

High-Pressure Phase Behaviour of the Carbon Dioxide + *n*-Heptane System: A Model System with Experiments, Modelling, and Critical Literature Assessment

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1. Comparisons of the new and literature data

The following figures compare the new VLE experimental data from this work with all available literature data at the corresponding temperatures.

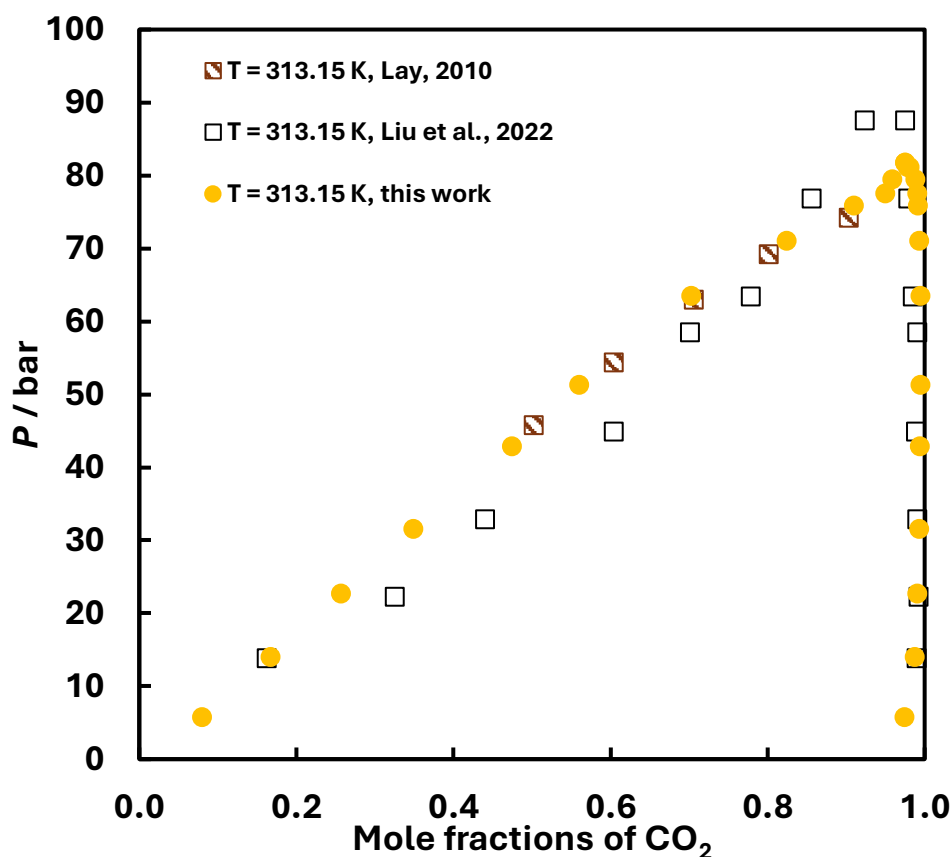


Fig. 1S. Comparison of measured and literature data [1, 2] for carbon dioxide (1) + *n*-heptane (2) at 313.15 K.

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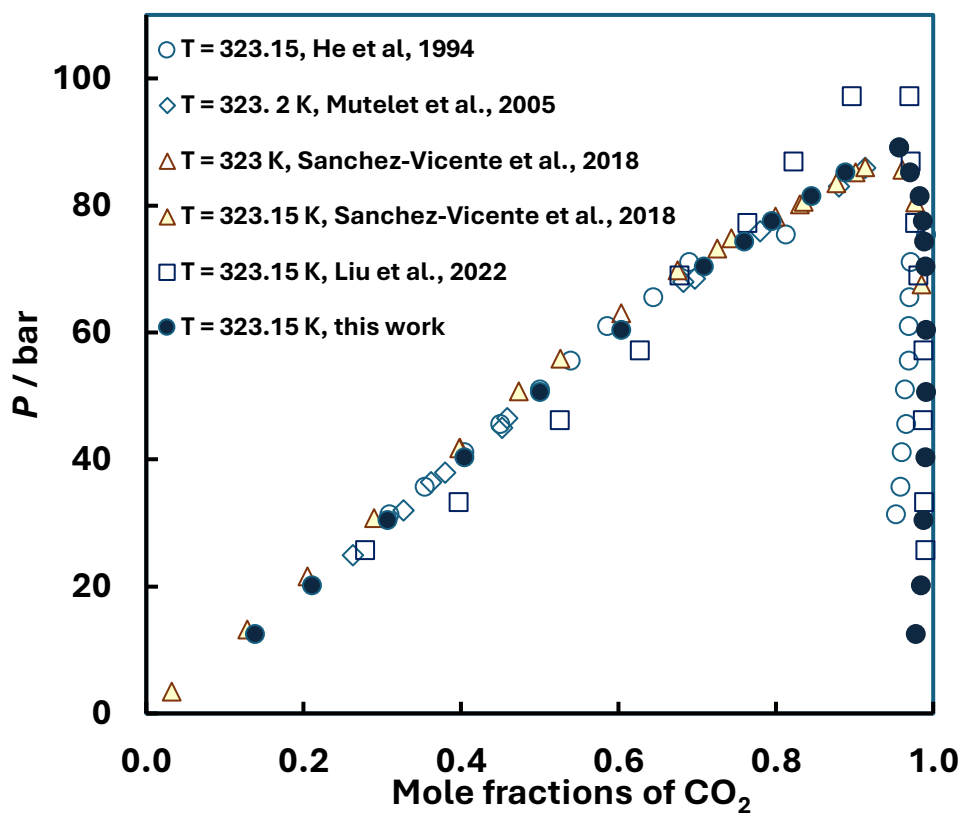


Fig. 2S. Comparison of measured and literature [2-5] data for carbon dioxide (1) + *n*-heptane (2) at 323.15 K.

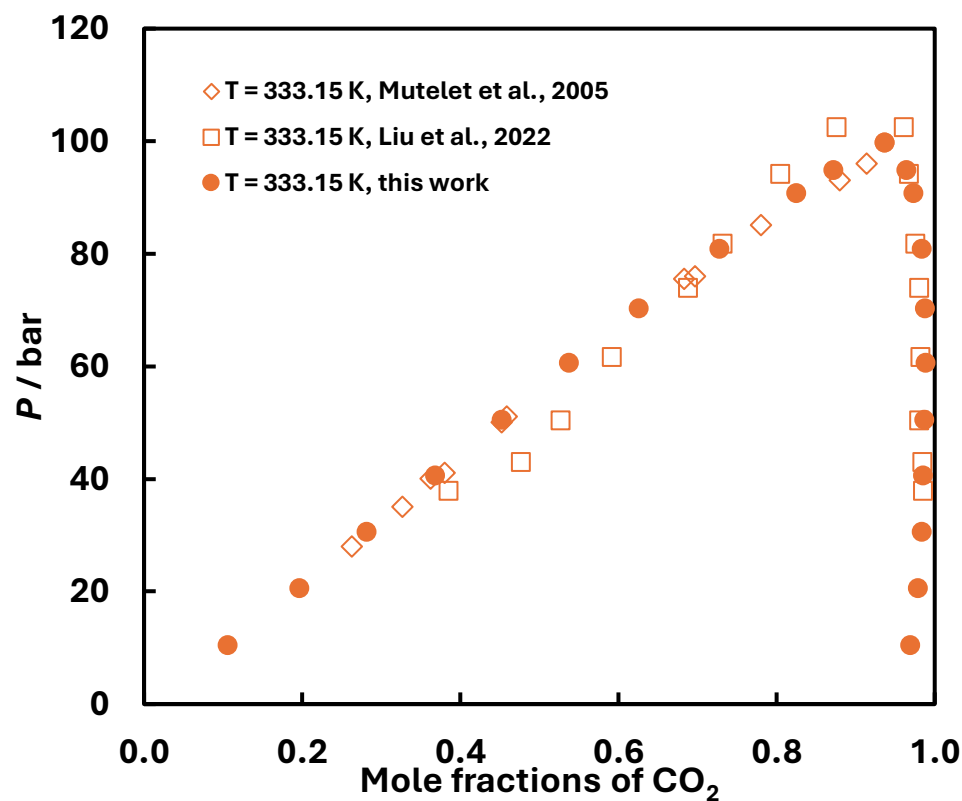


Fig. 3S. Comparison of measured and literature [2, 4] data for carbon dioxide (1) + *n*-heptane (2) at 333.15 K.

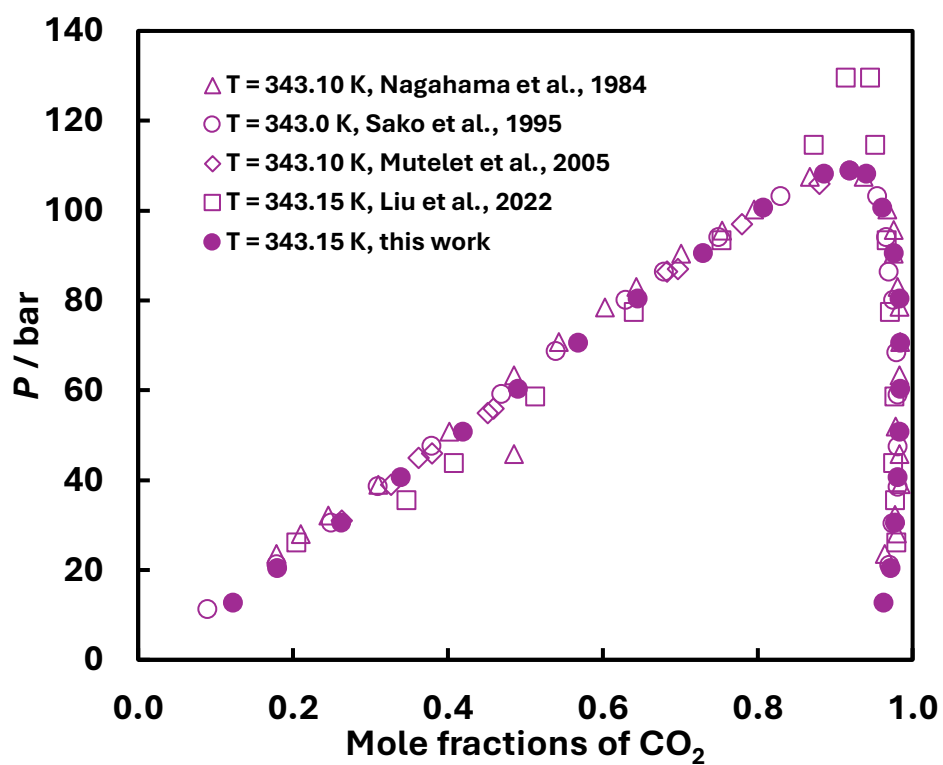


Fig. 4S. Comparison of measured and literature [2, 4, 6, 7] data for carbon dioxide (1) + n -heptane (2) at 343.15 K.

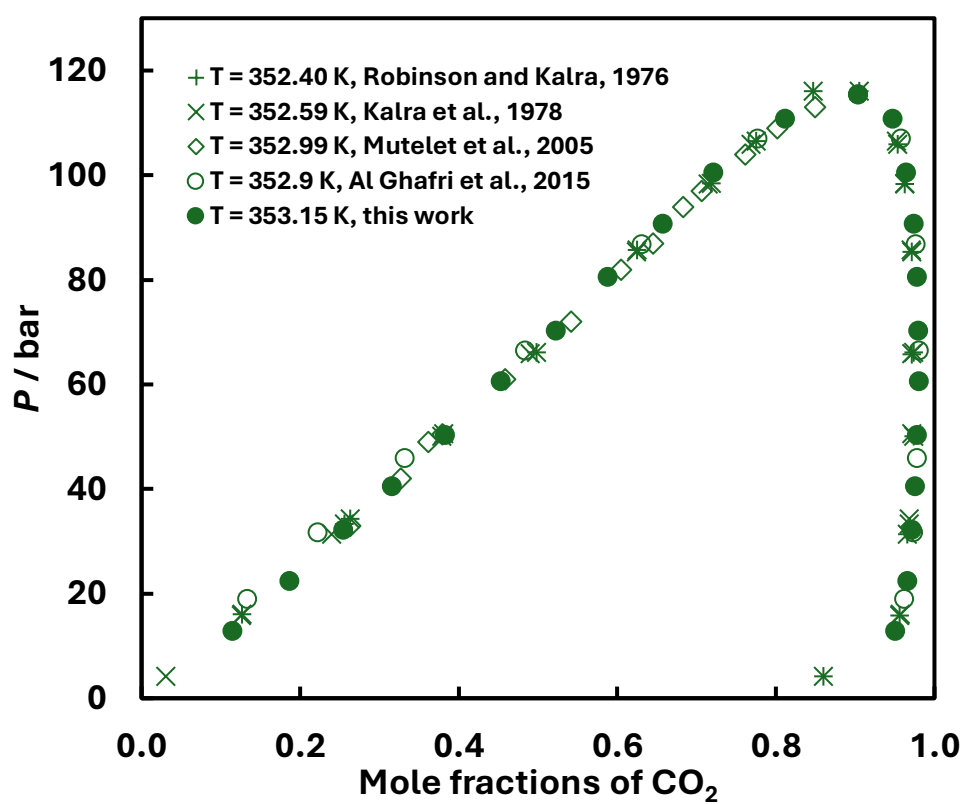


Fig. 5S. Comparison of measured and literature [4, 8, 9] data for carbon dioxide (1) + n -heptane (2) at 353.15 K.

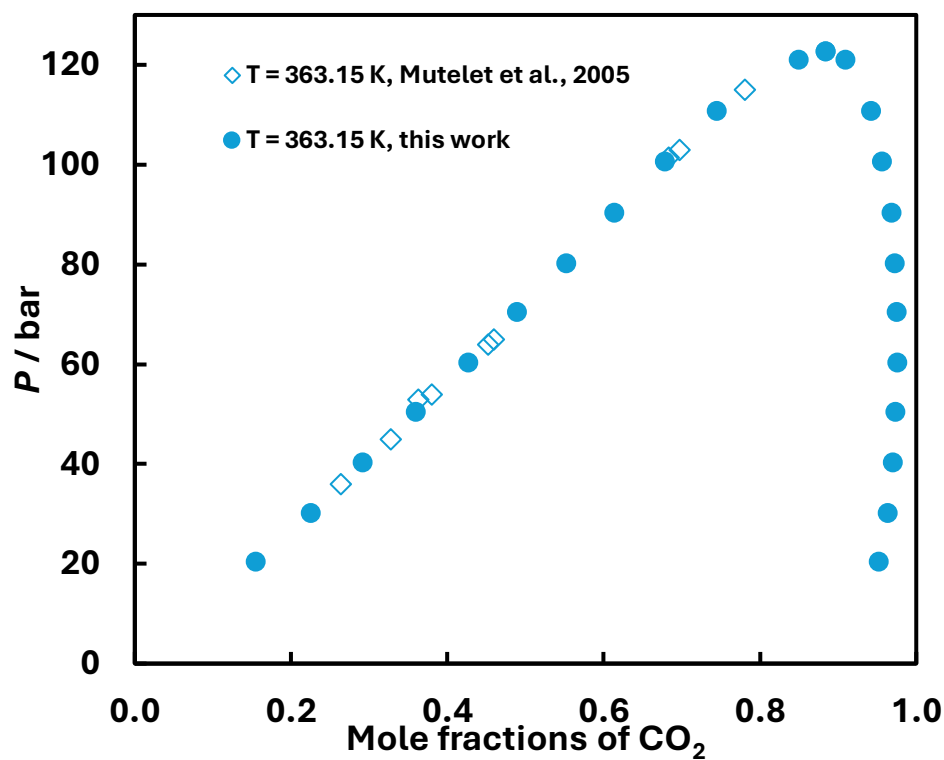


Fig. 6S. Comparison of measured and literature [4] data for carbon dioxide (1) + n -heptane (2) at 363.15 K.

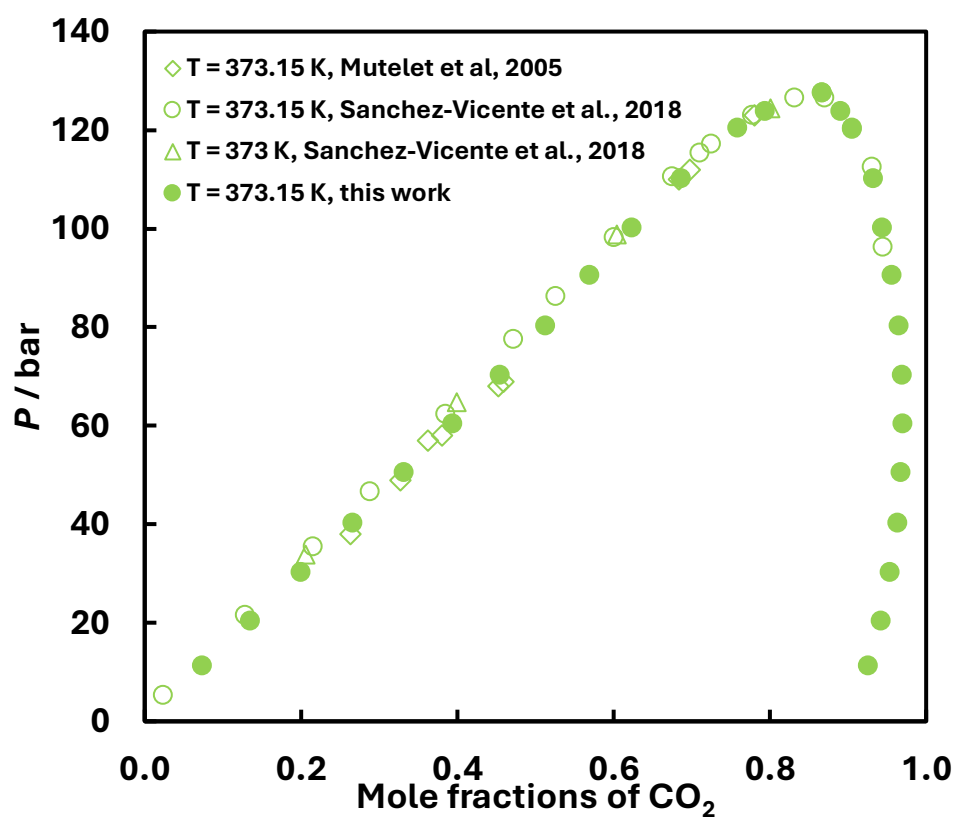


Fig. 7S. Comparison of measured and literature [4, 5] data for carbon dioxide (1) + n -heptane (2) at 373.15 K.

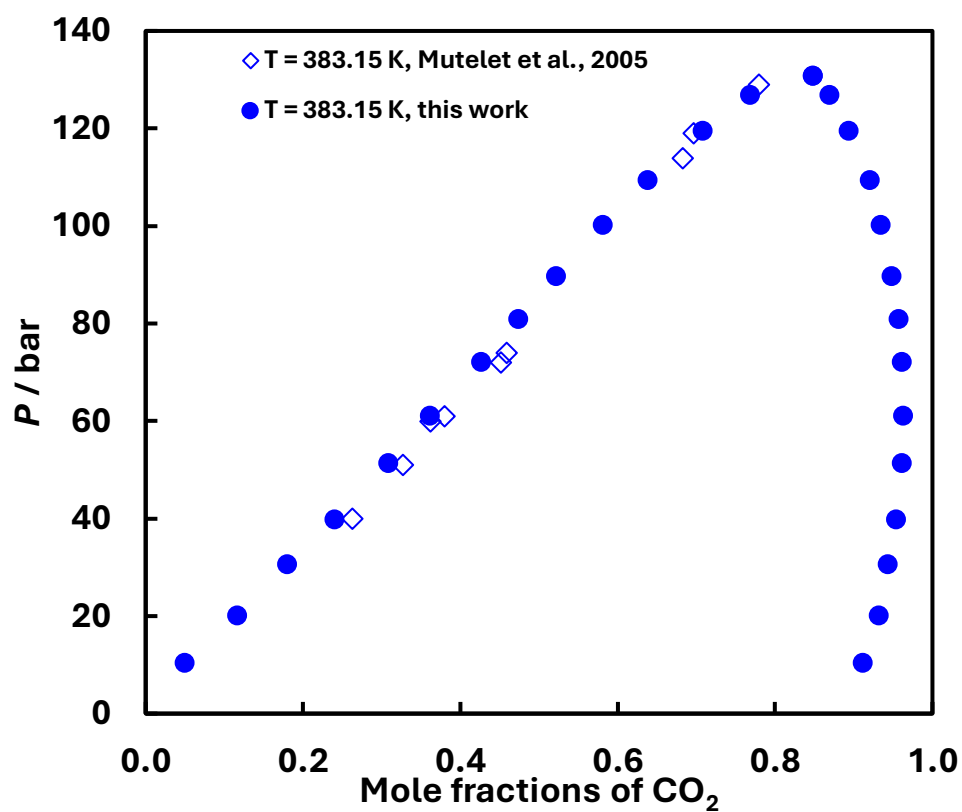


Fig. 8S. Comparison of measured and literature [4] data for carbon dioxide (1) + *n*-heptane (2) at 383.15 K.

2. Analysis of literature data measured at other temperatures

The next figures display and compare literature data at the remaining temperatures, for which measurements were not performed in the present study.

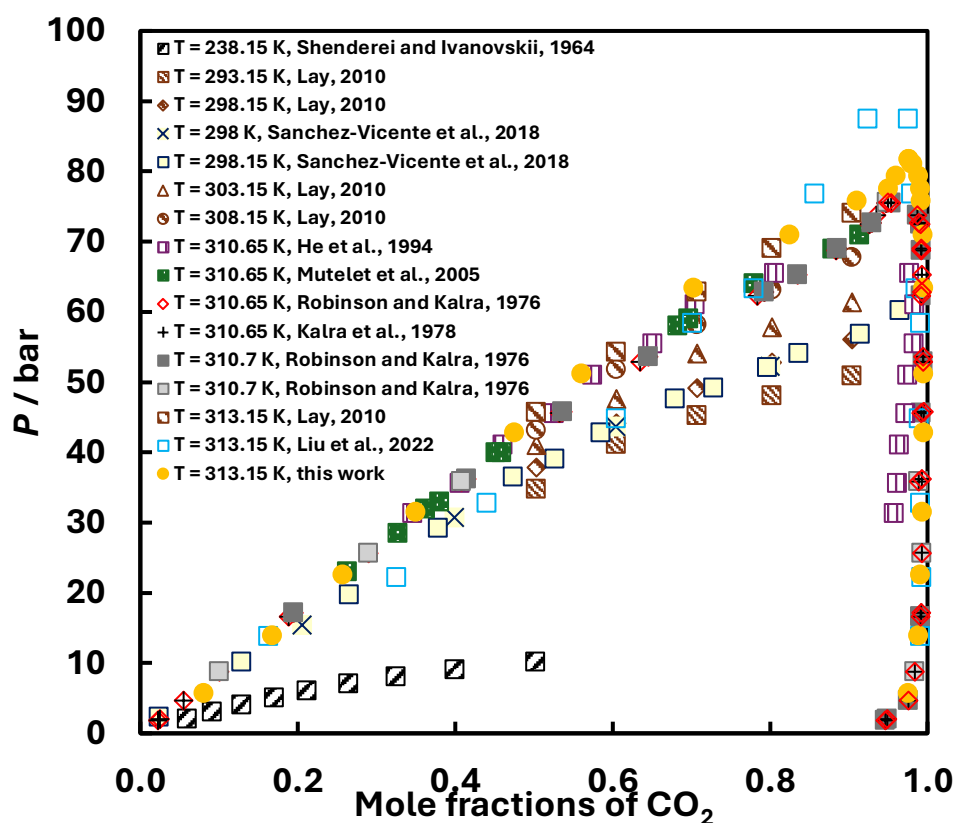


Fig. 9S. Comparison of measured and literature [1-5, 9-11] data for carbon dioxide (1) + *n*-heptane (2) at various temperatures (238.15 K to 313.15 K).

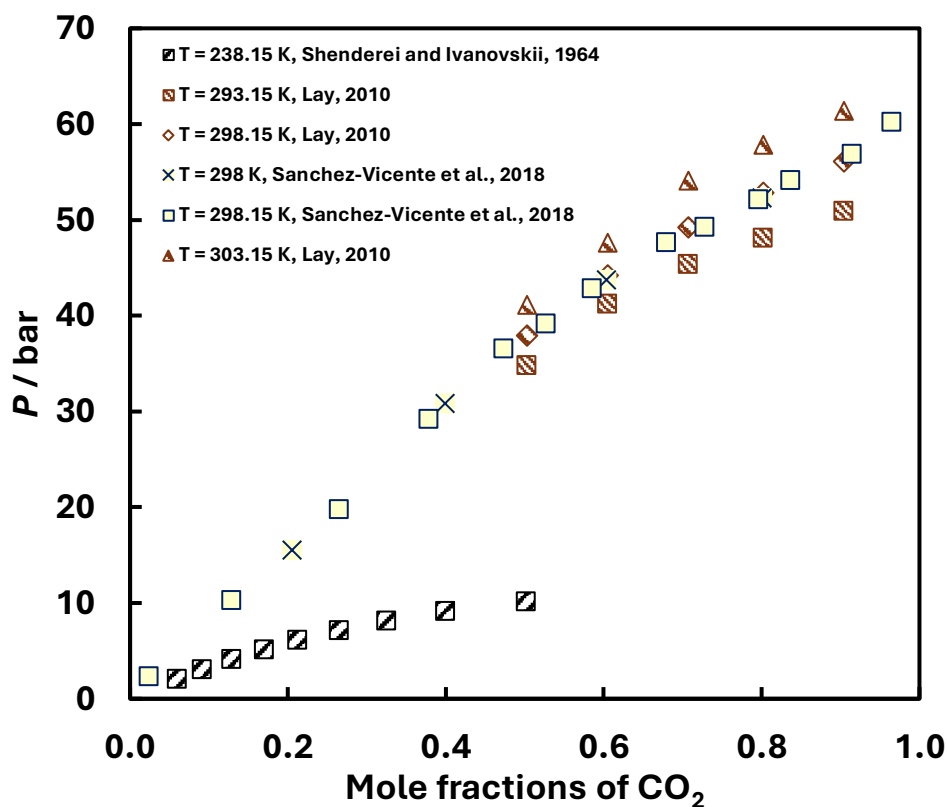


Fig. 10S. Comparison of literature [1, 5, 10] data for carbon dioxide (1) + *n*-heptane (2) at various temperatures (238.15 K to 303.15 K).

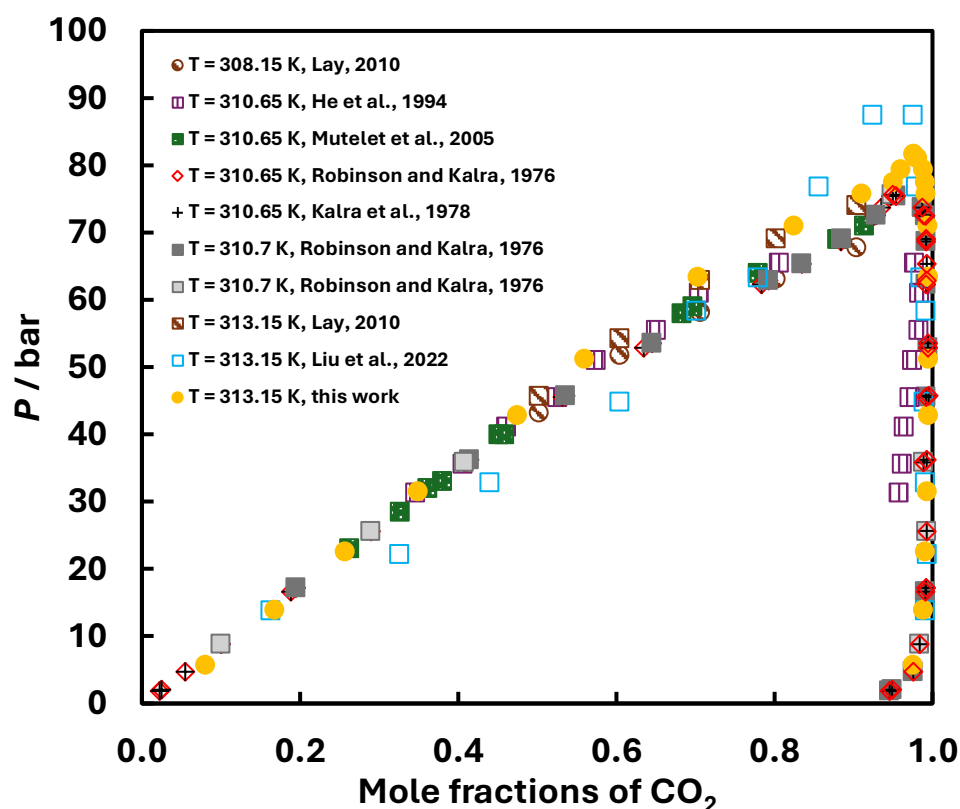


Fig. 11S. Comparison of measured and literature [1-4, 9, 11] data for carbon dioxide (1) + *n*-heptane (2) at various temperatures (308.15 K to 313.15 K).

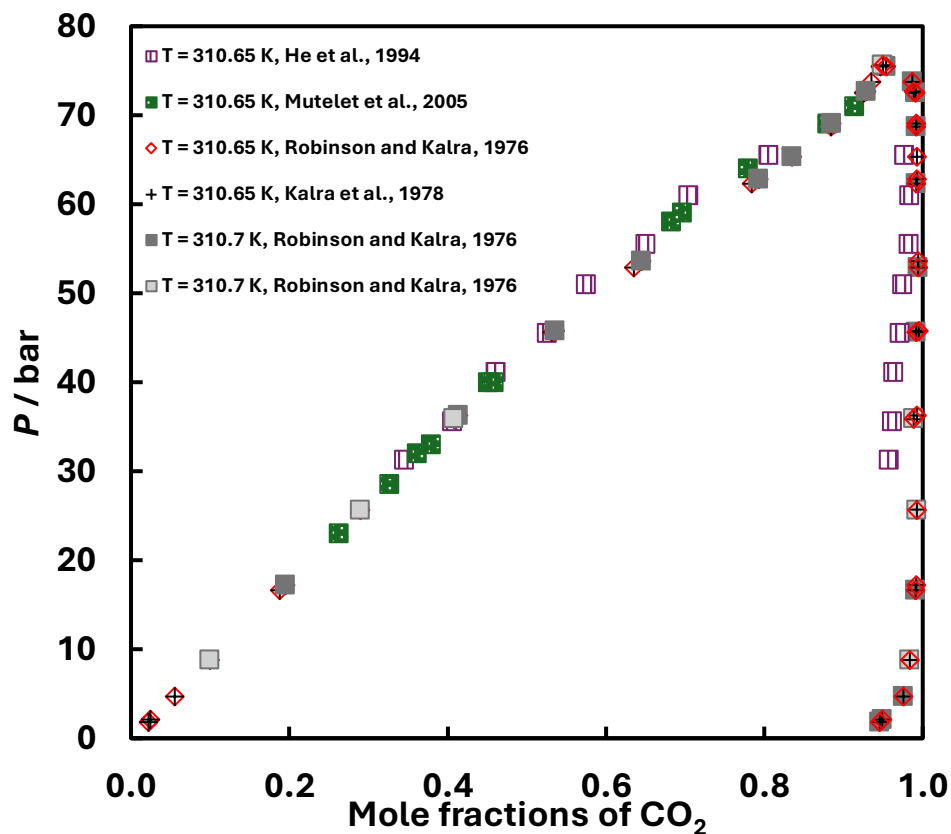


Fig. 12S. Comparison of literature [3, 4, 9, 11] data for carbon dioxide (1) + *n*-heptane (2) at 310 K.

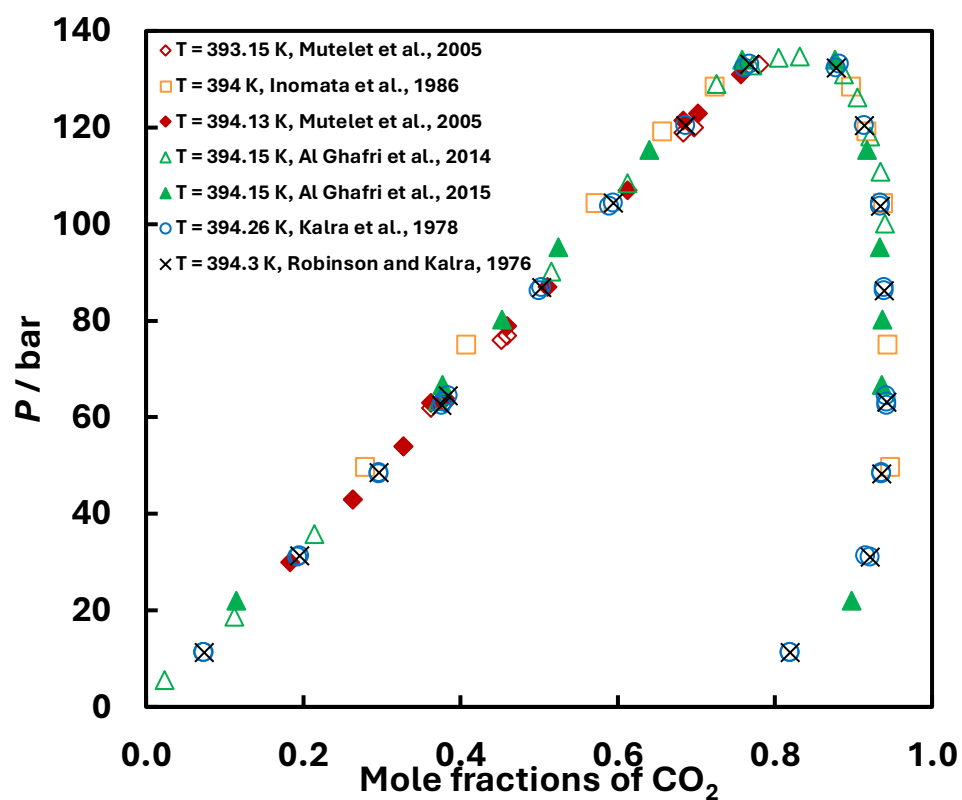


Fig. 13S. Comparison of literature [4, 8, 9, 11-14] data for carbon dioxide (1) + *n*-heptane (2) at 394 K.

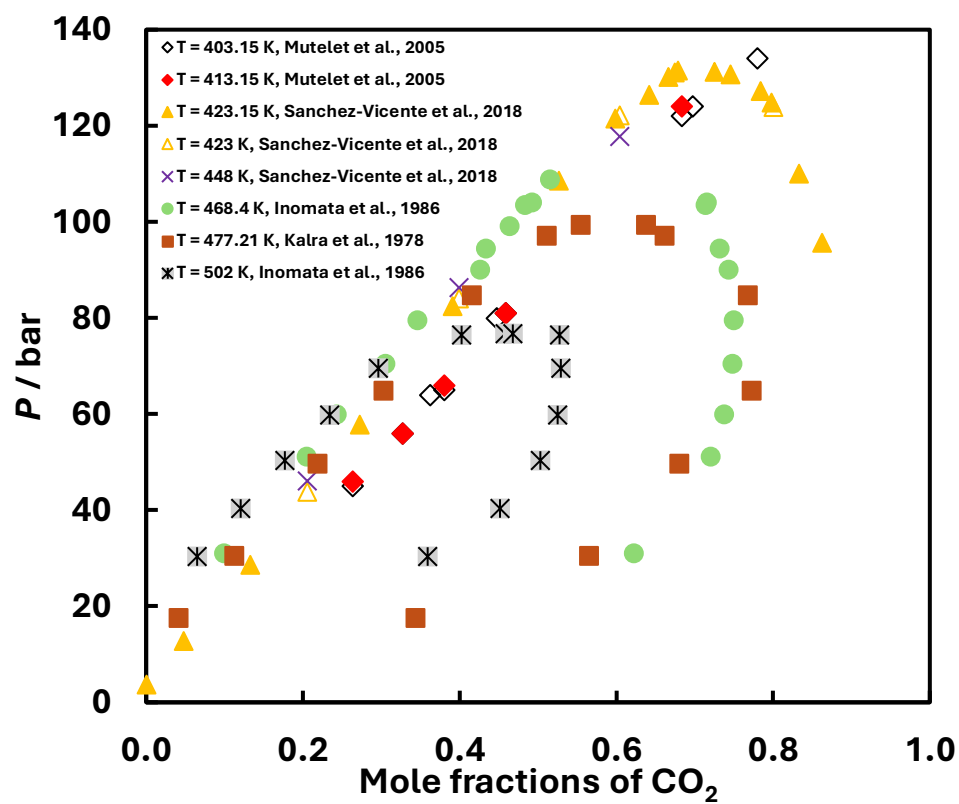


Fig. 14S. Comparison of literature [4, 5, 9, 13] data for carbon dioxide (1) + *n*-heptane (2) at various temperatures (403.15 K to 502 K).

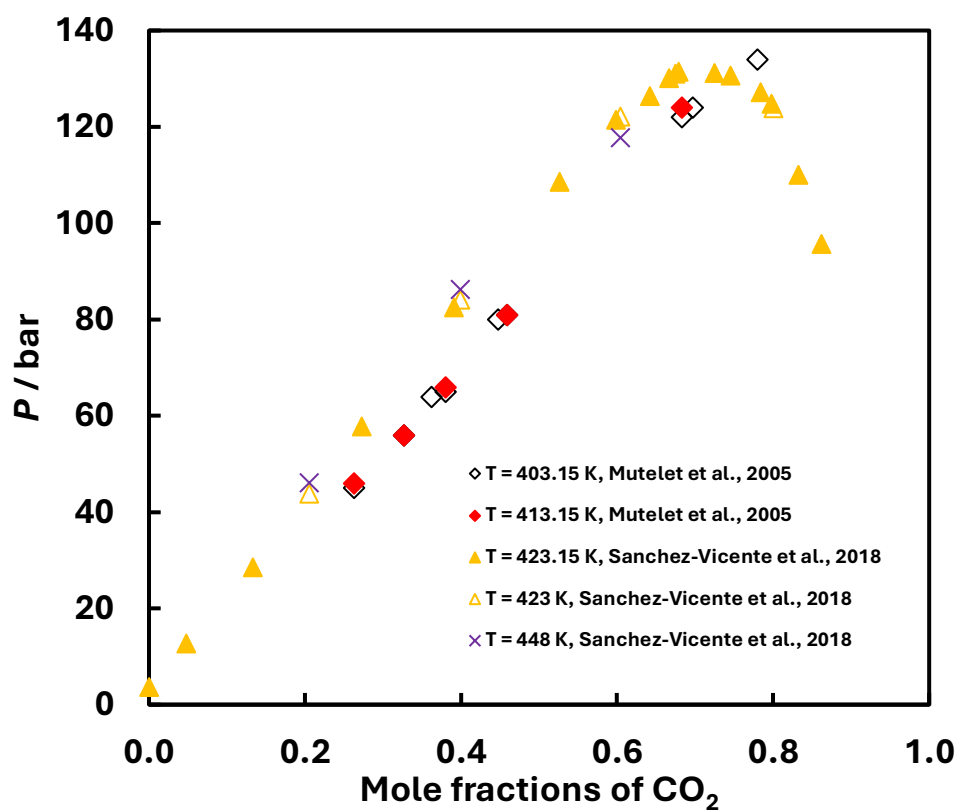


Fig. 15S. Comparison of literature [4, 5] data for carbon dioxide (1) + n -heptane (2) at various temperatures (403.15 K to 448 K).

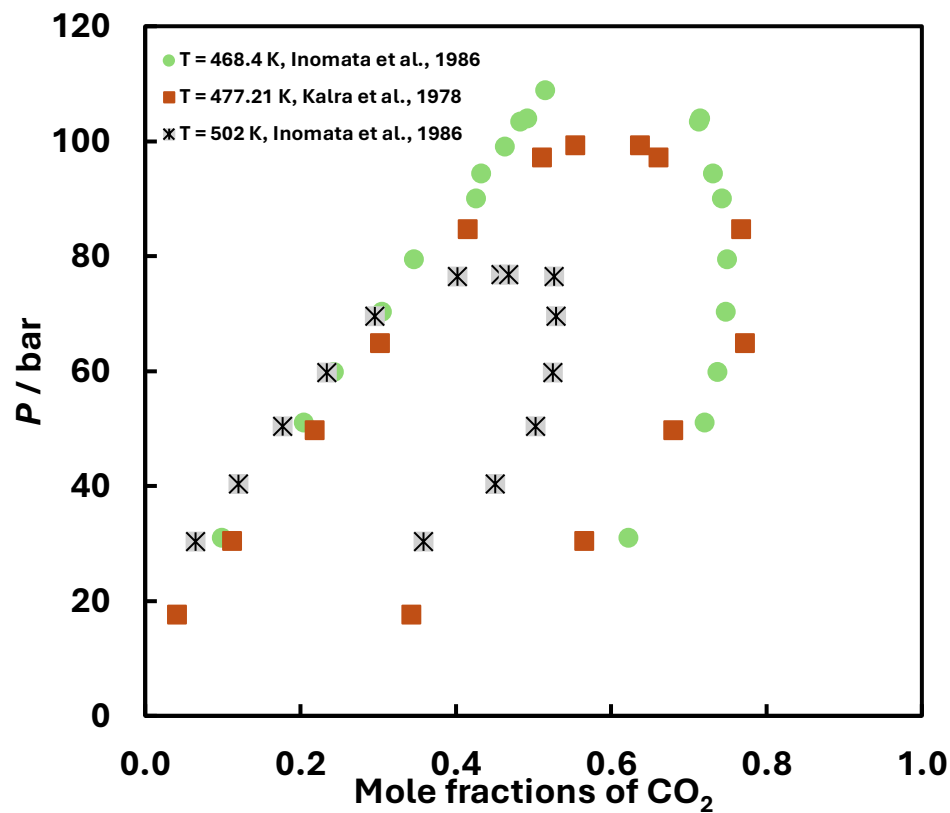


Fig. 16S. Comparison of literature [9, 13] data for carbon dioxide (1) + n -heptane (2) at various temperatures (468.4 K to 502 K).

3. Comparisons of experimental data and models results

The critical phase behaviour is displayed in the next figures.

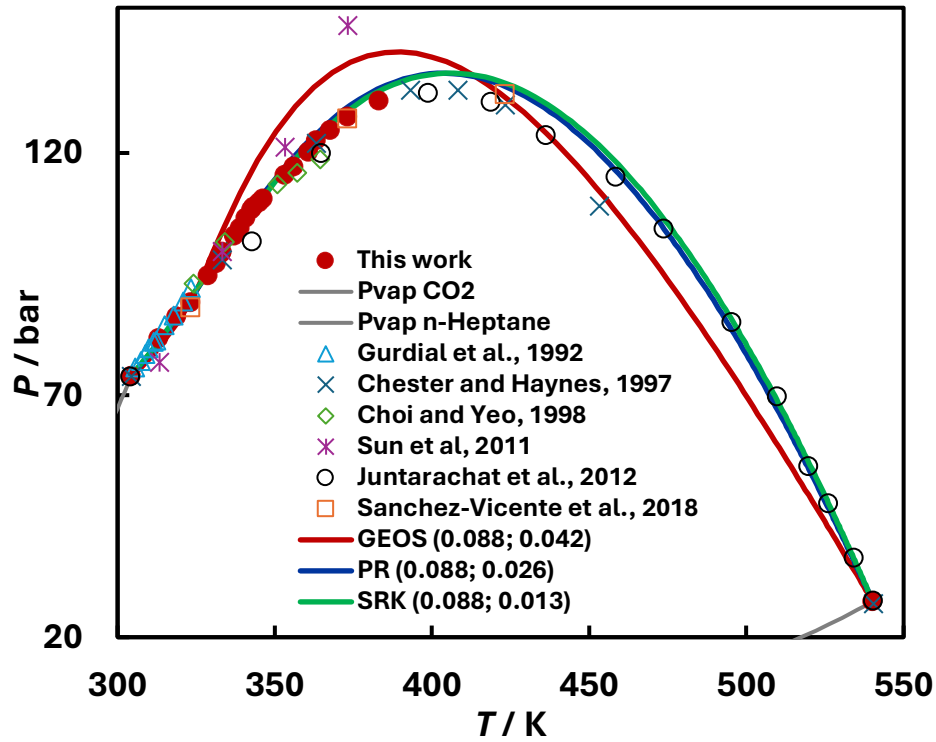


Fig. 17S. P - T projection of the vapour-liquid critical locus for the system carbon dioxide + n -heptane, comparing experimental data and model results.

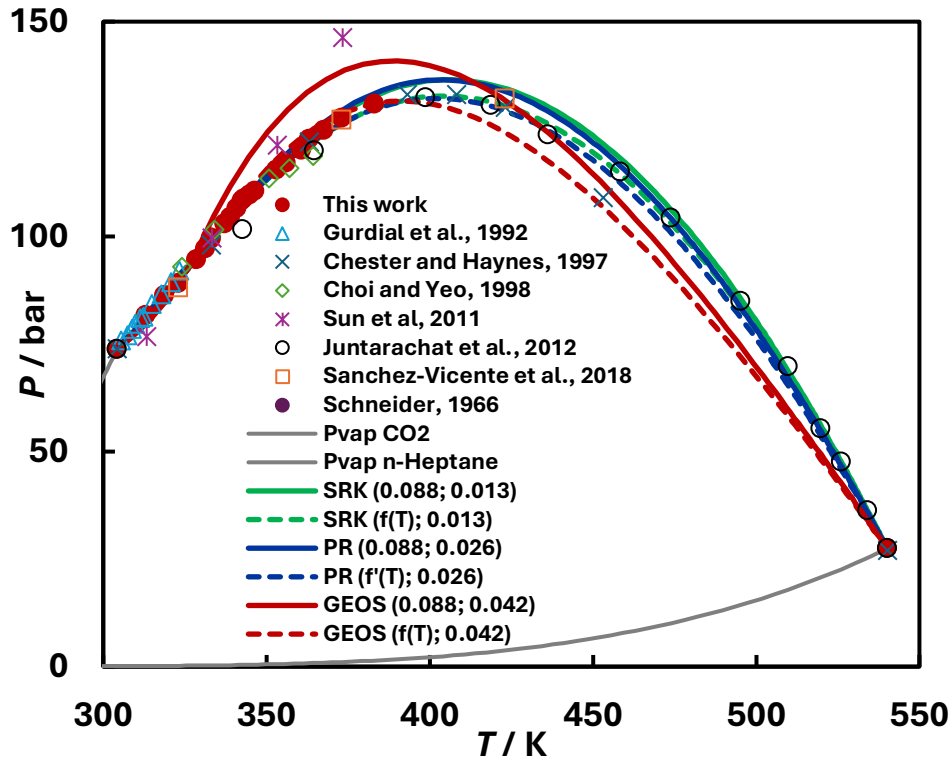


Fig. 18S. P - T projection of the vapour-liquid critical locus for the system carbon dioxide + n -heptane, comparing experimental data and temperature-dependent k_{12} and constant l_{12} model results.

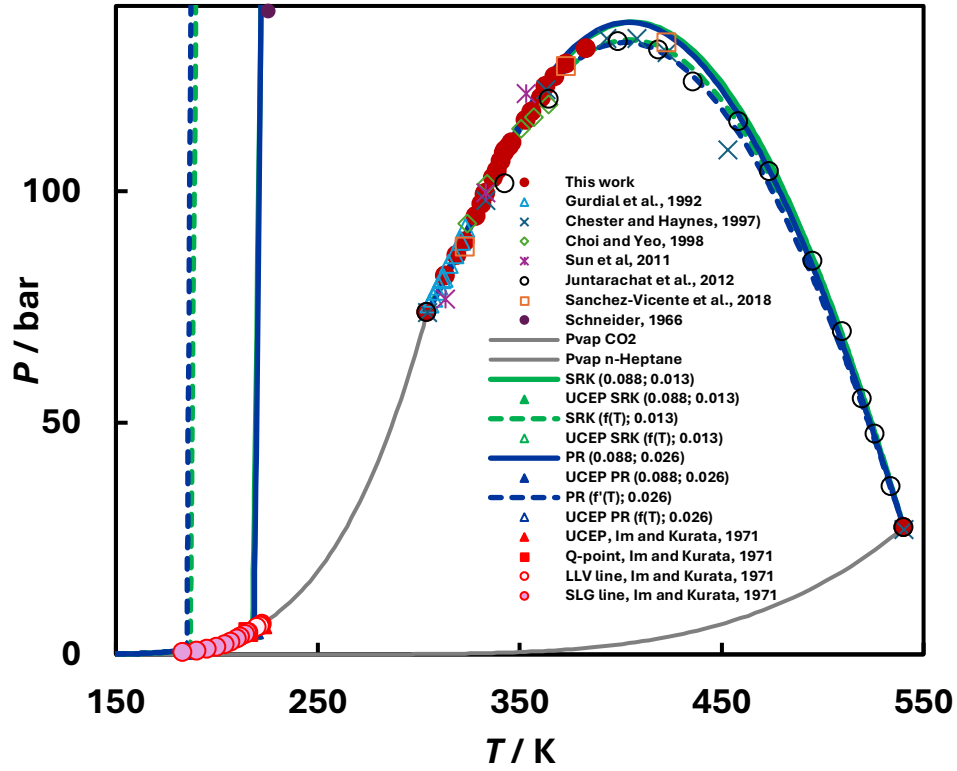


Fig. 19S. P - T projection of the critical loci for the system carbon dioxide + n -heptane comparing model results with constant BIPs and k_{12} temperature-dependent and constant l_{12} .

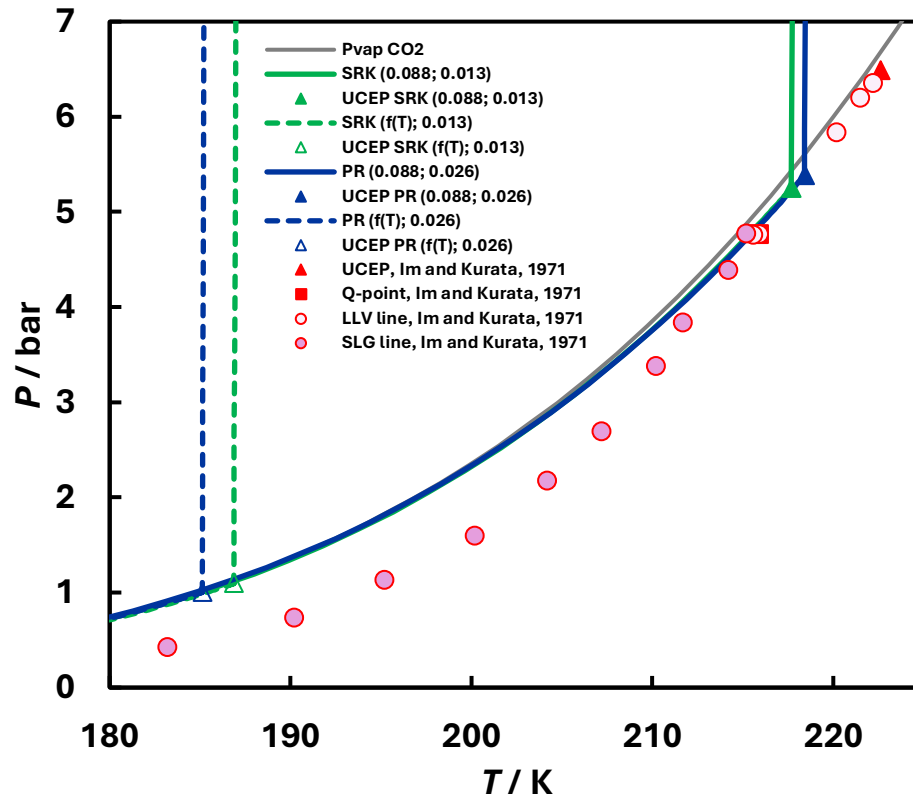


Fig. 20S. Detail of the LLV equilibrium curve in the P - T projection of the phase diagram.

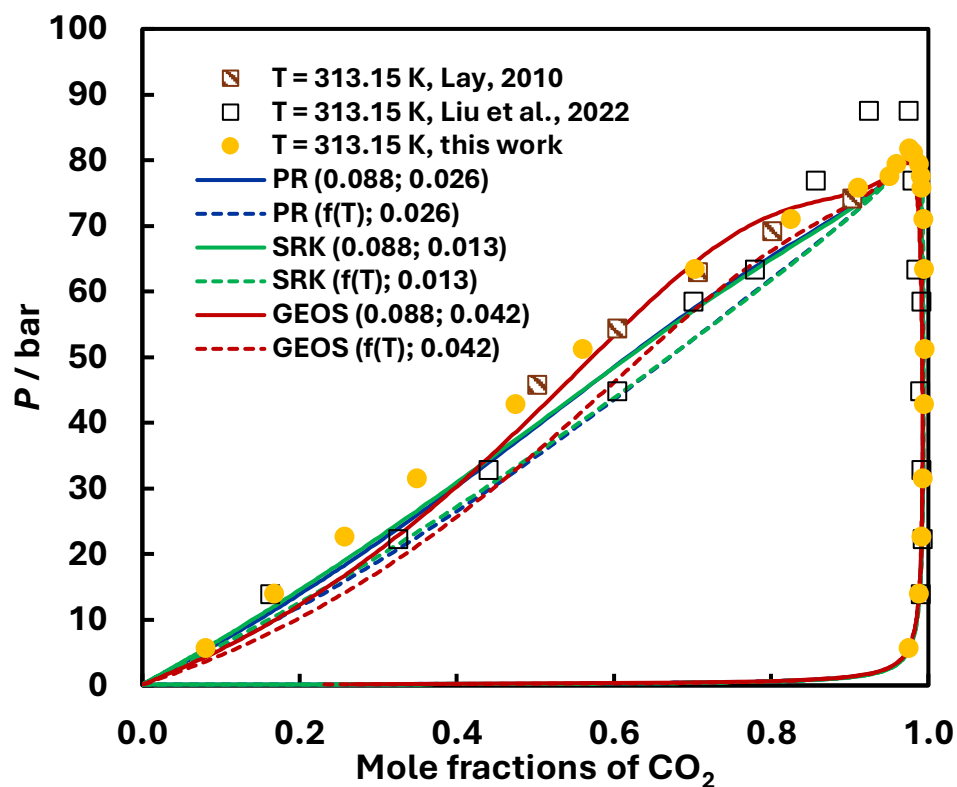


Fig. 21S. Comparison of measured and literature data [1, 2] for carbon dioxide (1) + *n*-heptane (2) at 313.15 K with model results.

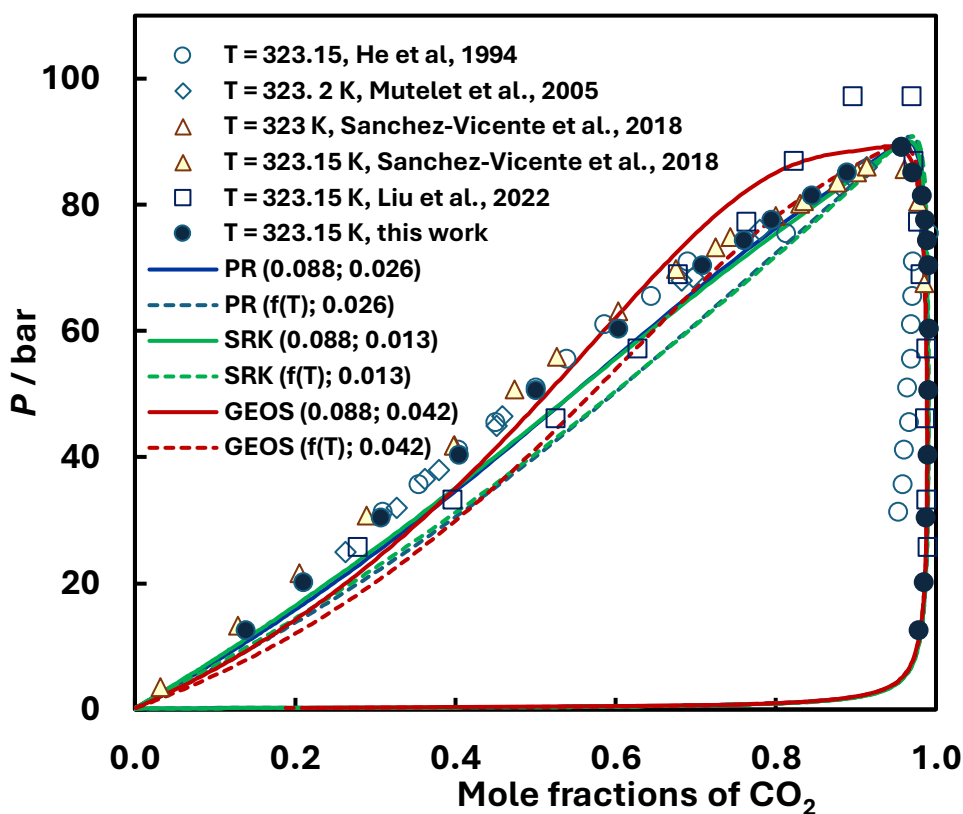


Fig. 22S. Comparison of measured and literature [2-5] data for carbon dioxide (1) + *n*-heptane (2) at 323.15 K with model results.

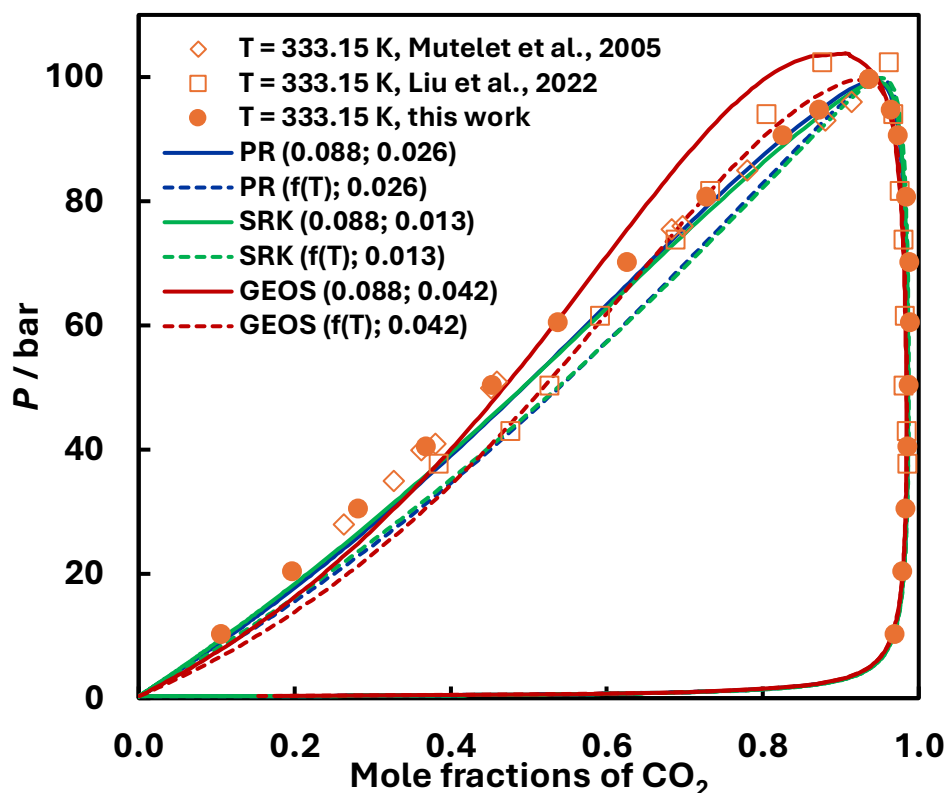


Fig. 23S. Comparison of measured and literature [2, 4] data for carbon dioxide (1) + *n*-heptane (2) at 333.15 K with model results.

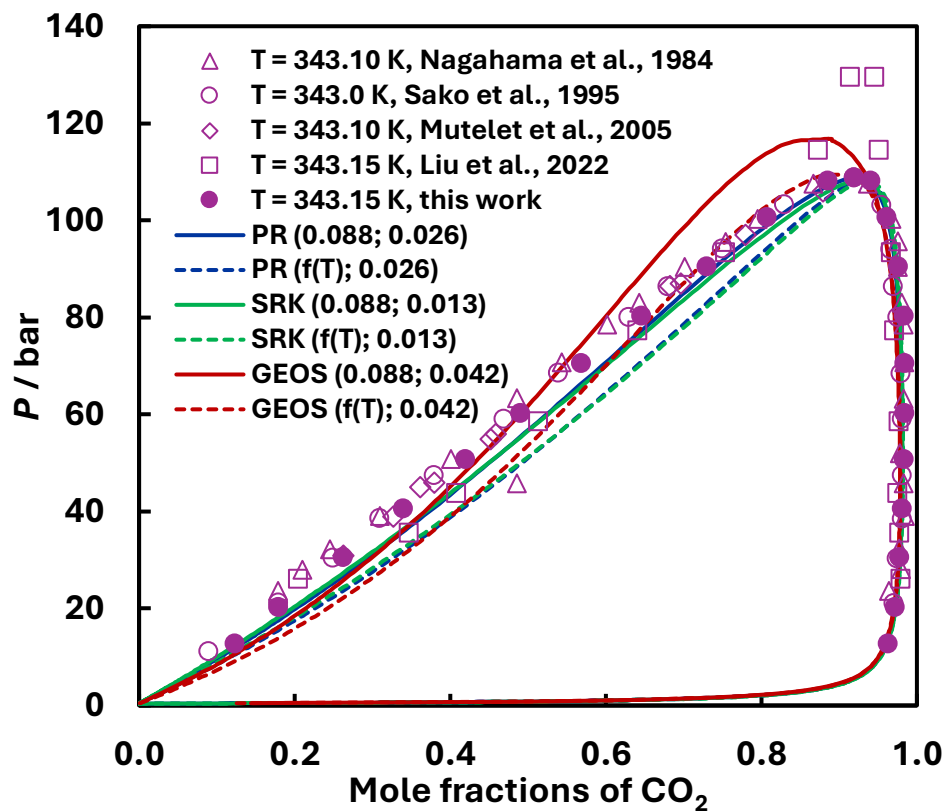


Fig. 24S. Comparison of measured and literature [2, 4, 6, 7] data for carbon dioxide (1) + *n*-heptane (2) at 343.15 K with model results.

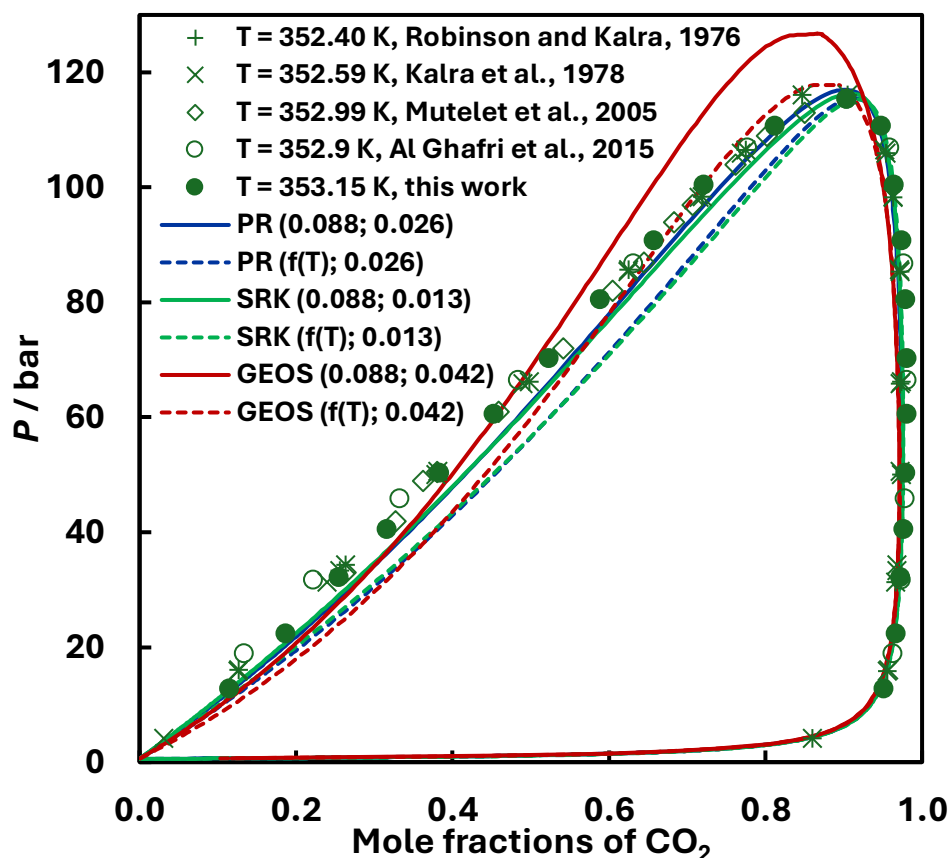


Fig. 25S. Comparison of measured and literature [4, 8, 9] data for carbon dioxide (1) + *n*-heptane (2) at 353.15 K with model results.

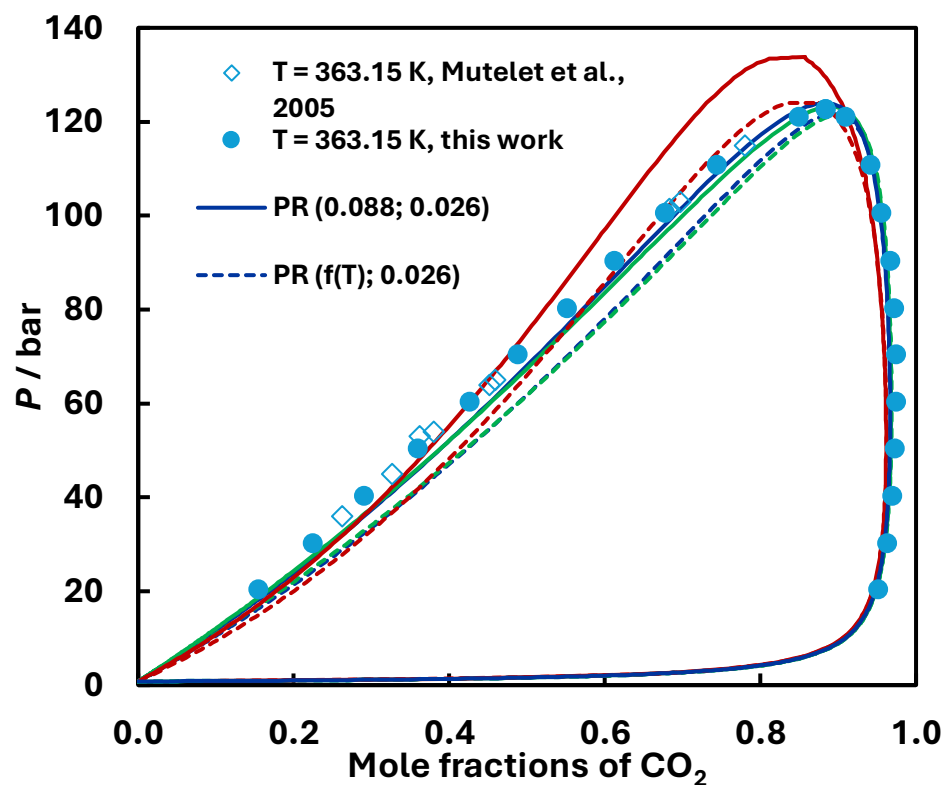


Fig. 26S. Comparison of measured and literature [4] data for carbon dioxide (1) + *n*-heptane (2) at 363.15 K with model results.

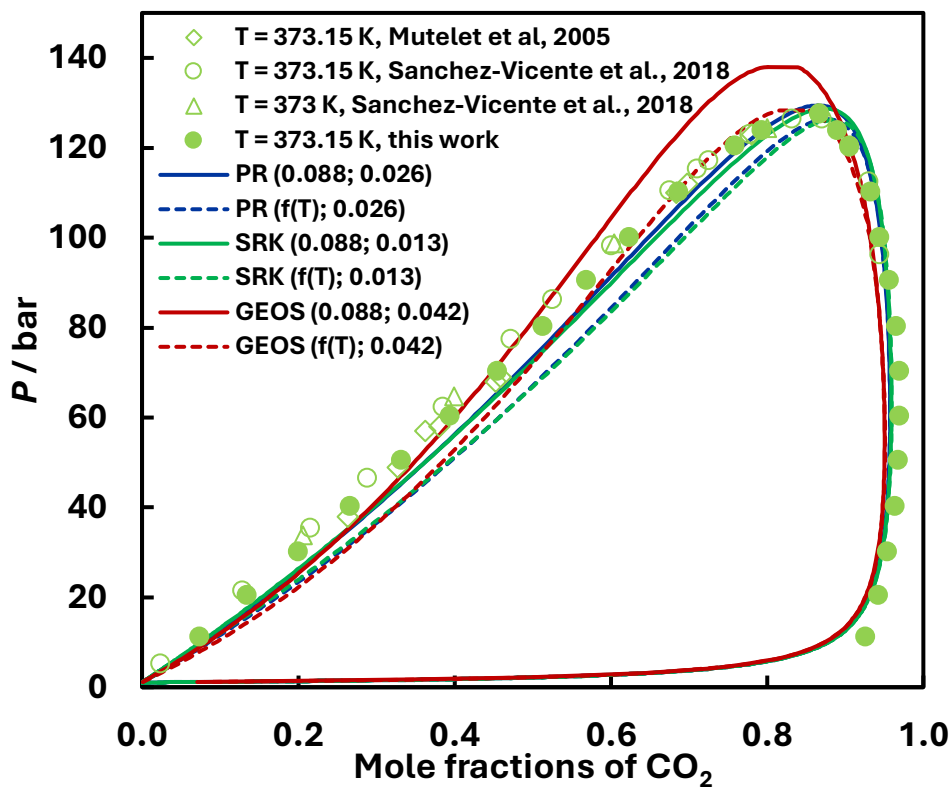


Fig. 27S. Comparison of measured and literature [4, 5] data for carbon dioxide (1) + n -heptane (2) at 373.15 K with model results.

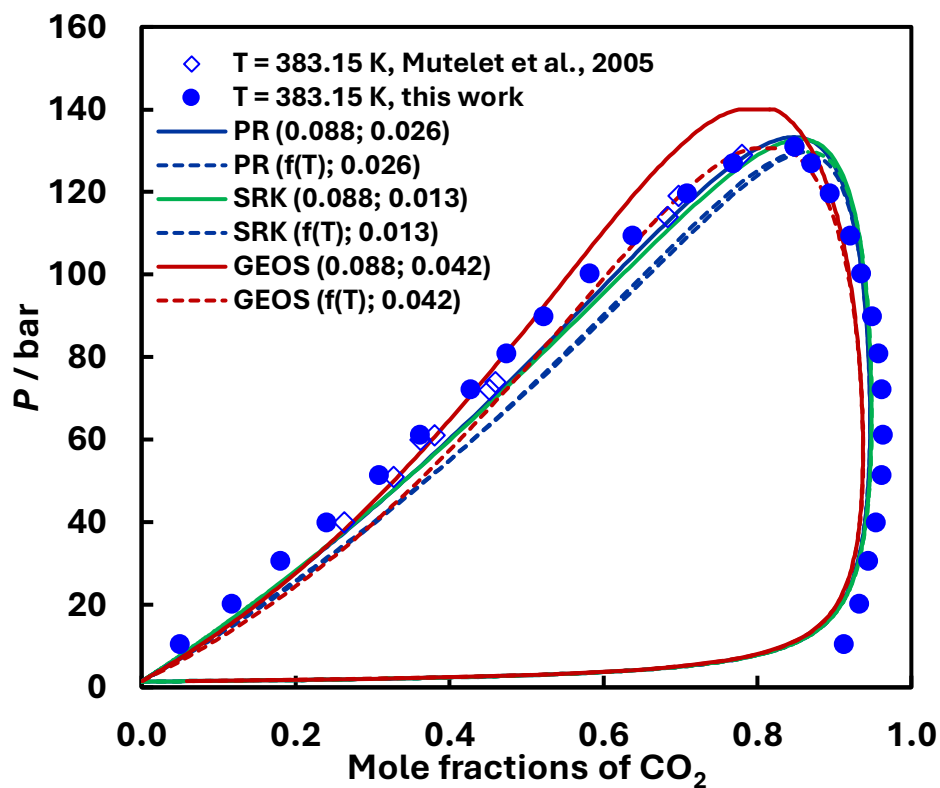


Fig. 28S. Comparison of measured and literature [4] data for carbon dioxide (1) + n -heptane (2) at 383.15 K with model results.

References

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