Supporting Information

Insights into the Limitations of Parameter Transferability in Heteronuclear SAFT-type Equations of State

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Figure S1. Saturated liquid density of linear alkanes. A) from ethane to n-decane (fitting) B) from n-dodecane to n-eicosane (predicted). Symbols represent experimental data from the DIPPR database\textsuperscript{1} while the solid lines depict the SAFT-$\gamma$-Mie results.

Figure S2. Vapor pressures of linear alkanes. A) from ethane to n-decane (fitting) B) from n-dodecane to n-eicosane (predicted). Symbols represent experimental data from the DIPPR database\textsuperscript{1} while the solid lines depict the SAFT-$\gamma$-Mie results.

Figure S3. Enthalpies of vaporization of linear alkanes. A) from ethane to n-decane (fitting); B) from n-dodecane to n-eicosane (predicted). Symbols represent experimental data from the DIPPR database\textsuperscript{1} while the solid lines depict the SAFT-$\gamma$-Mie results.
Figure S4. A) Isobaric VLE of n-hexane + n-hexadecane; B) Isothermal VLE of ethane + n-decane; C) Atmospheric liquid densities of n-decane + n-C22; D) High-pressure liquid densities of n-octane + n-dodecane.

Figure S5. Saturation liquid densities and vapor pressures of pure ethylene glycol. Symbols represent experimental data\(^1\) while the dashed and solid lines represent the SAFT-\(\gamma\)-Mie results following approach A and approach B, respectively.
Figure S6. High-pressure liquid densities of pure glycols. Symbols represent experimental data\textsuperscript{2} while the solid lines represent the SAFT-\(\gamma\)-Mie results following approach A.
**Figure S7.** High-pressure liquid densities of pure glymes. Symbols represent experimental data while the solid lines depict the SAFT-$\gamma$-Mie results, following approach A.
Figure S8. High-pressure liquid densities of pure glymes. Symbols represent experimental data while the solid lines depict the SAFT-γ-Mie results following approach G.
References

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