub>2</sub>N] at high-pressure, high-temperature conditions.