Electronic Supplementary Material (ESI) for Chemical Society Reviews.

Supplemental Information

To Gel or Not to Gel: Correlating Molecular Gelation with Solvent Parameters

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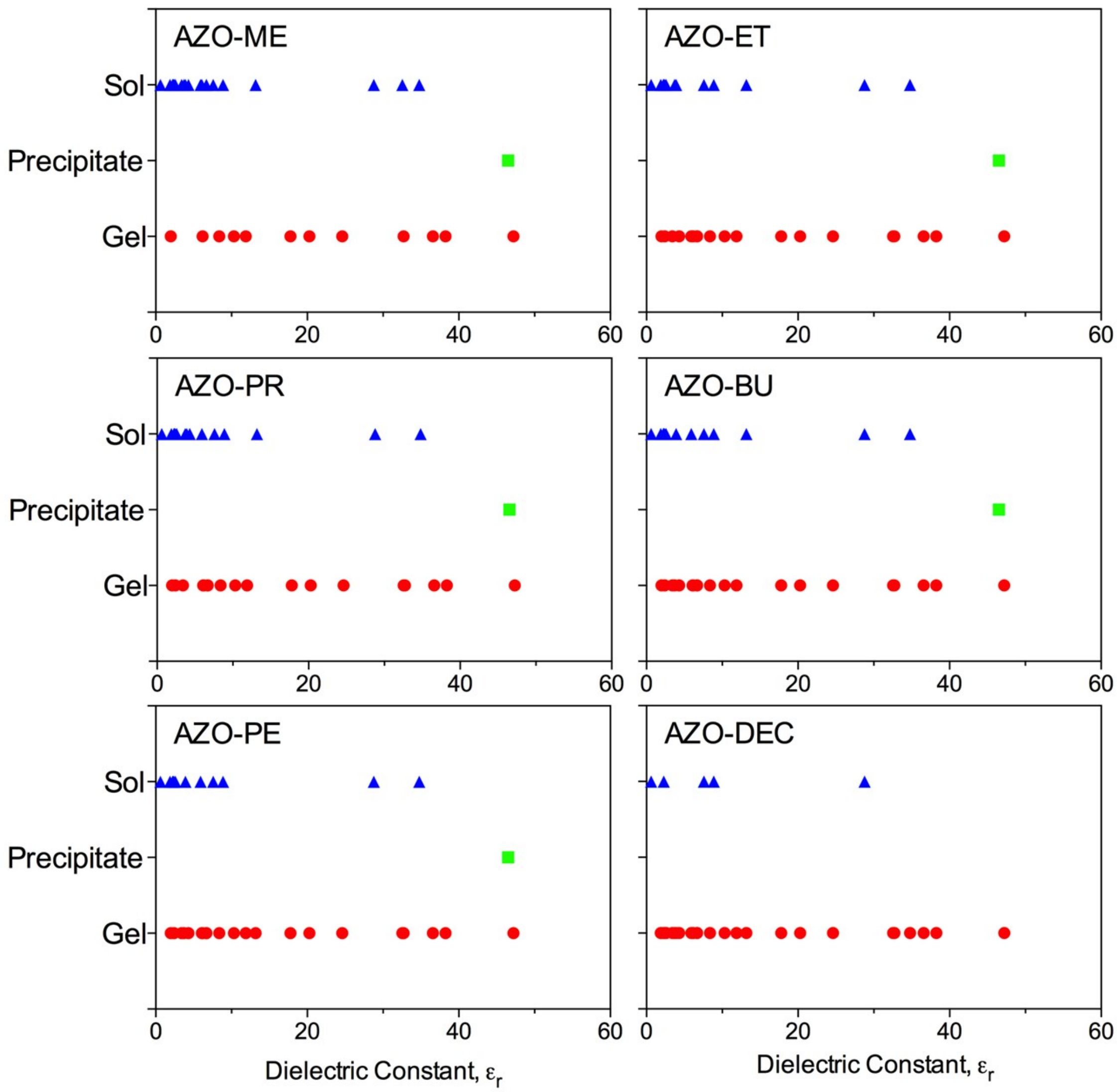

Figure S1: The capacity of the AZO derivatives (scheme 1) to form gels, precipitates or solutions as a function of the static relative permittivity of the solvents.

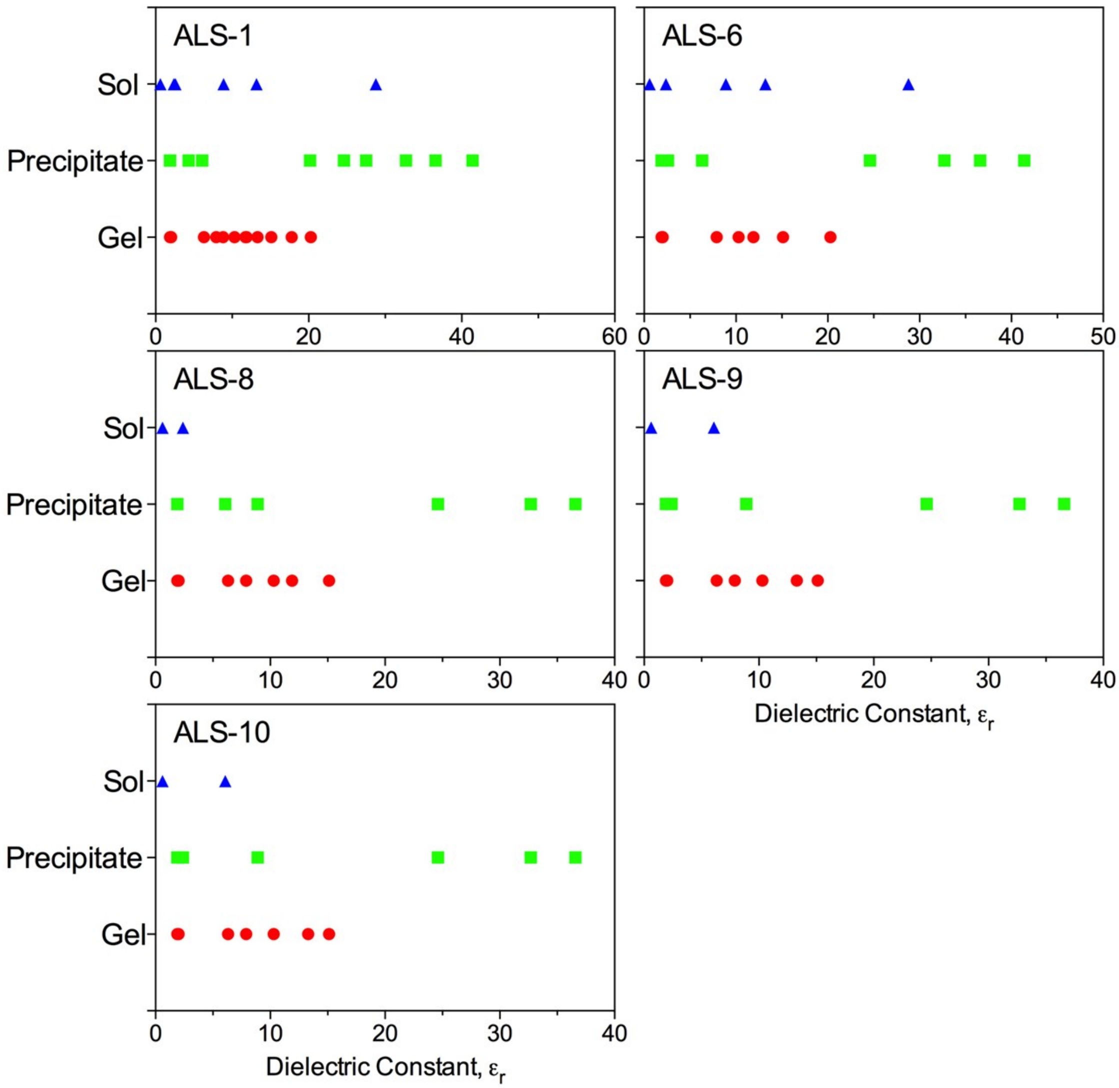

Figure S2: The capacity of the ALS gelators (Scheme 2) to form gels, precipitates or remain as solutions as a function of the static relative permittivity of the solvents.

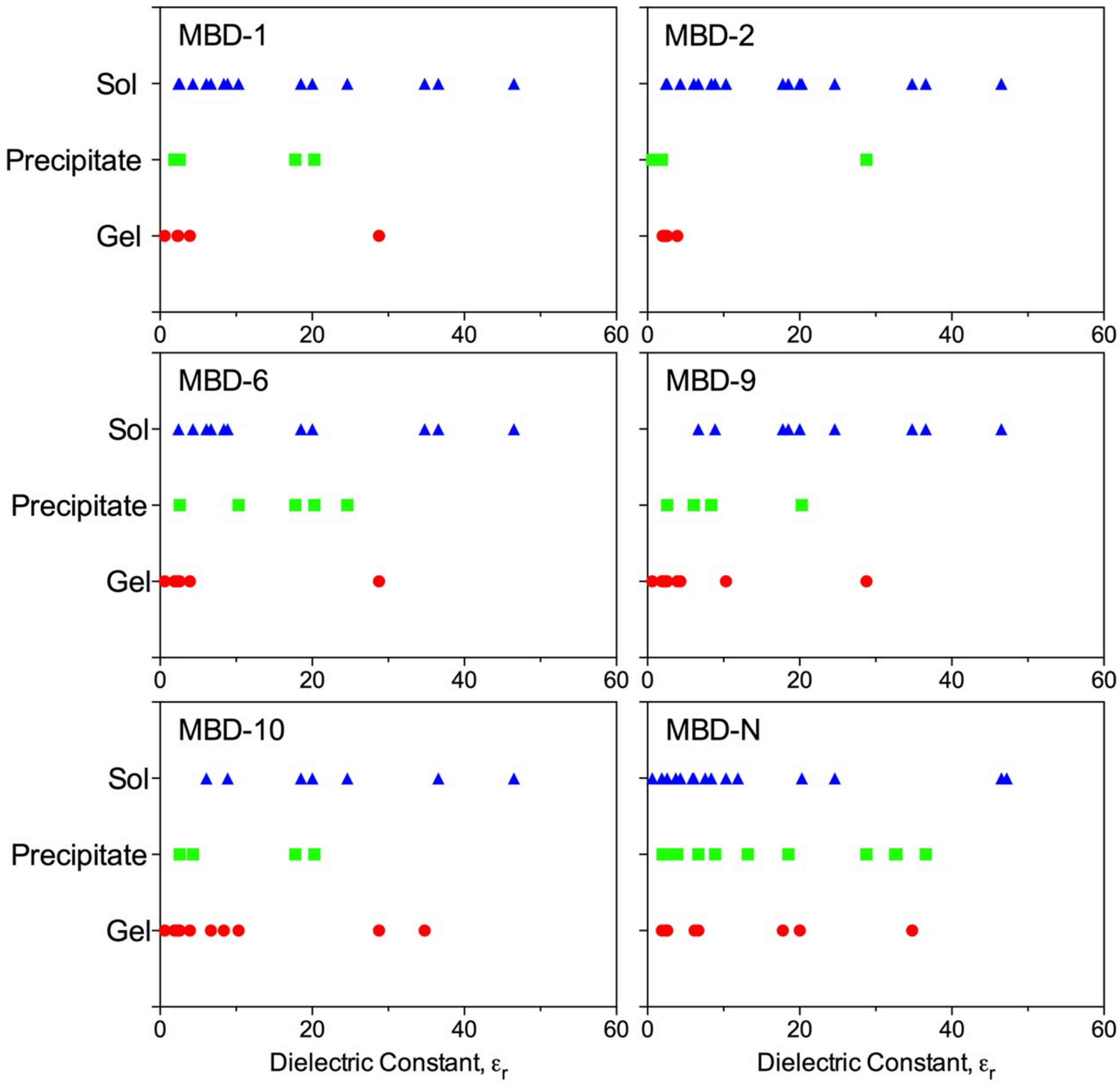

Figure S3: The capacity of the MBD gelators (Scheme 3) to form gels, precipitates or remain as solutions as a function of the static relative permittivity of the solvents.

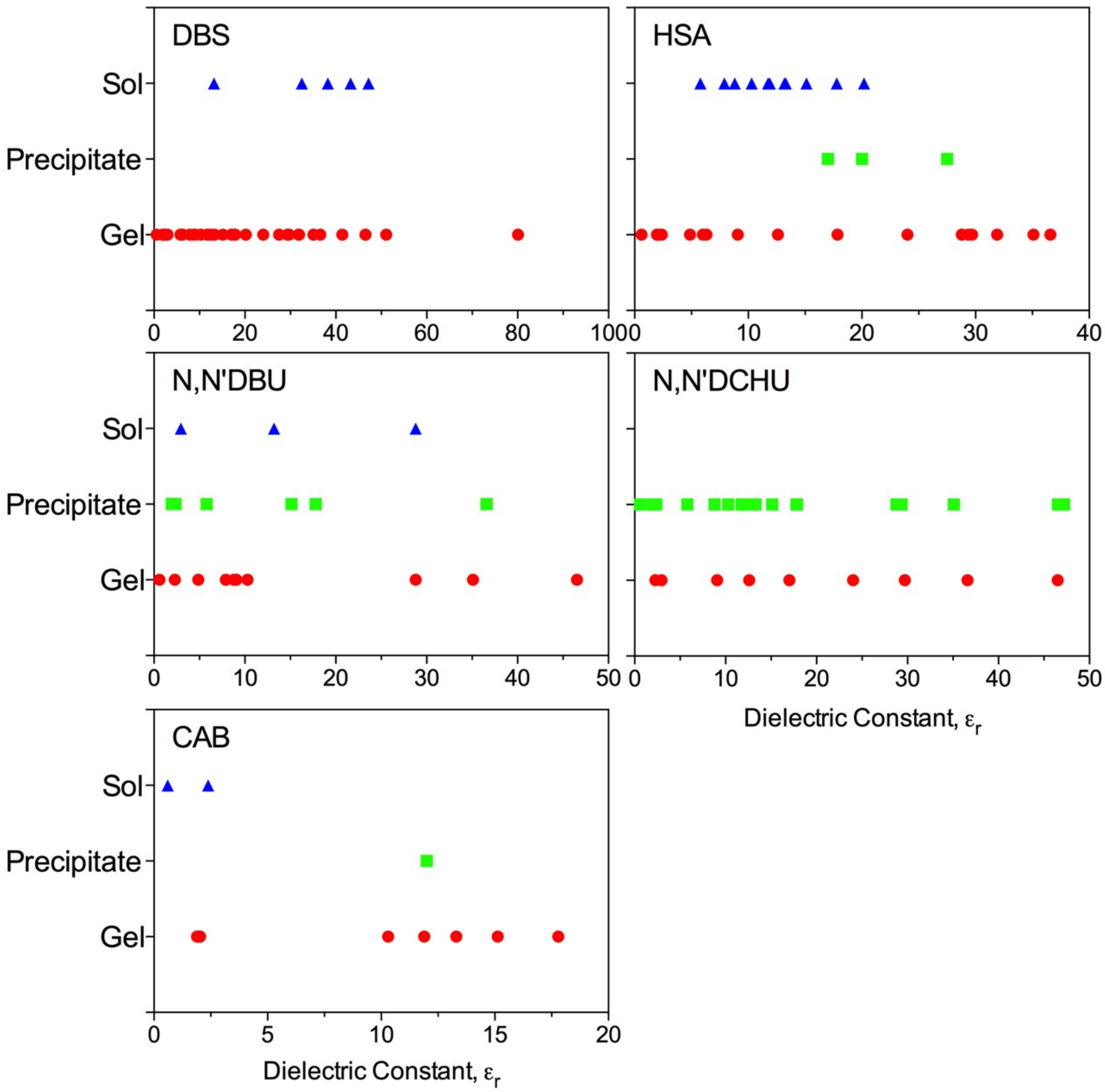

Figure S4: The capacity of the miscellaneous highly efficient gelators (Scheme 4) to form gels, precipitates or remain as solutions as a function of the static relative permittivity of the solvents.

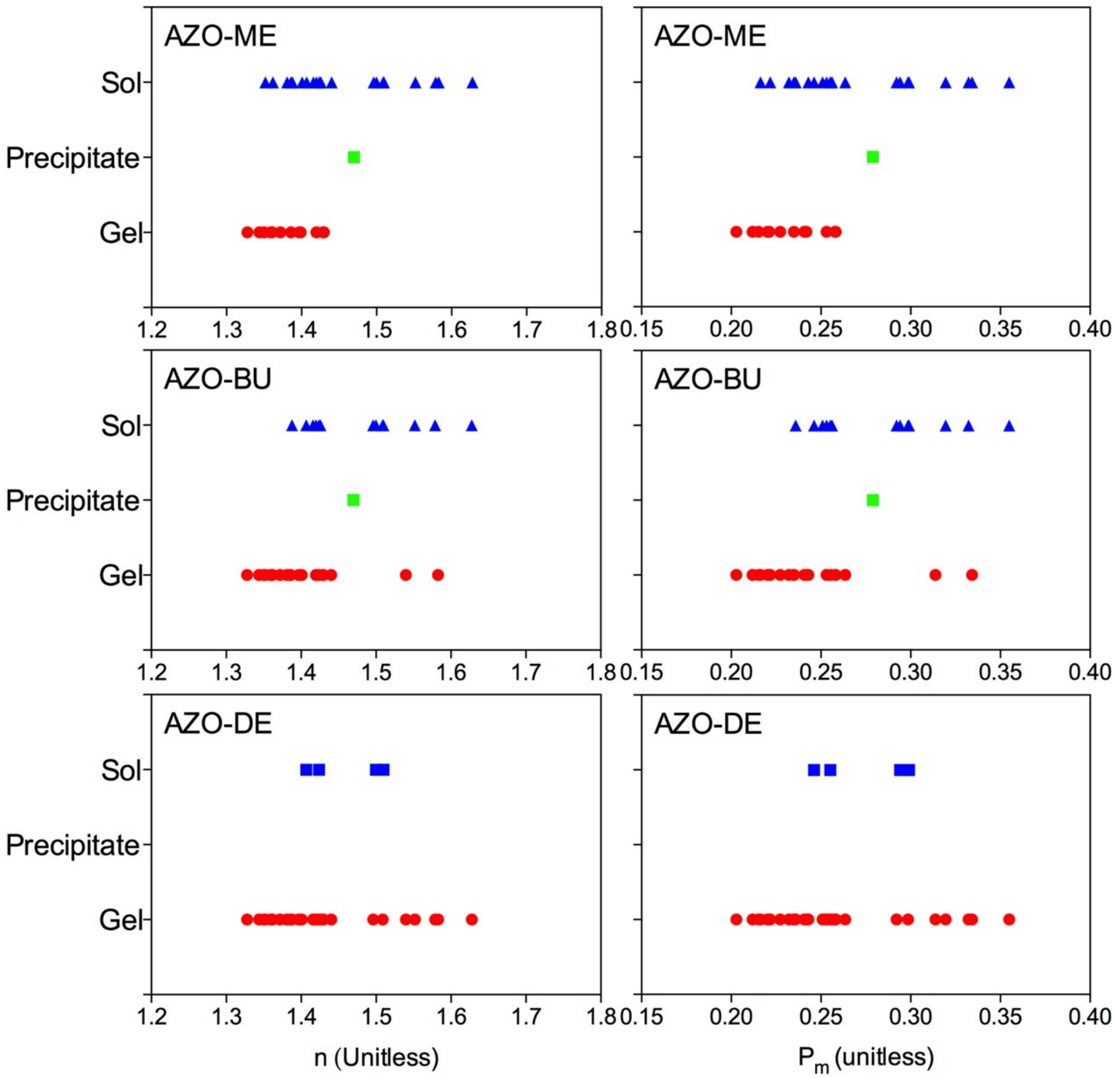

Figure S5: The capacity of the AZO derivatives to form gels, precipitates or solutions as a function of the refractive index and polarizability of the solvents.

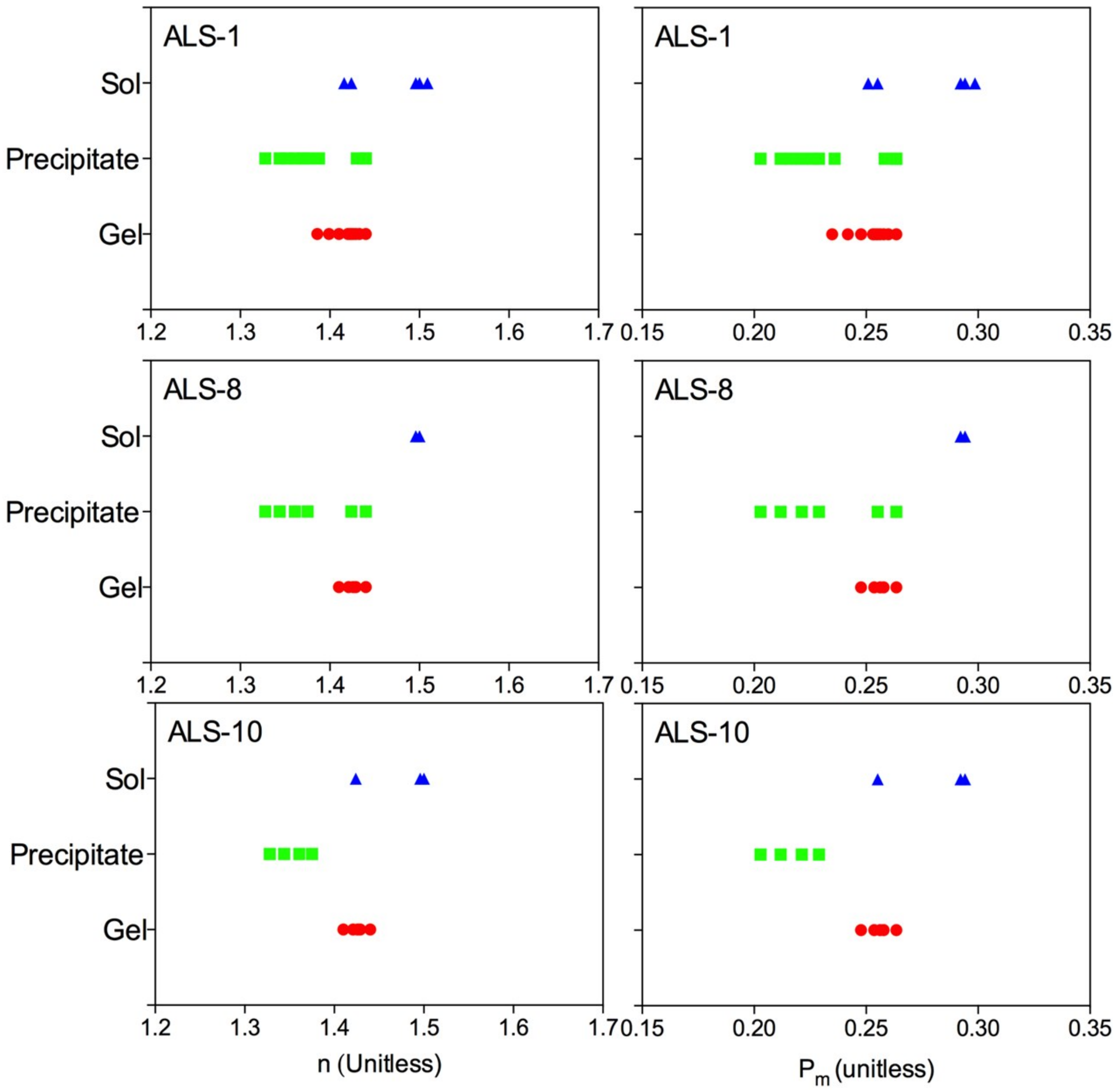

Figure S6: The capacity of the ALS gelators to form gels, precipitates or solutions as a function of the refractive index and polarizability of the solvents.

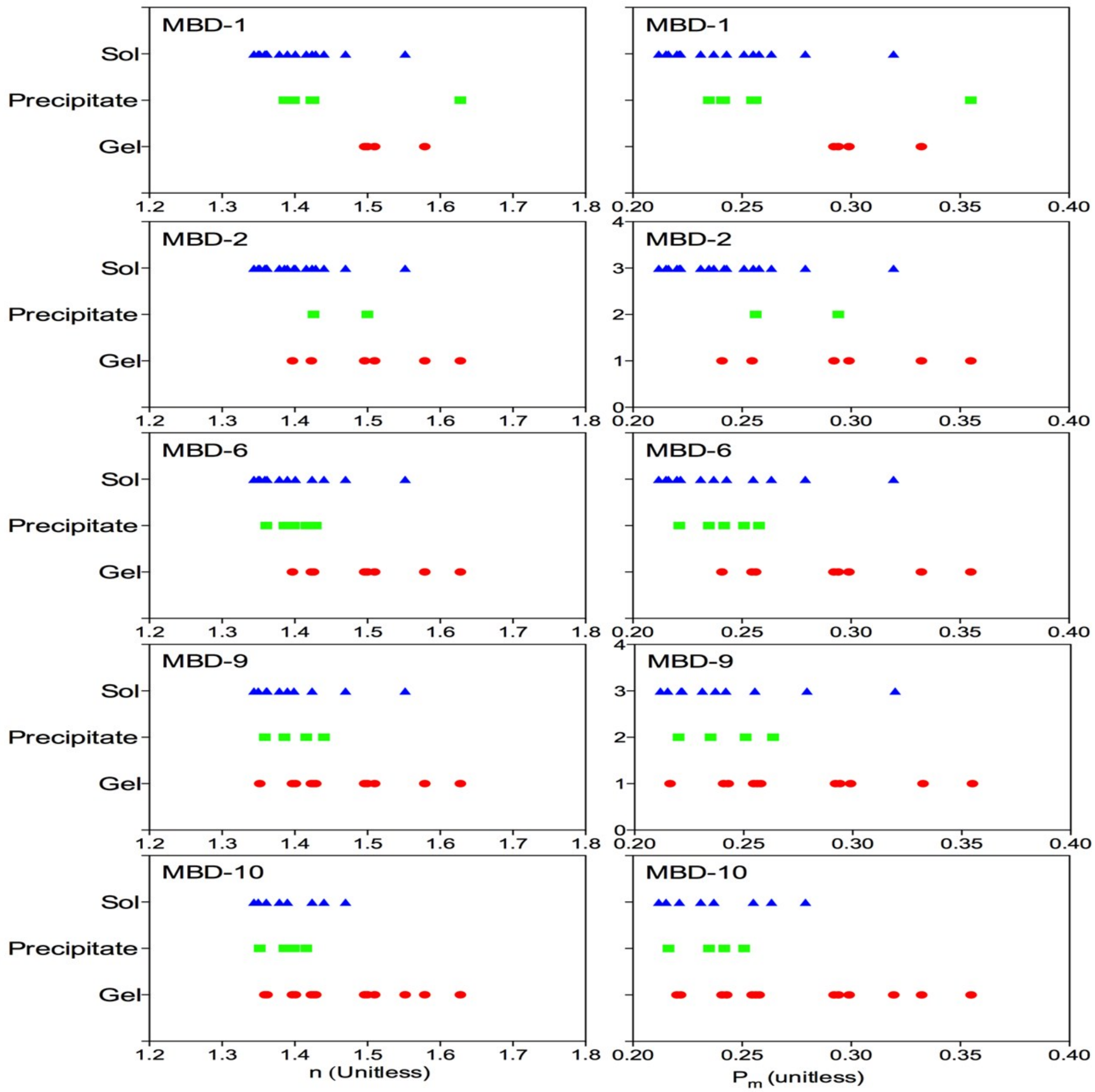

Figure S7: The capacity of the MBD derivatives to form gels, precipitates or solutions as a function of the refractive index and polarizability of the solvents.

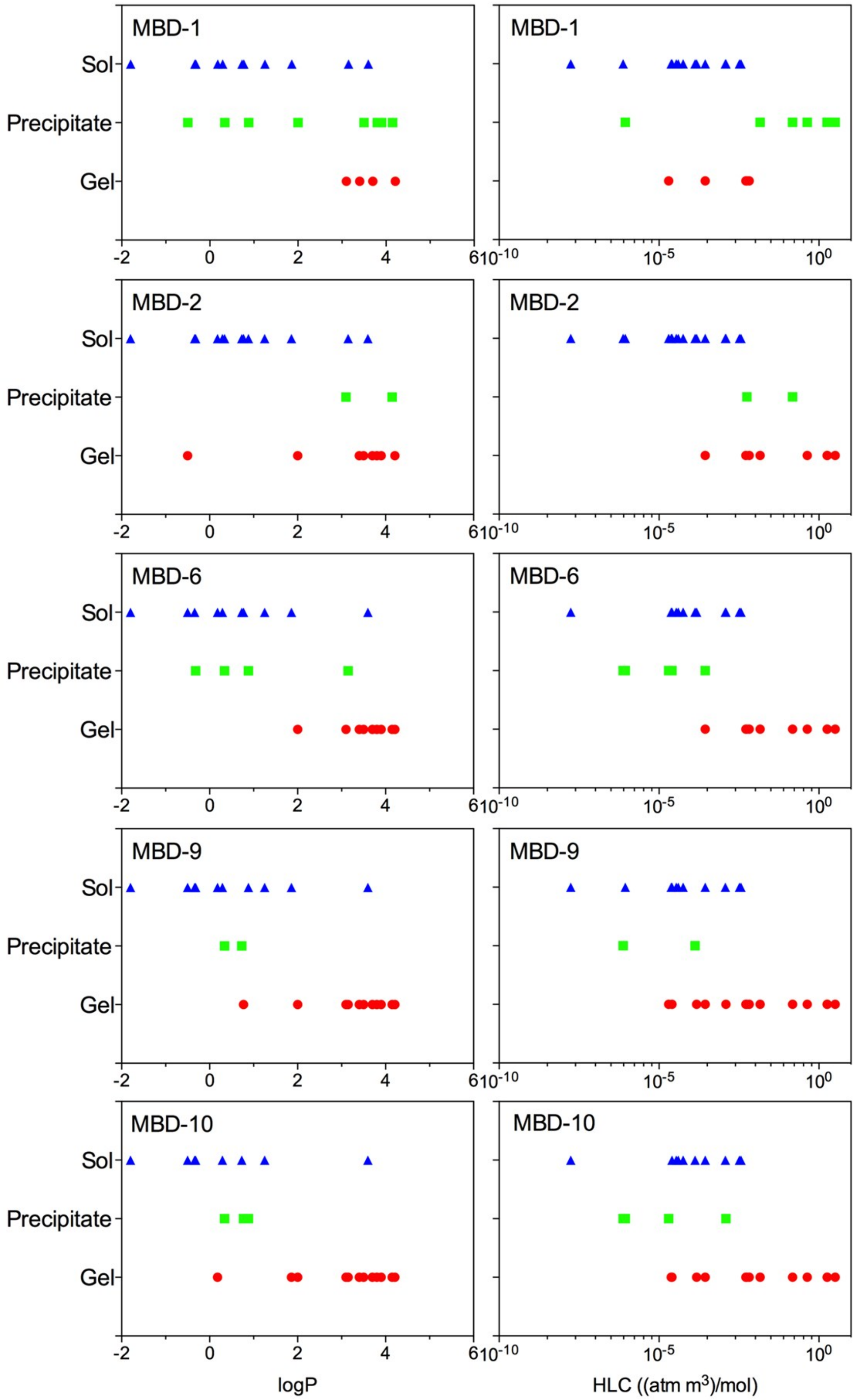

Figure S8: The capacity of the MBD derivatives to form gels, precipitates or solutions as a function of partition coefficients and Henry's law constants of the solvents.

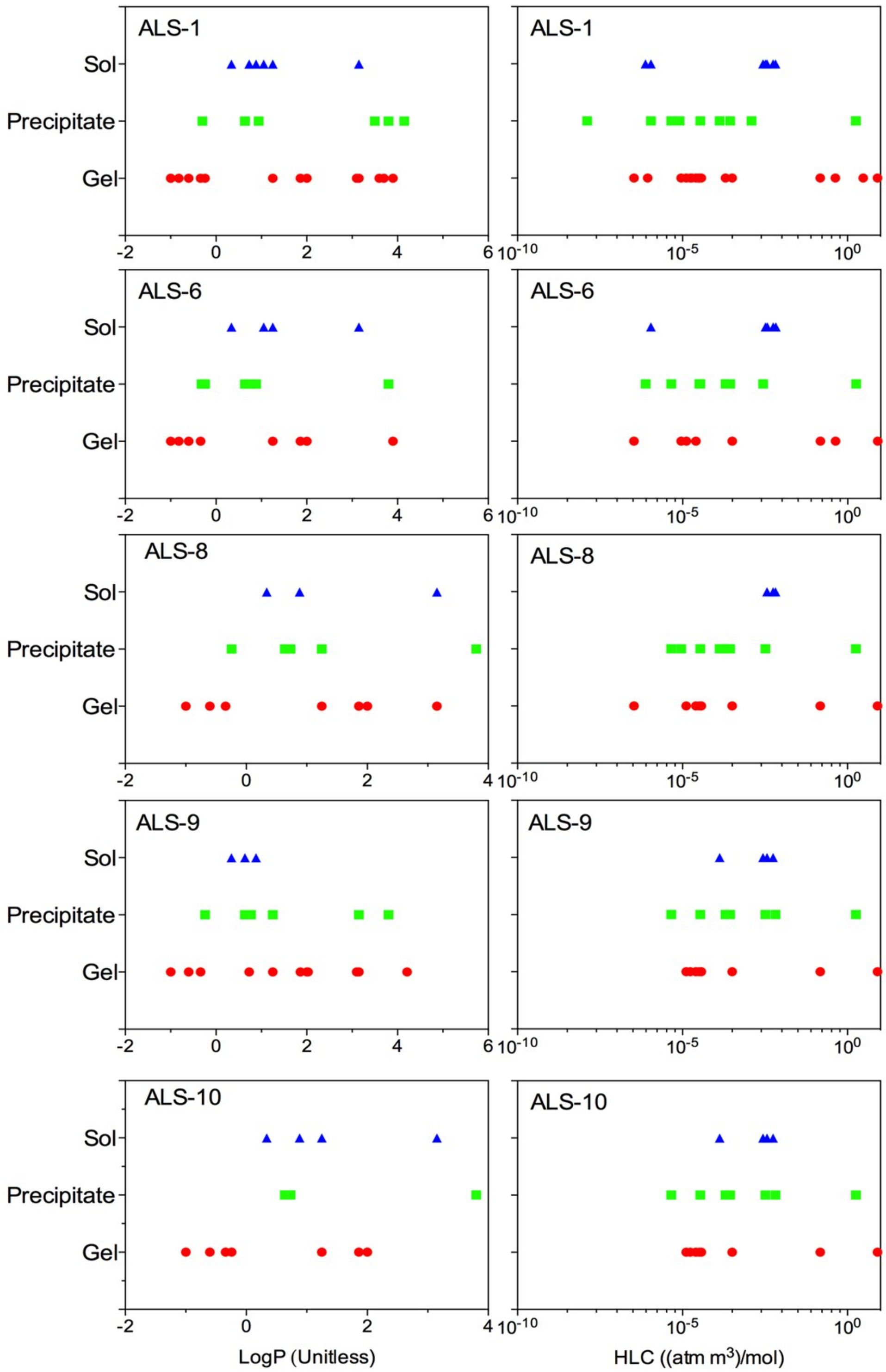

Figure S9: 15: The capacity of the ALS derivatives to form gels, precipitates or solutions as a function of partition coefficients and Henry's law constants of the solvents.

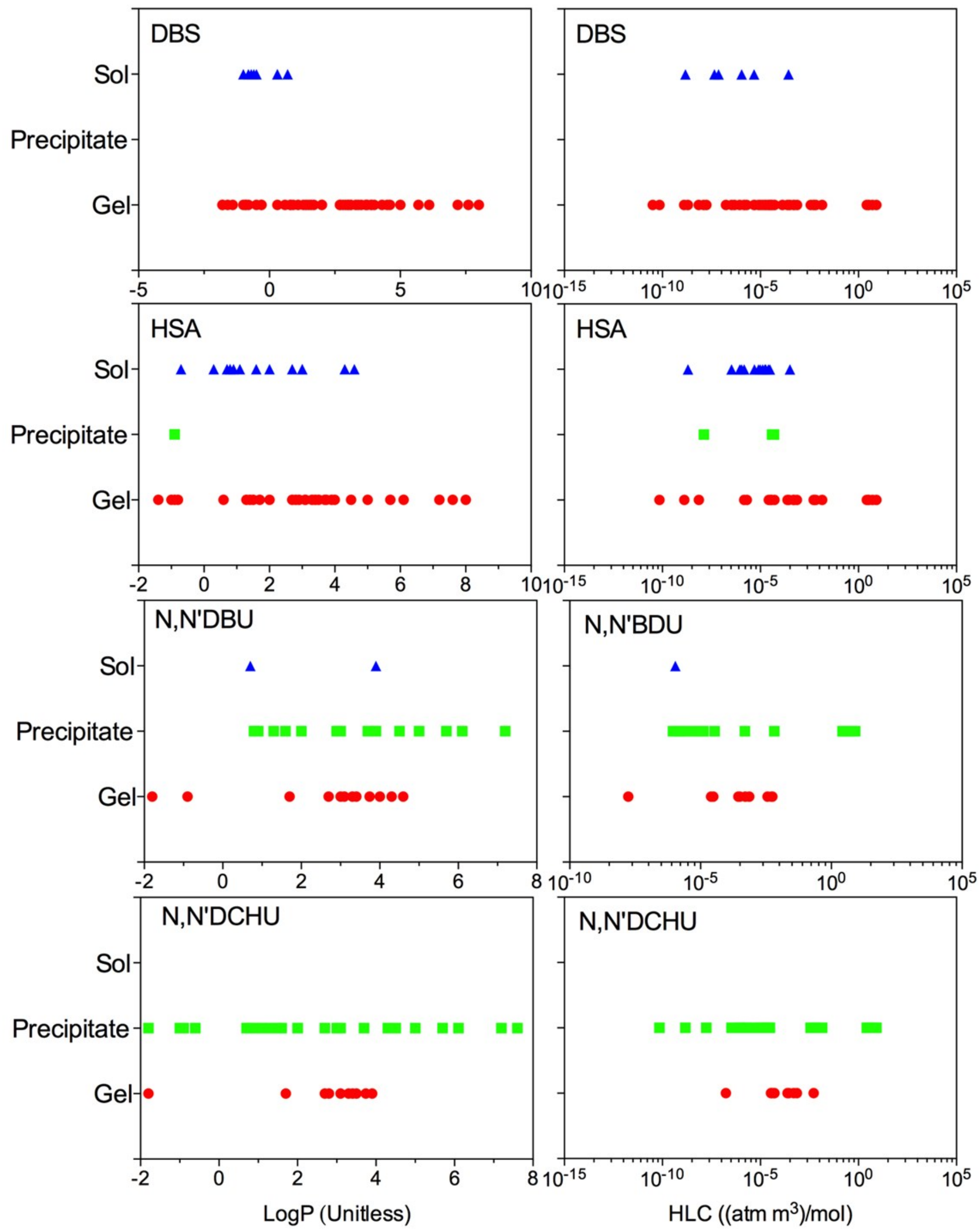

Figure S10: The capacity of DBS, HSA, N,N'-DBU and N,N'-DCHU to form gels, precipitates or solutions as a function of partition coefficients and Henry's law constants of the solvents.

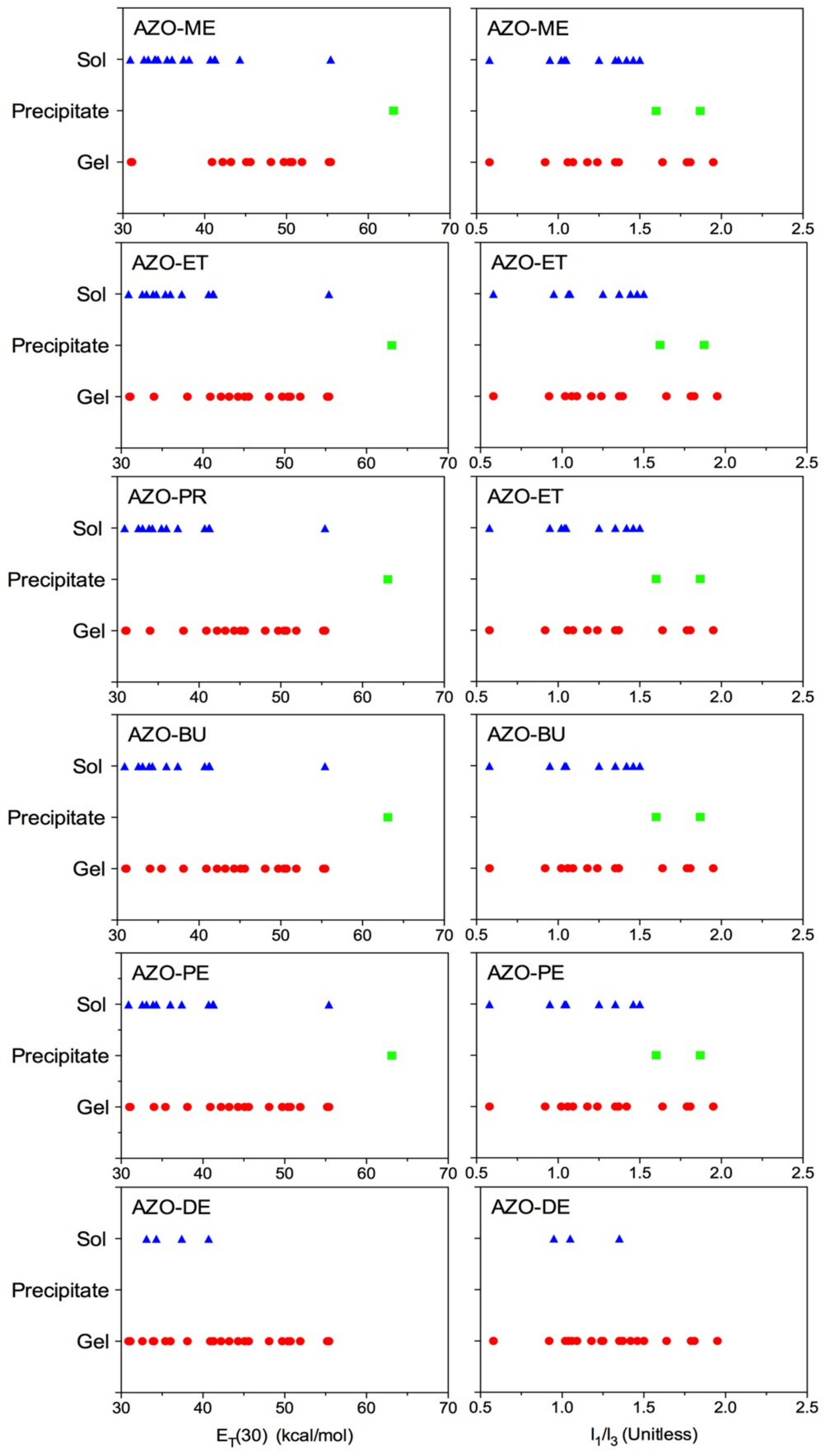

Figure S11: The capacity of the AZO derivatives to form gels, precipitates or solutions as a function of $E_T(30)$ and the Py scale of the solvents.

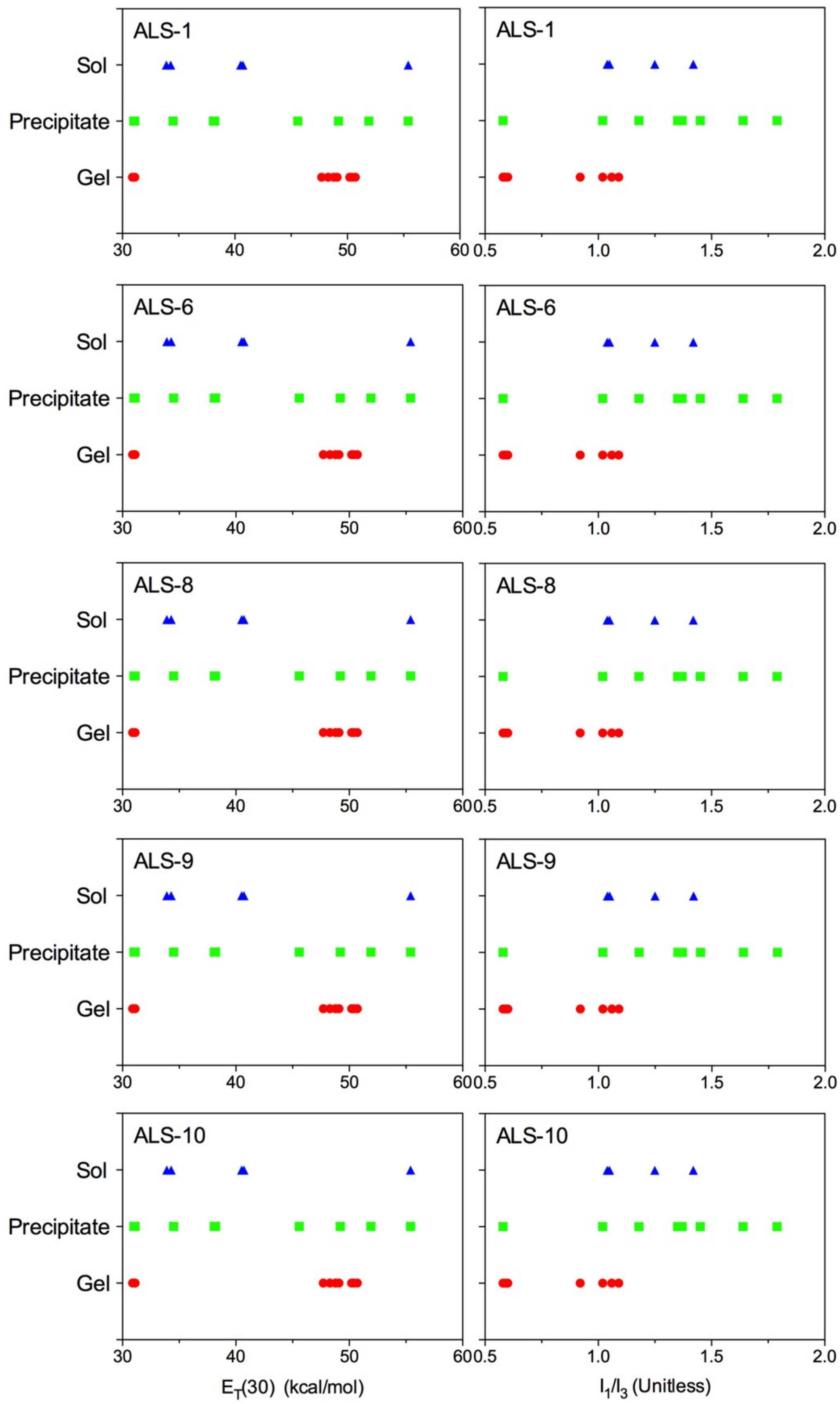

Figure S12: The capacity of the ALS derivatives to form gels, precipitates or solutions as a function of $E_T(30)$ and the Py scale of the solvents.

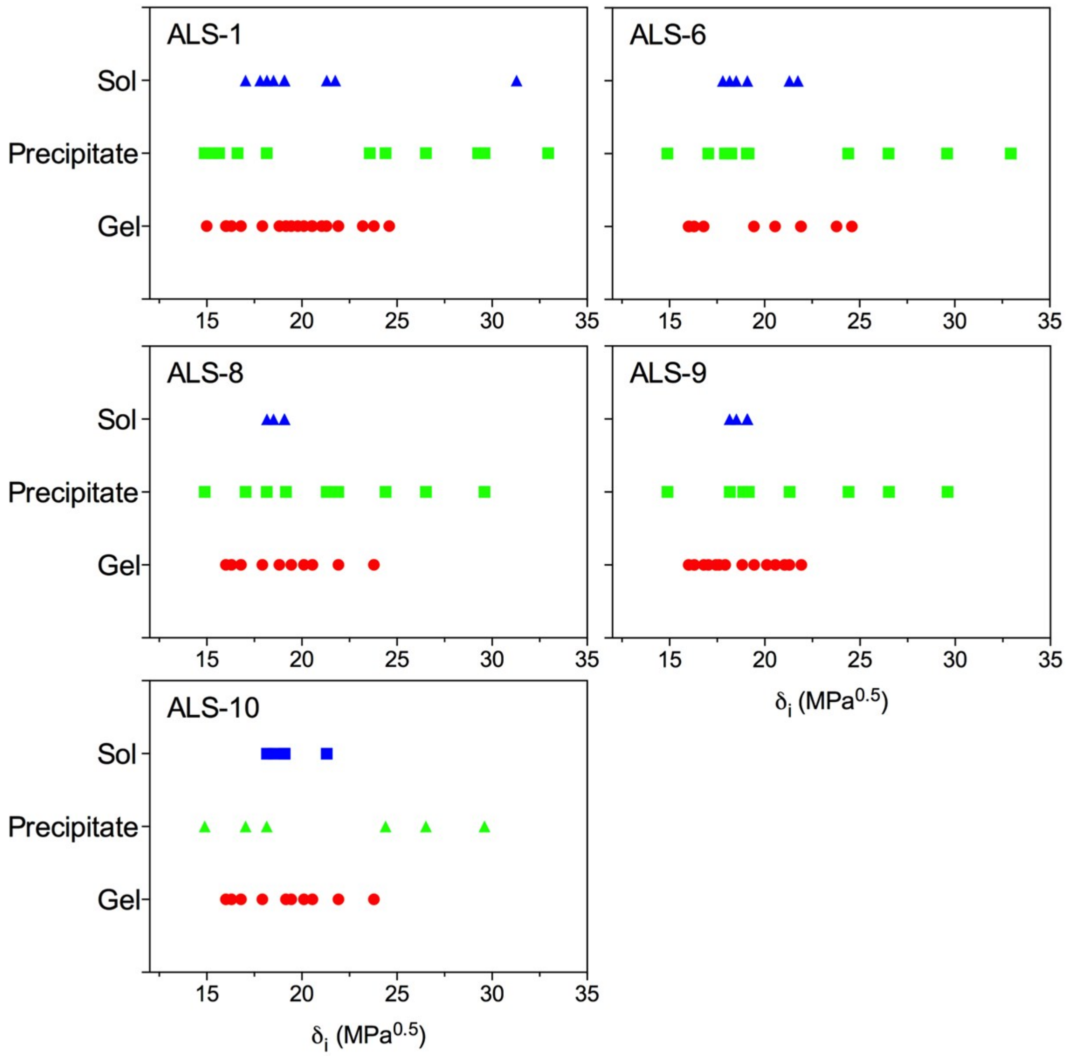

Figure S13: The capacity of the ALS derivatives to form gels, precipitates or solutions as a function of the Hildebrand solubility parameter of the solvents.

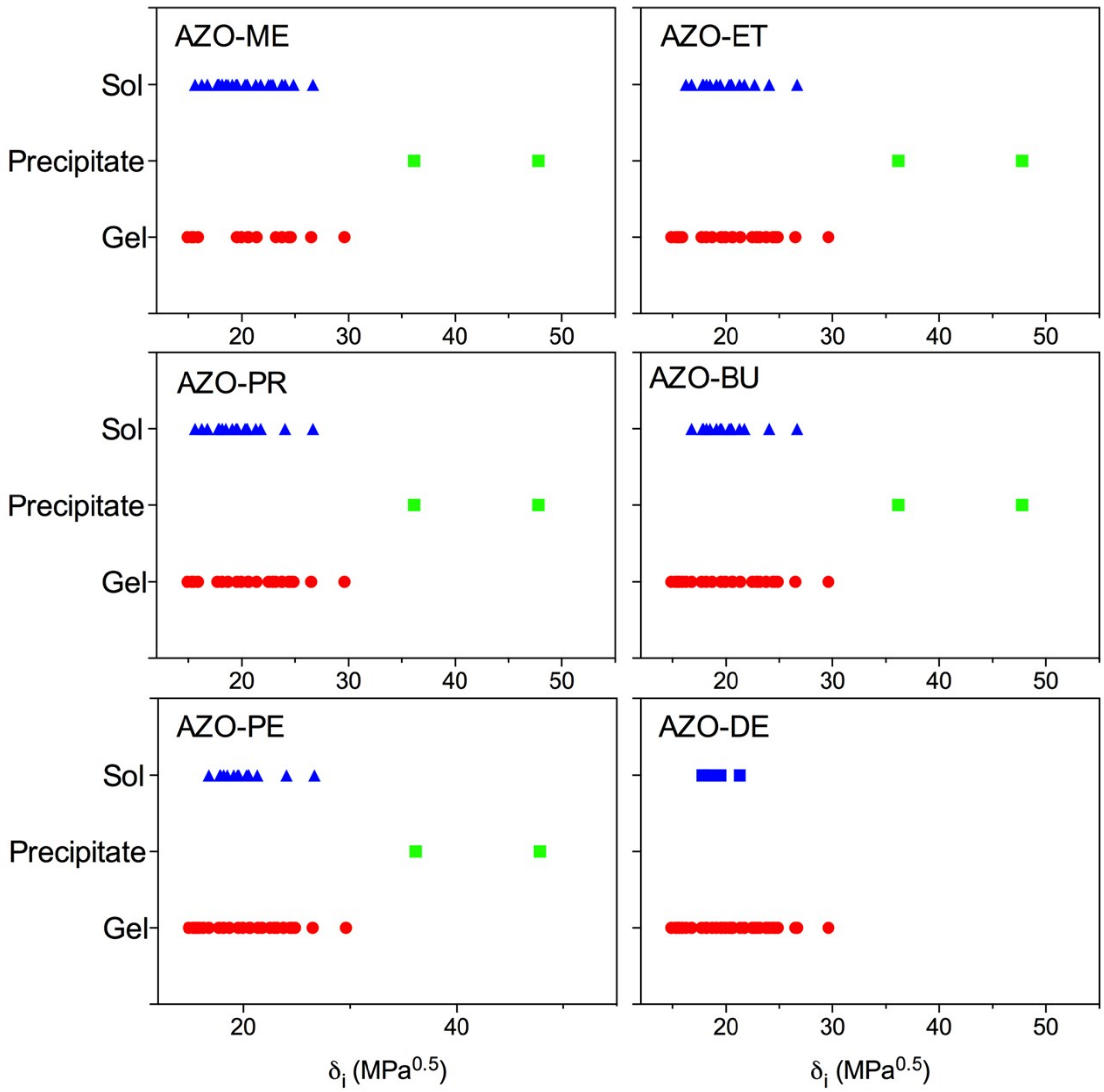

Figure S14: The capacity of the AZO derivatives to form gels, precipitates or solutions as a function of the Hildebrand solubility parameter of the solvents.

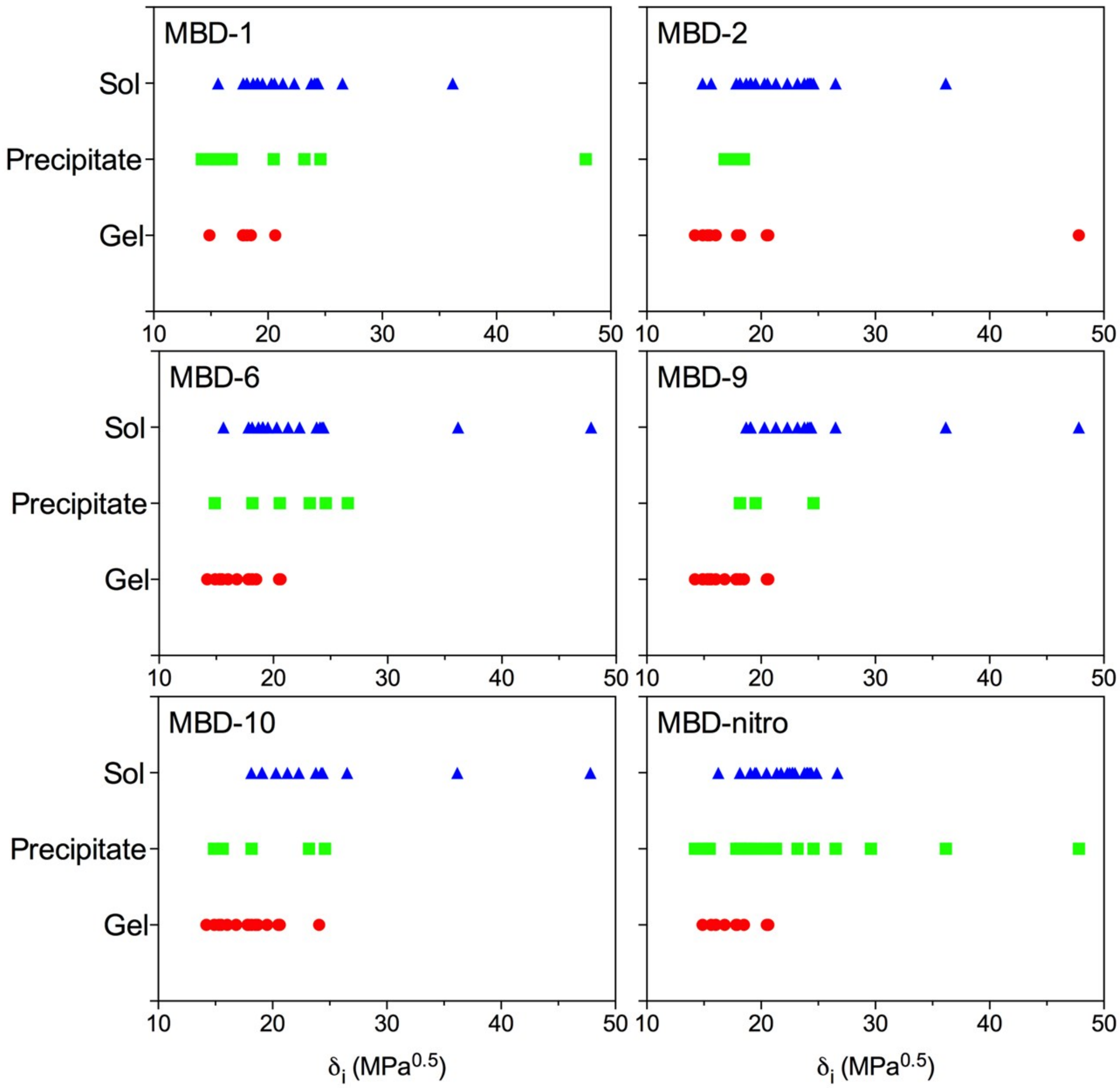

Figure S15: The capacity of the MBD derivatives to form gels, precipitates or solutions as a function of the Hildebrand solubility parameter of the solvents.

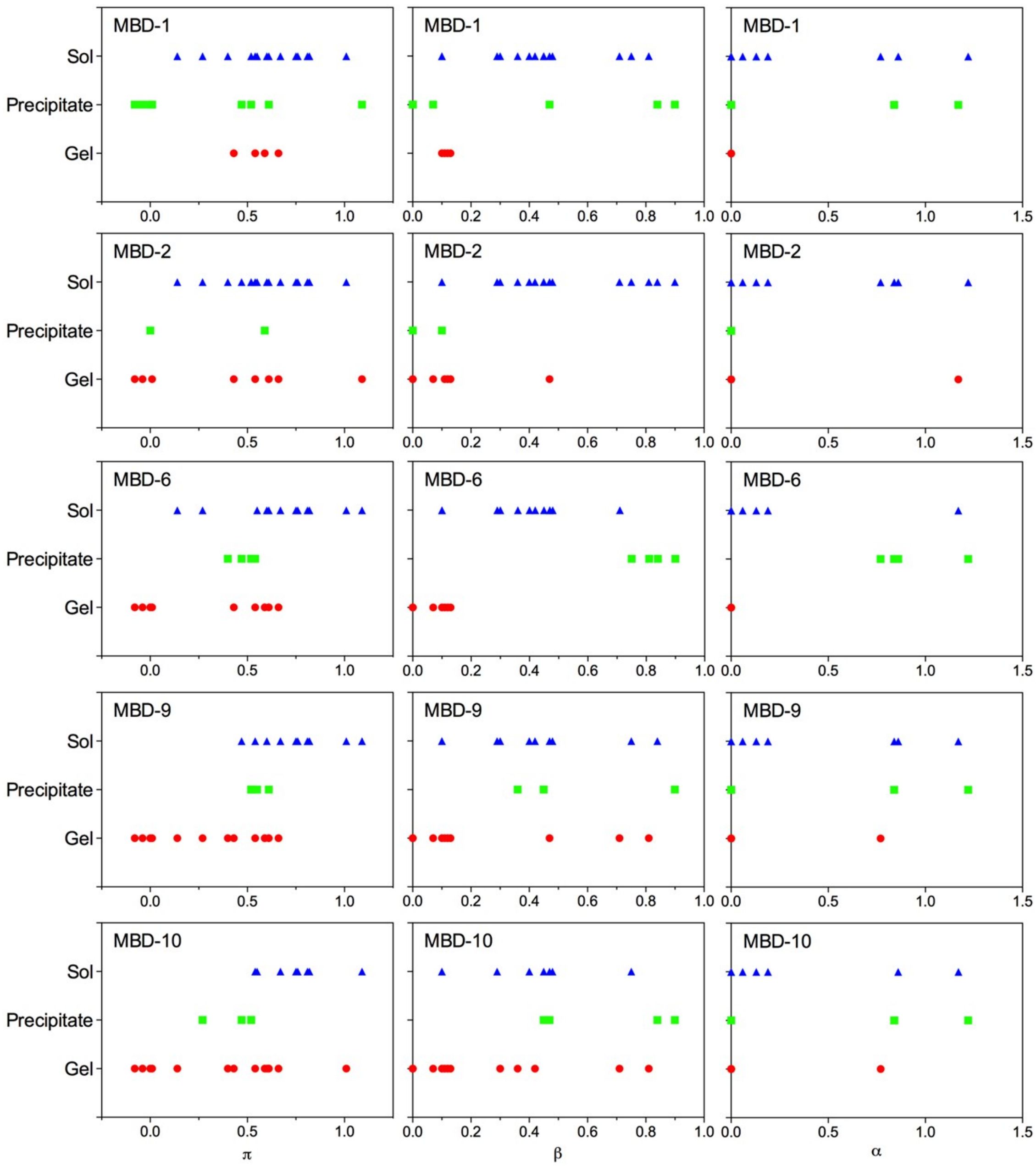

Figure S16: The capacity of the MBD gelators to form gels, precipitates or solutions as a function of Kamlet Taft Parameters, π, β, and α, of the solvents.

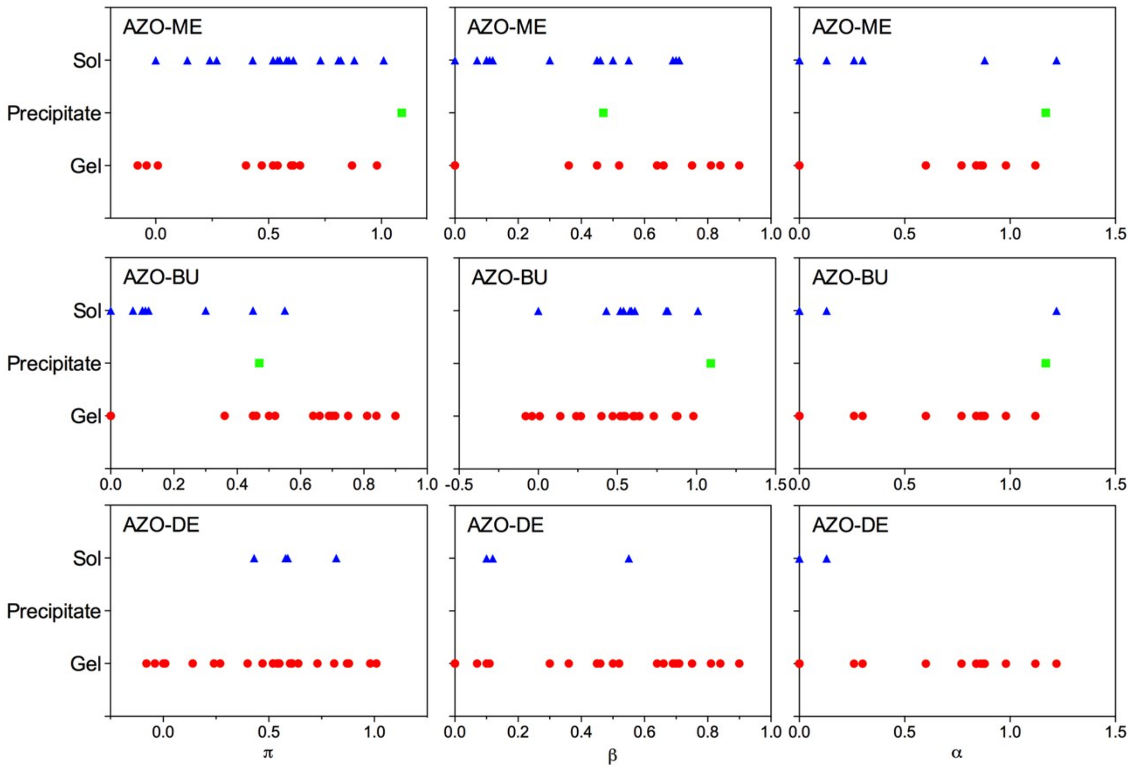

Figure S17: The capacity of the AZO gelators to form gels, precipitates or solutions as a function of Kamlet Taft Parameters, π, β, and α, of the solvents.

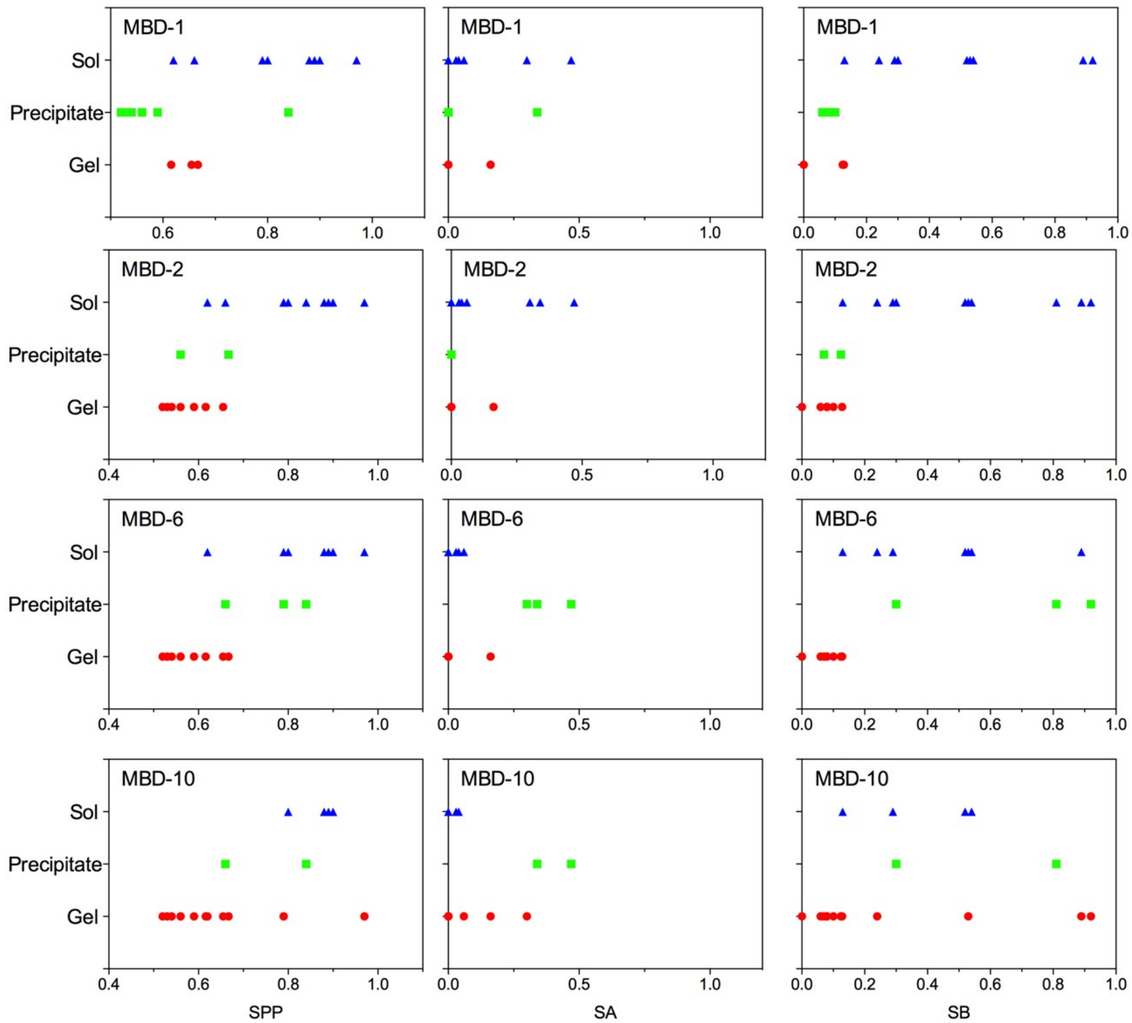

Figure S18: The capacity of the MBD gelators to form gels, precipitates or solutions as a function of Catalan's SPP, SA, and SB solvent parameters.

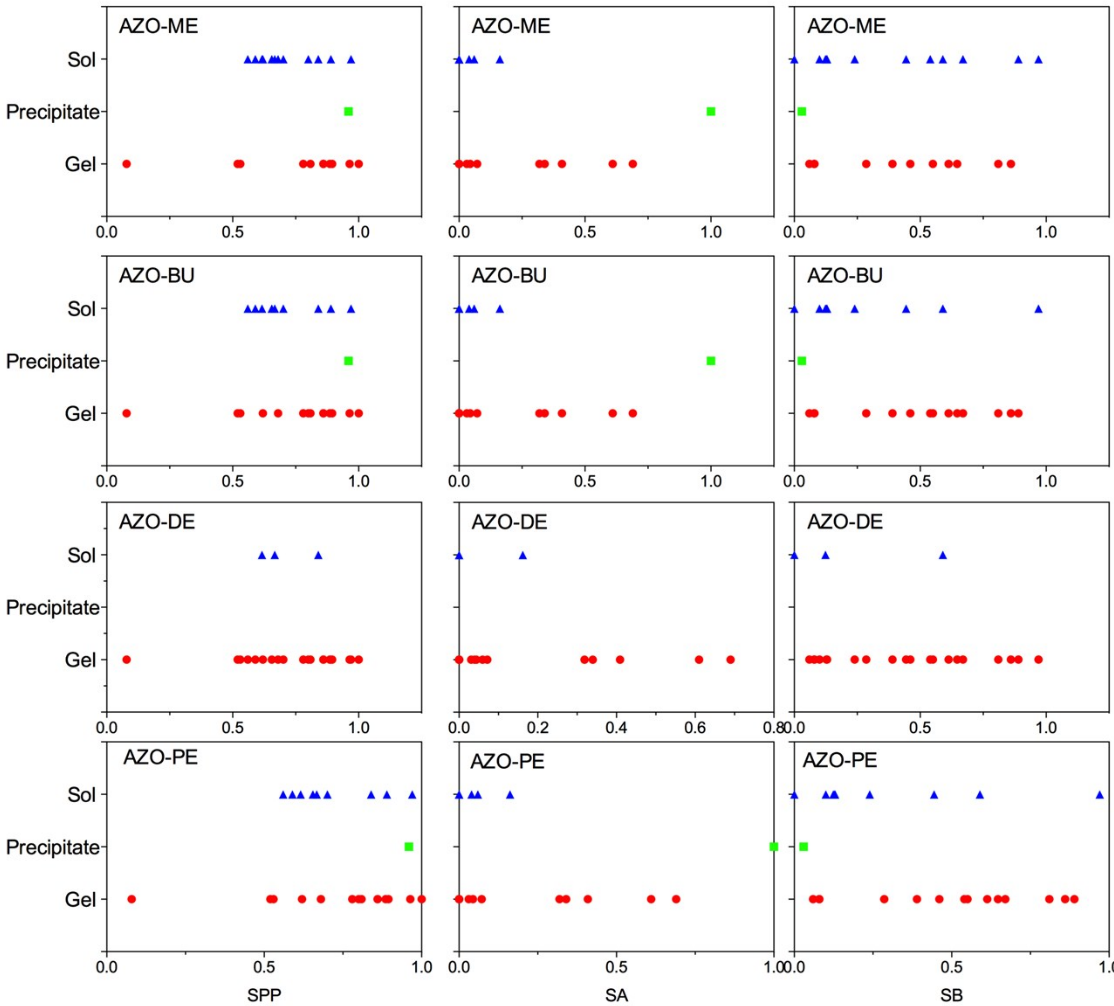

Figure S19: The capacity of the AZO gelators to form gels, precipitates or solutions as a function of Catalan's SPP, SA, and SB solvent parameters.

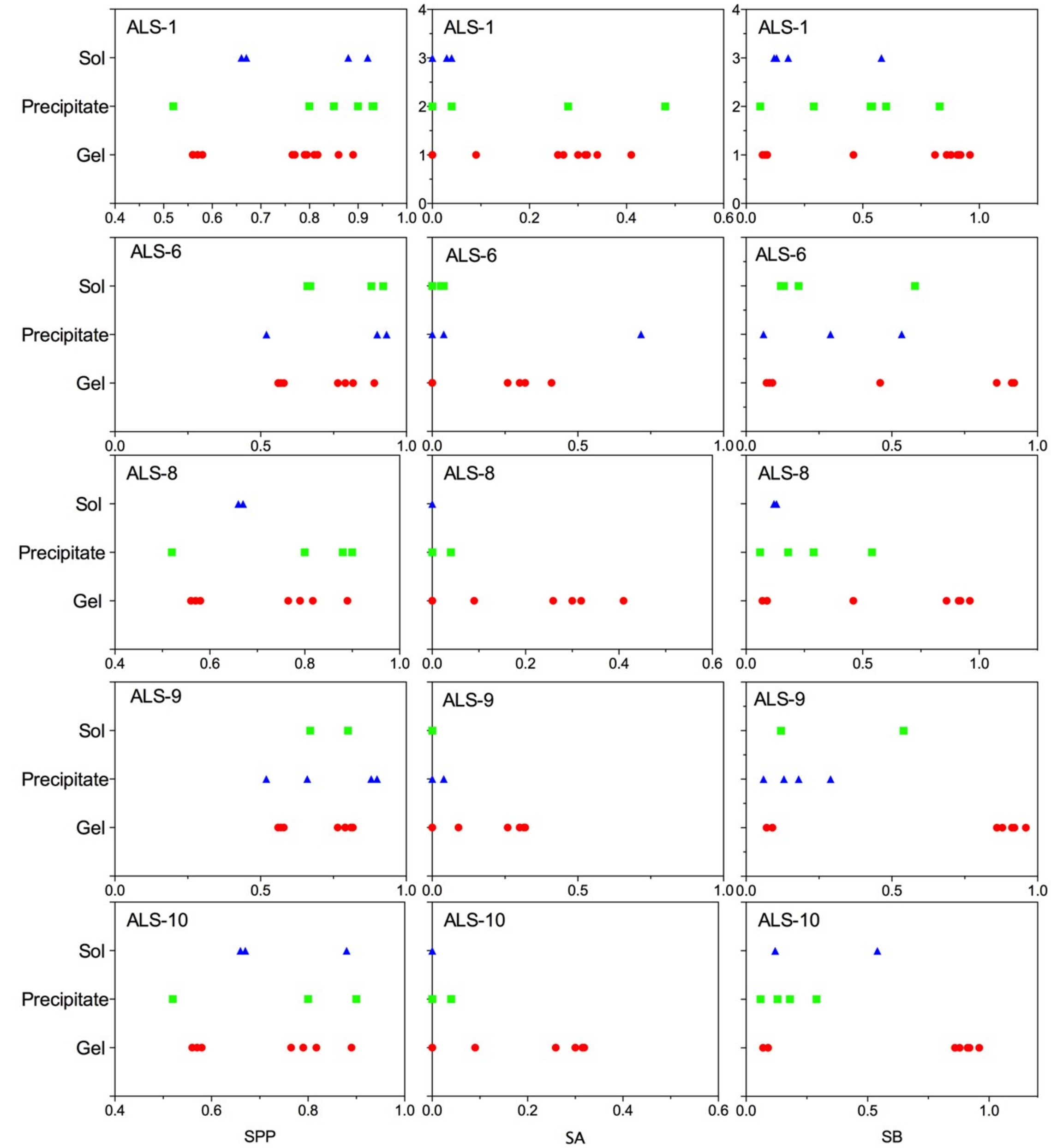

Figure S20: The capacity of the ALS gelators to form gels, precipitates or solutions as a function of Catalan's SPP, SA, and SB solvent parameters.

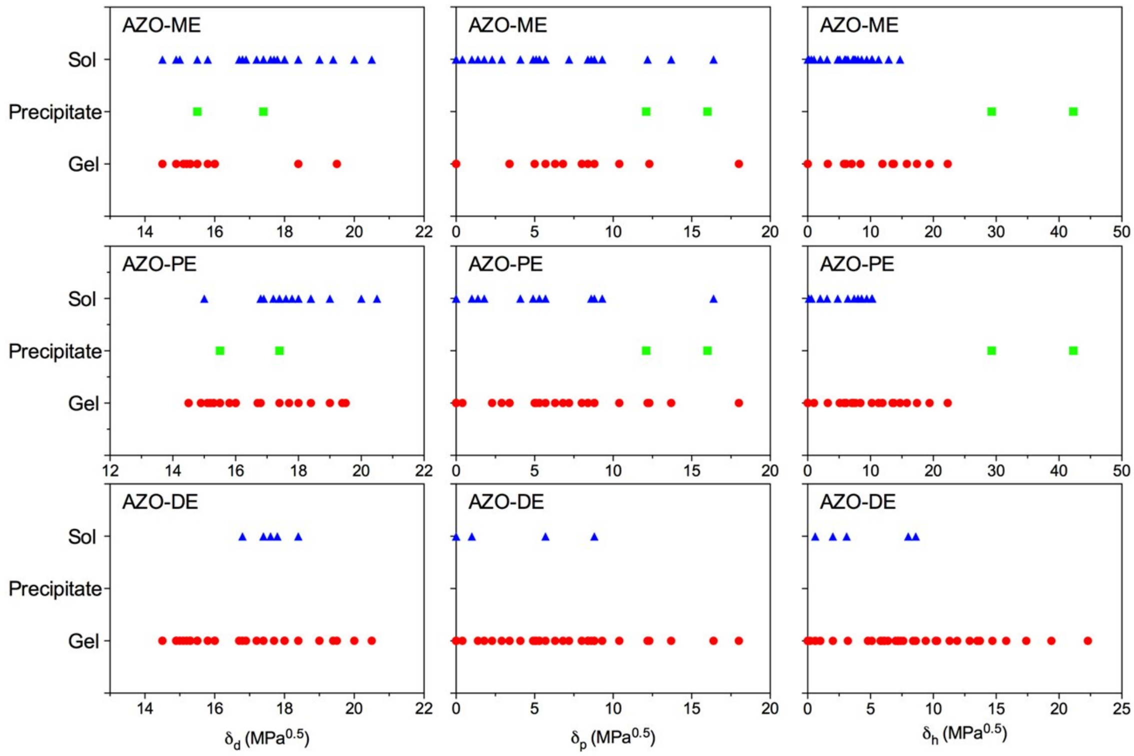

Figure S21: The capacity of the AZO derivatives to form gels, precipitates or solutions as a function of the dispersive Hansen solubility parameter (δ_d), polar Hansen solubility parameter (δ_p) and hydrogen- bonding Hansen solubility parameter (δ_h) of the solvents.

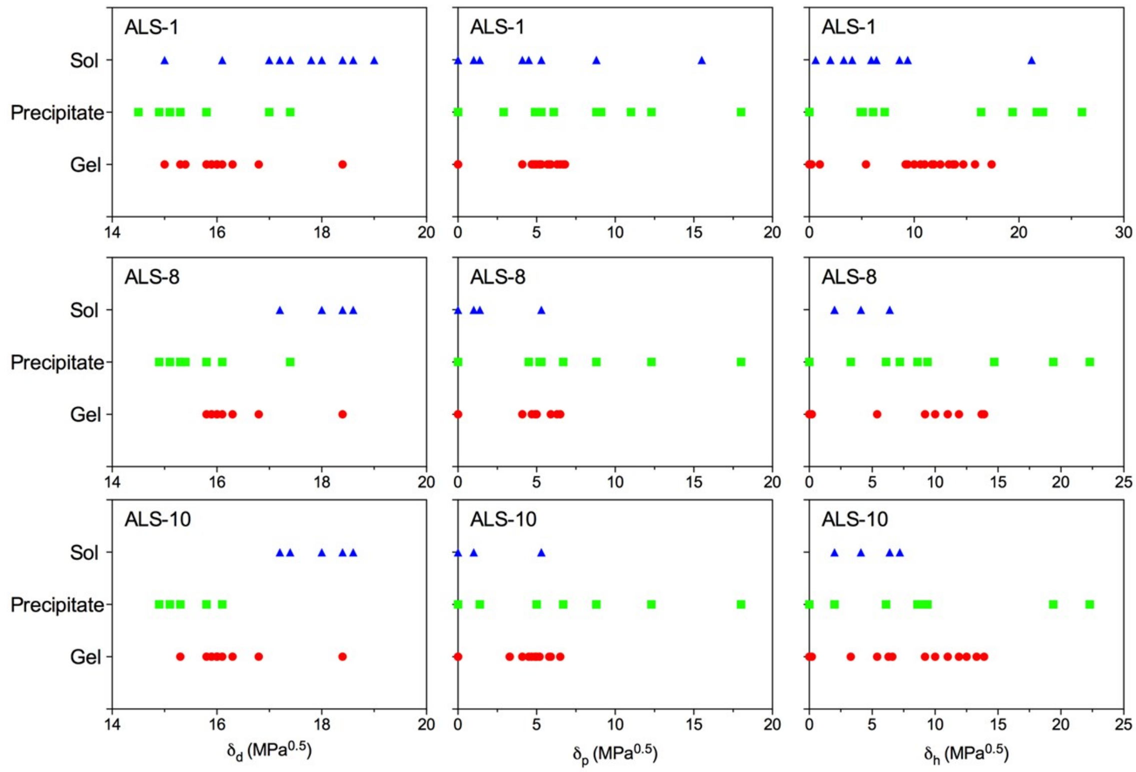

Figure S22: The capacity of the ALS derivatives to form gels, precipitates or solutions as a function of the dispersive Hansen solubility parameter (δ_d), polar Hansen solubility parameter (δ_p) and hydrogen- bonding Hansen solubility parameter (δ_h) of the solvents.

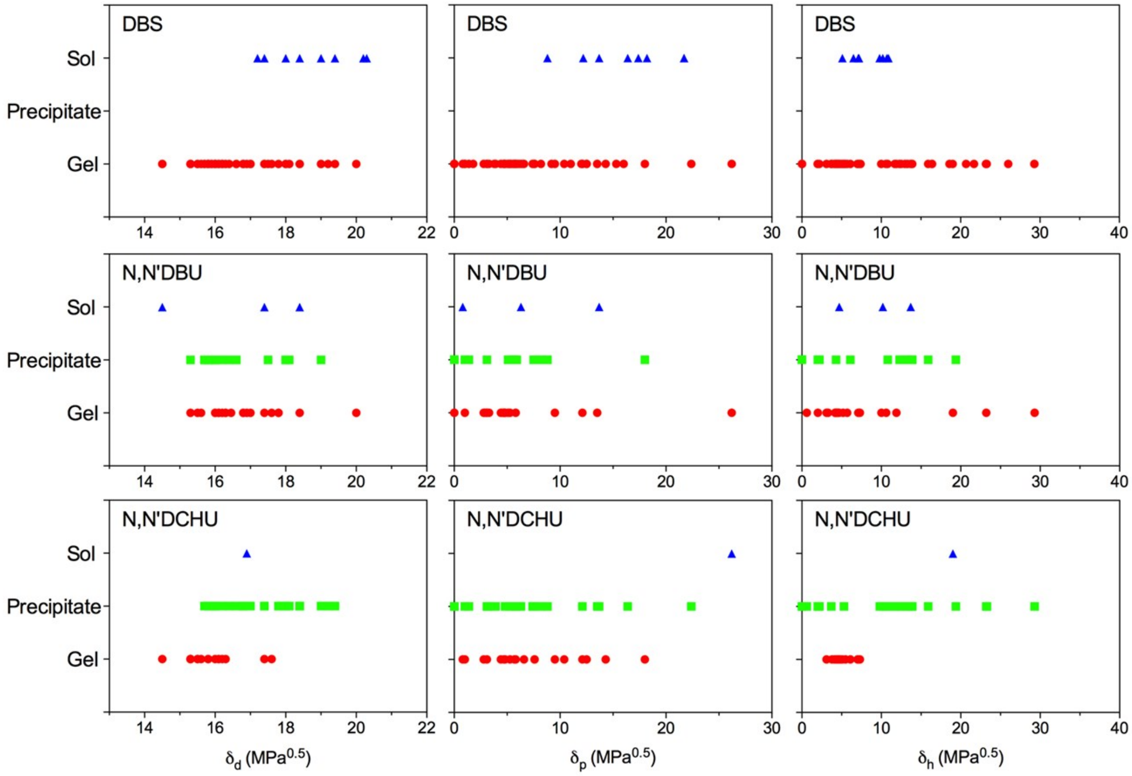

Figure S23: The capacity of the DBS, N,N'-DBU, N,N'-DCH to form gels, precipitates or solutions as a function of the dispersive Hansen solubility parameter (δ_d), polar Hansen solubility parameter (δ_p) and hydrogen- bonding Hansen solubility parameter (δ_h) of the solvents.

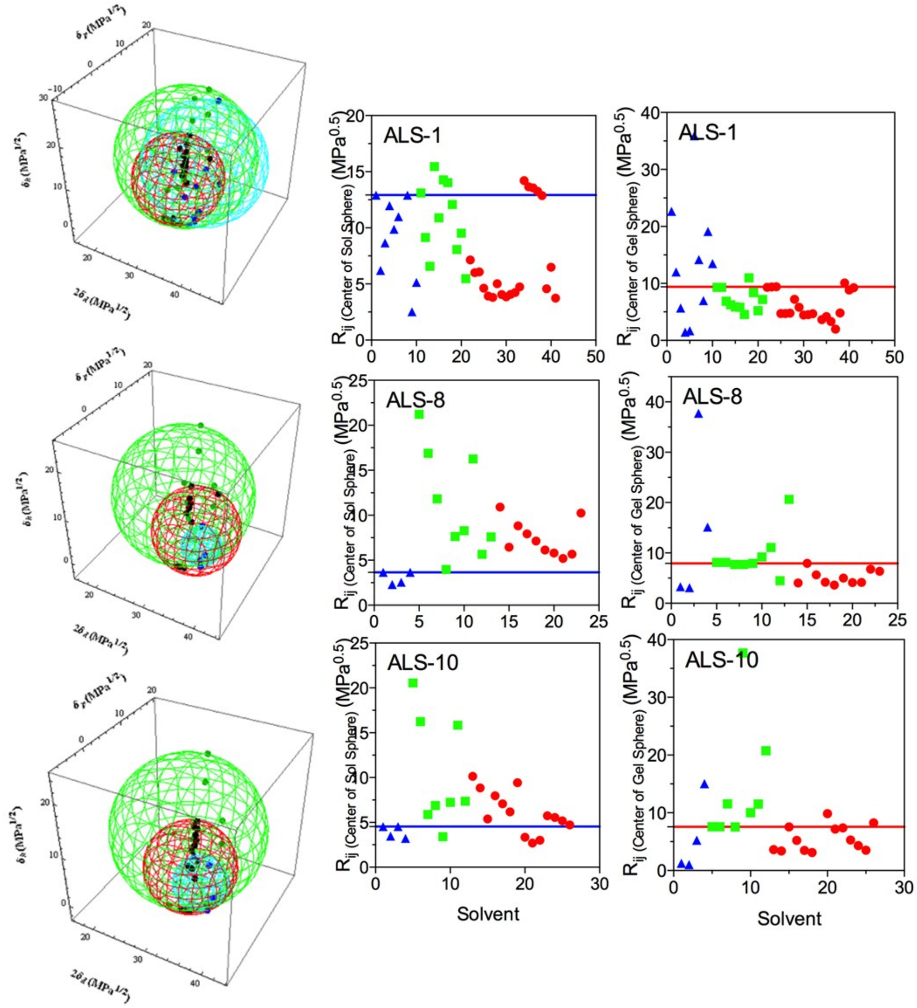

Figure S24: 3D Hanson space and distances in Hansen space to the centers of the sol and gelation spheres for ALS gelators. The blue horizontal line represents the radius of the solubility sphere, and the red line represents the radius of gel sphere. The x-axes of the gelators are comprised of arbitrary values to aid in the visualization of differences in R_{ij}.

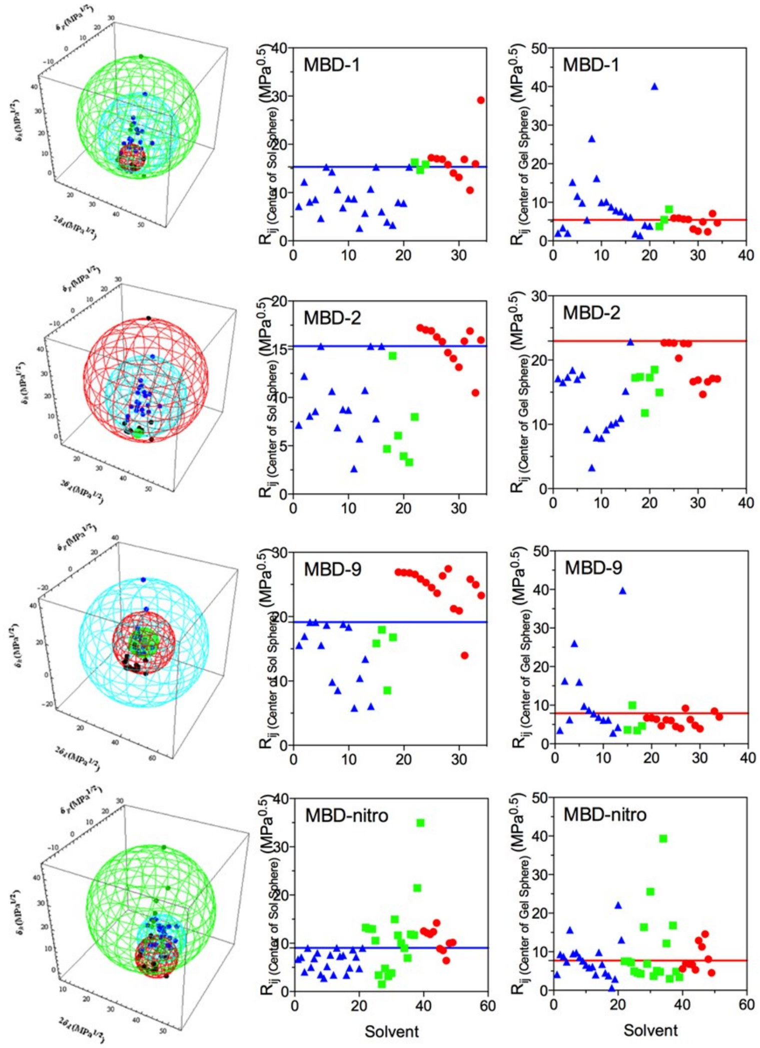

Figure S25: 3D Hanson space and distances in Hansen space to the center of the sol and gelation spheres for MBD gelators. The blue horizontal line represents the radius of the solubility sphere, and the red line represents the radius of the gel sphere. The x-axes are comprised of arbitrary values to aid in the visualization of differences in R_{ij}.

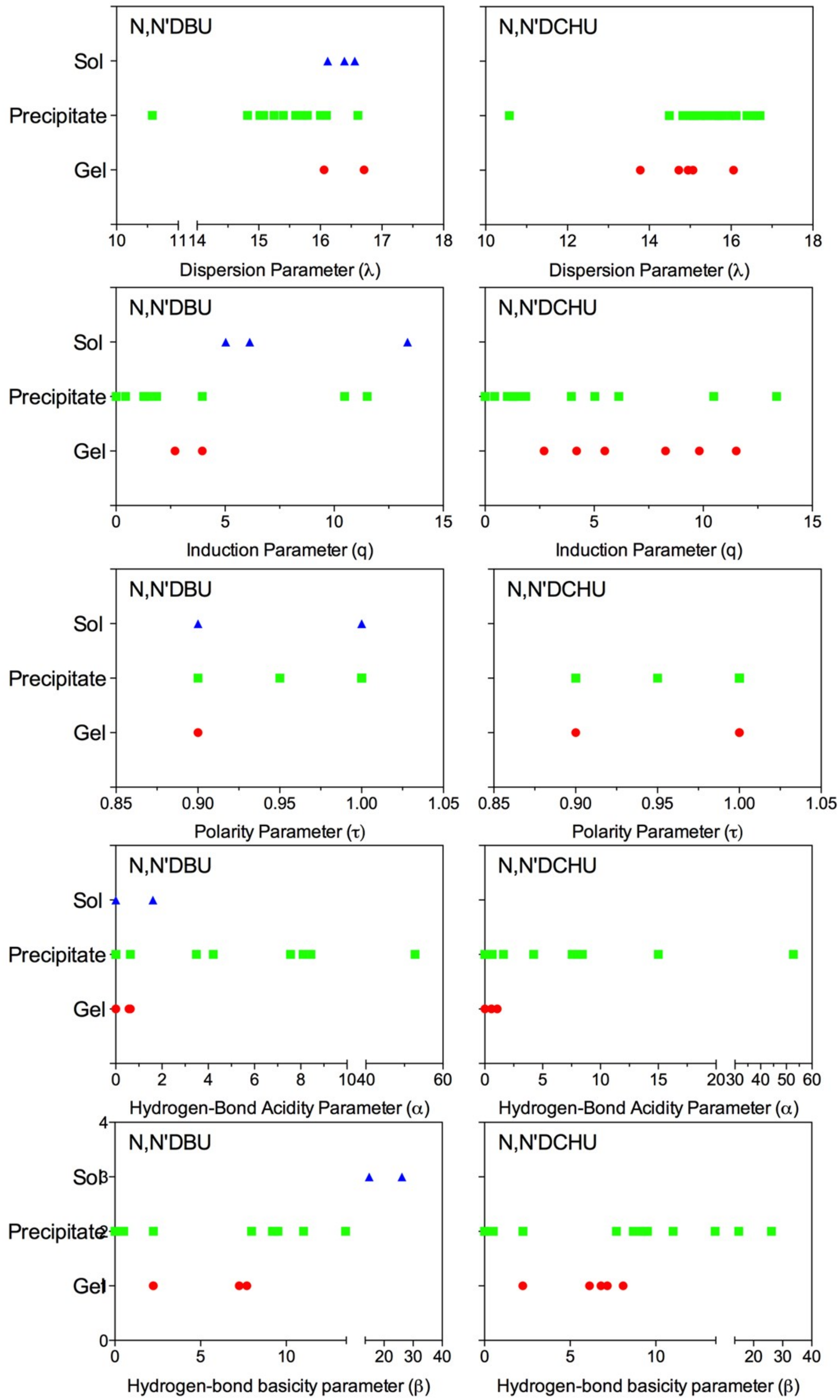

Figure S26: The capacity of the urea gelators to form gels, precipitates or solutions as a function of the MOSCED (**MO**dified **S**eparation of **C**ohesive **E**nergy **D**ensity) parameters (λ, τ, q, α and β) of the solvents.

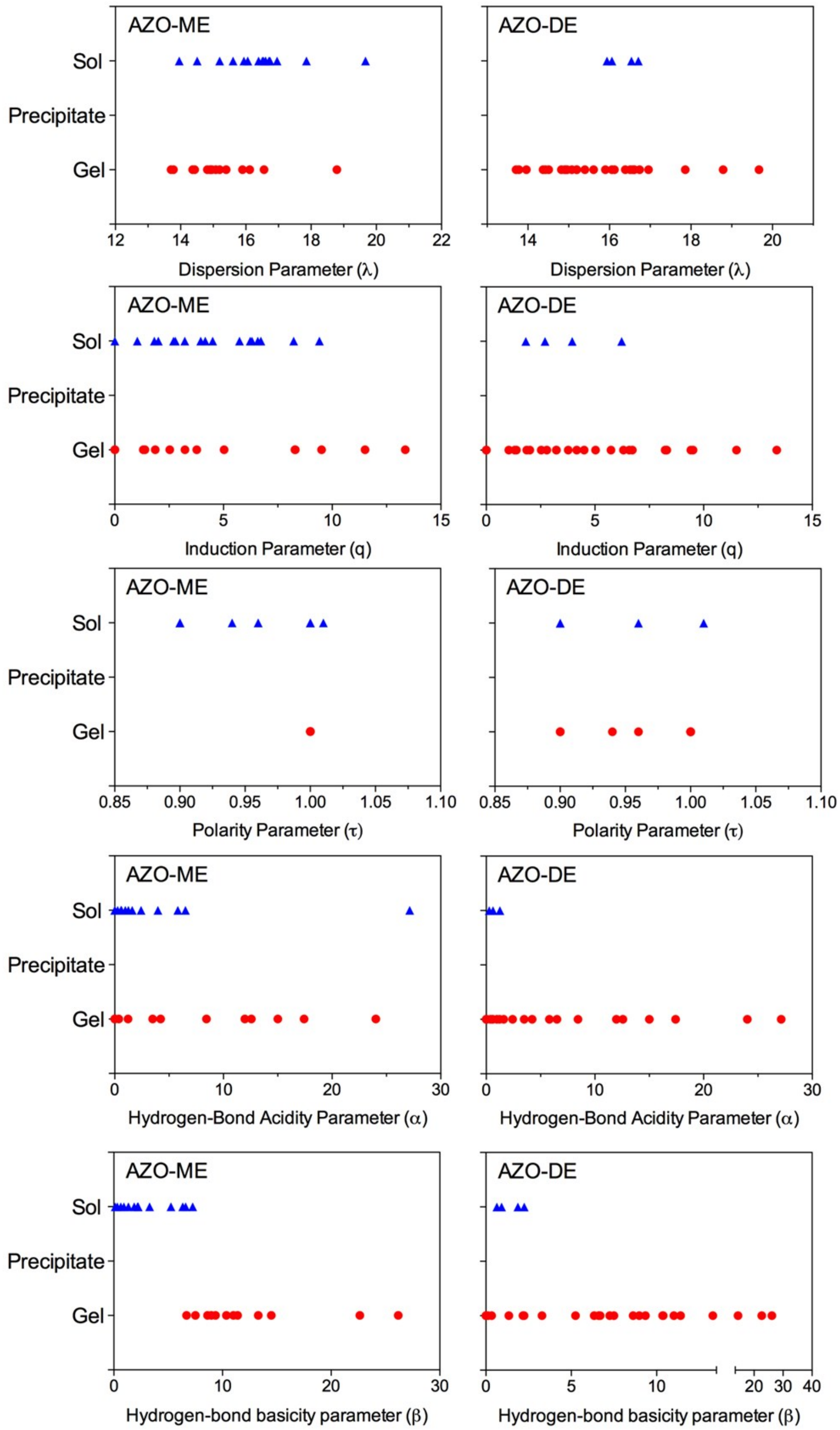

Figure S27: The capacity of the AZO gelators to form gels, precipitates or solutions as a function of the MOSCED (**MO**dified **S**eparation of **C**ohesive **E**nergy **D**ensity) parameters (λ, τ, q, α and β) of the solvents.

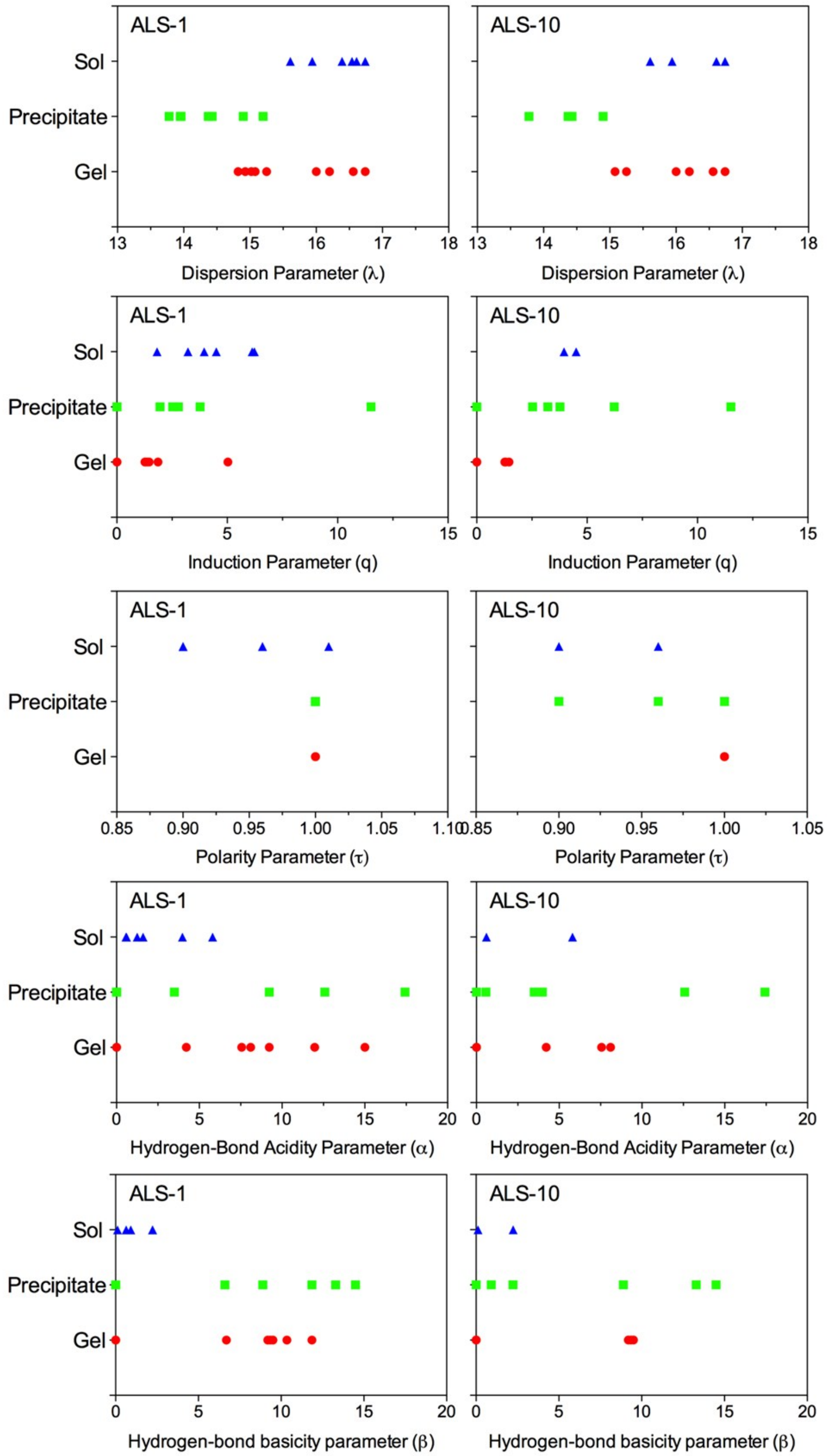

Figure S28: The capacity of the ALS gelators to form gels, precipitates or solutions as a function of the MOSCED (**MO**dified **S**eparation of **C**ohesive **E**nergy **D**ensity) parameters (λ, τ, q, α and β) of the solvents.

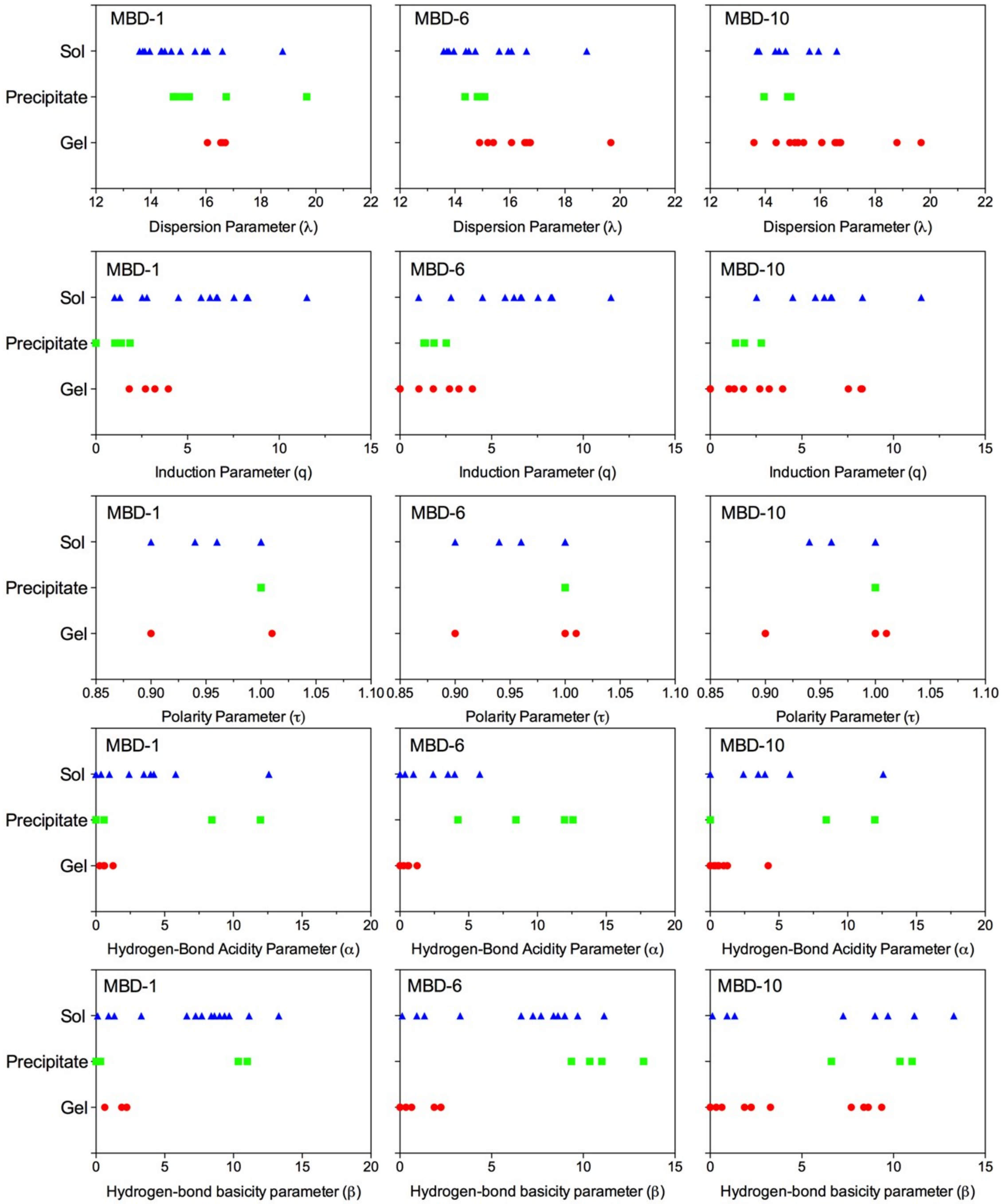

Figure S29: The capacity of the MBD gelators to form gels, precipitates or solutions as a function of the MOSCED (**MO**dified **S**eparation of **C**ohesive **E**nergy **D**ensity) parameters (λ, τ, q, α and β) of the solvents.