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Supporting Information for:

Stability and Characterization of the Structure II Binary Clathrate Hydrate of the Refrigerant Trans-1,3,3,3-tetrafluoropropene + Methane

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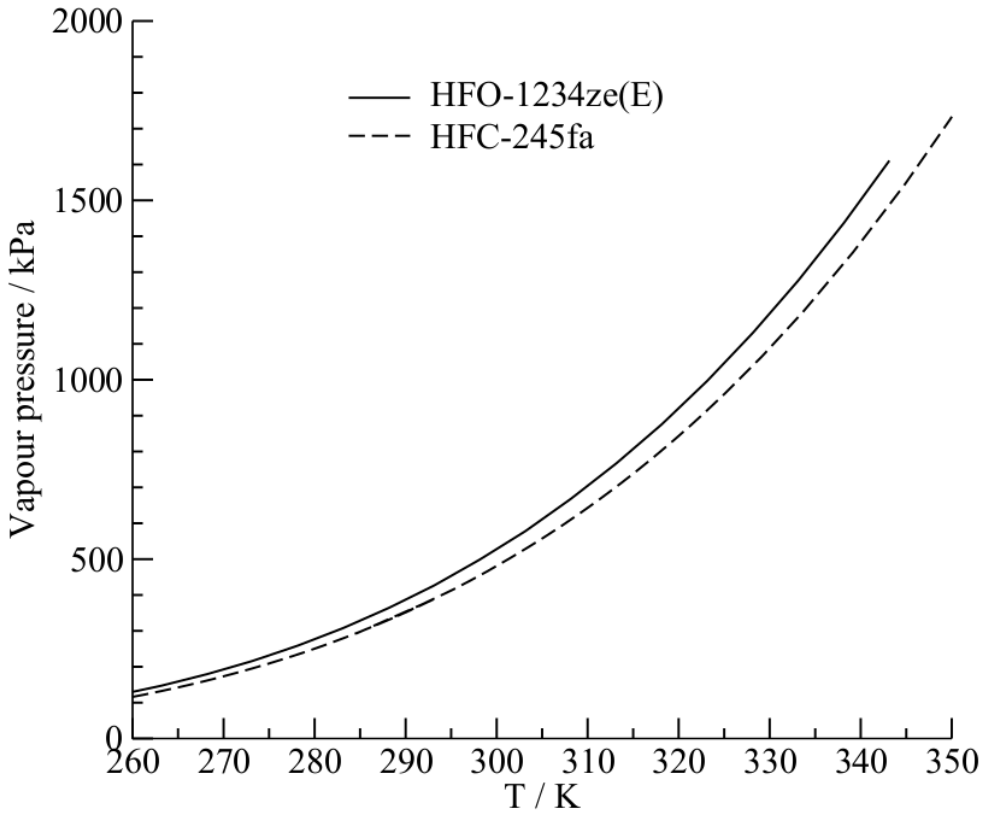

Figure S1. The temperature dependence of the vapour pressure for HFO-1234ze(E) and HFC-245fa.[S1, S2]

Duplicated measurement

Duplicated measurements for the phase equilibrium points were performed at 275.4 K and the initial conditions are shown in Table S1. The pressure – temperature diagram during the measurements are shown in Figure S3. The phase equilibrium conditions were measured to be 275.4 K, 3.132 MPa for the first run and 275.3 K, 3.032 MPa for the second run. These two runs were started from the same initial conditions and the phase equilibrium conditions were consistent within a range of the uncertainty of the measurements. This result supports the reliability of the phase equilibrium condition measurements in this study.

Table S1. Initial conditions for duplicated measurements.

Run	T / K	P / MPa
1	277.6	3.101
2	277.6	3.103

Expanded uncertainties ($k = 2$) U are $U(T) = 0.1$ K, $U(P) = 0.005$ MPa

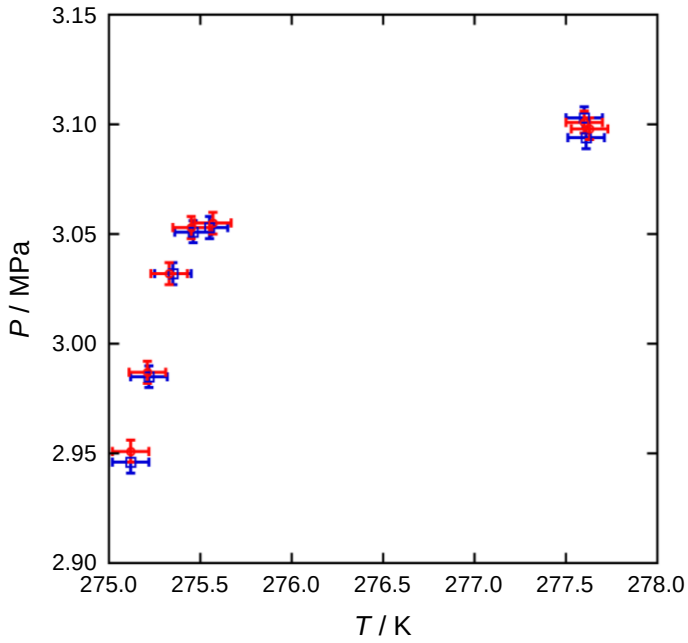

Figure S2. *P-T* data obtained by duplicate measurements for the binary mixture system from run 1 (□) and run 2 (◯). The expanded uncertainties ($k = 2$) U are $U(T) = 0.1$ K, $U(P) = 0.005$ MPa.

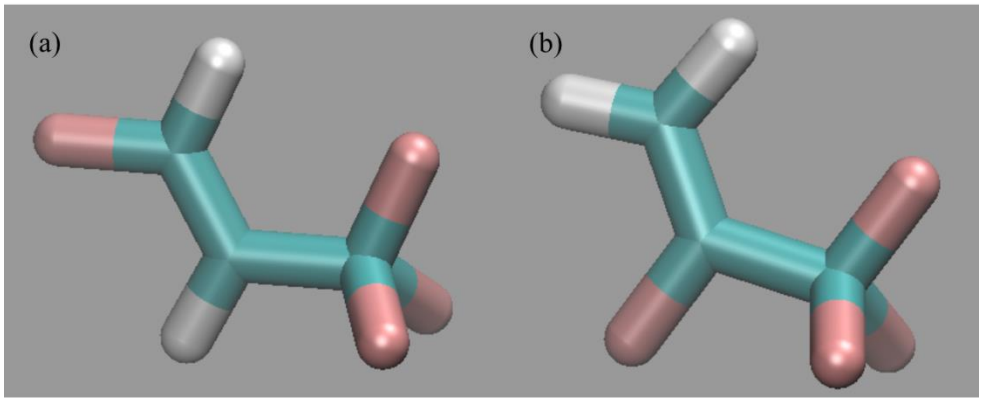

Figure S3. The molecular structures of (a) HFO-1234ze(E) and (b) HFO-1234yf.

References

[S1] Honeywell Solstice® ze Refrigerant (HFO-1234ze).

[S2] Sotani, T.; Kubota, H. Vapor pressures and PVT properties of 1,1,1,3,3-pentafluoropropane (HFC-245fa). *Fluid Phase Equilib.*, **1999**, 161, 325-355.