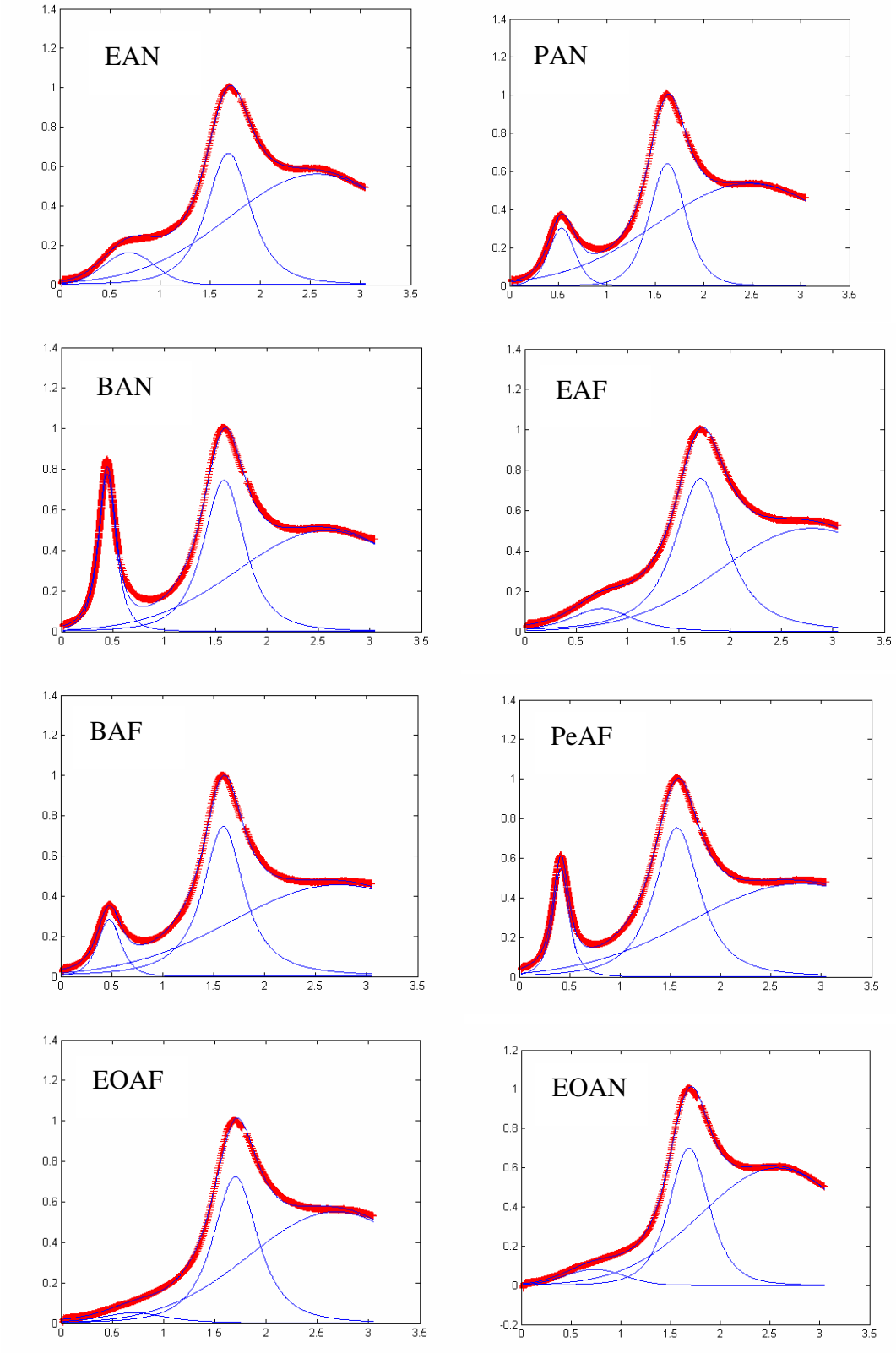
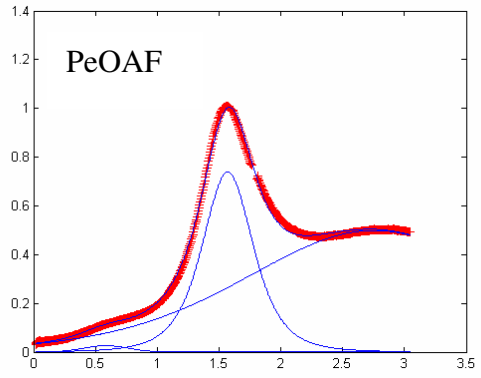
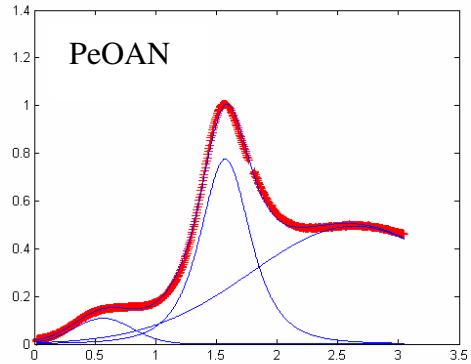
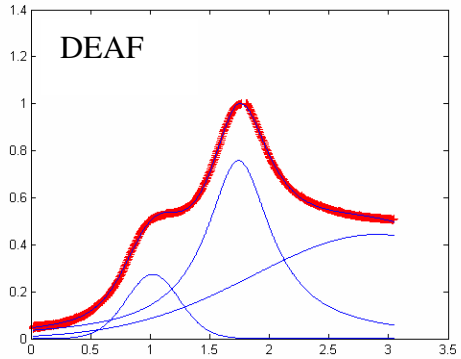
SWAXS profiles fitted with 3 Pearson VII lineshapes.




PeOAF


PeOAN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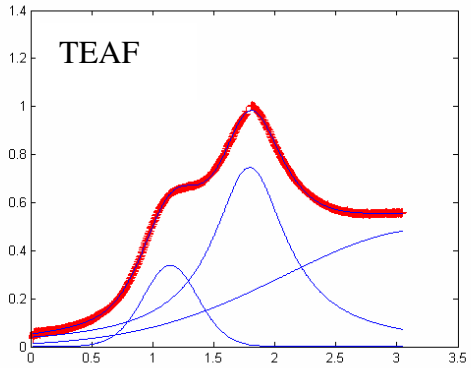
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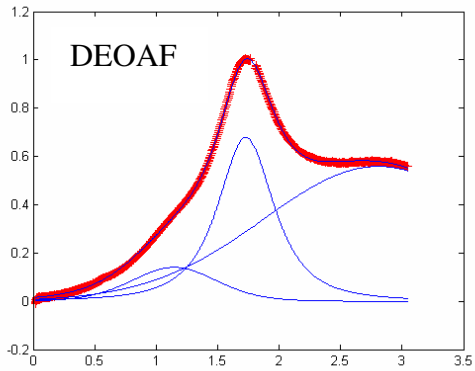
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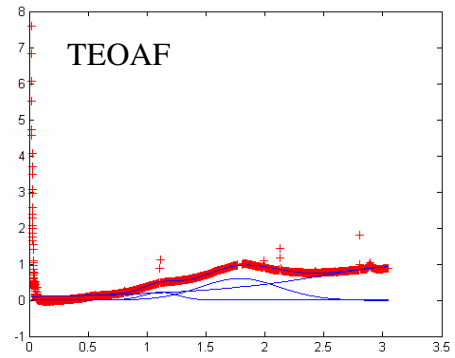
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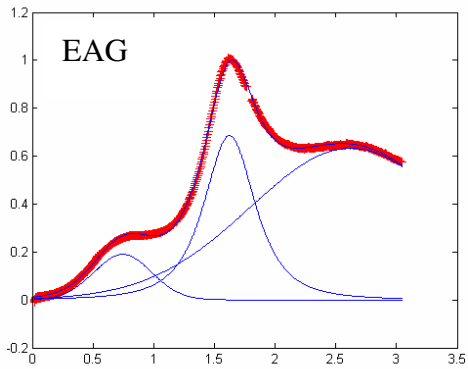
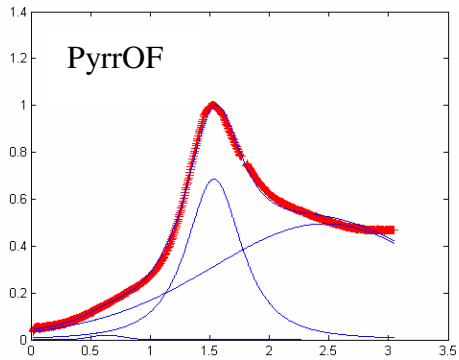
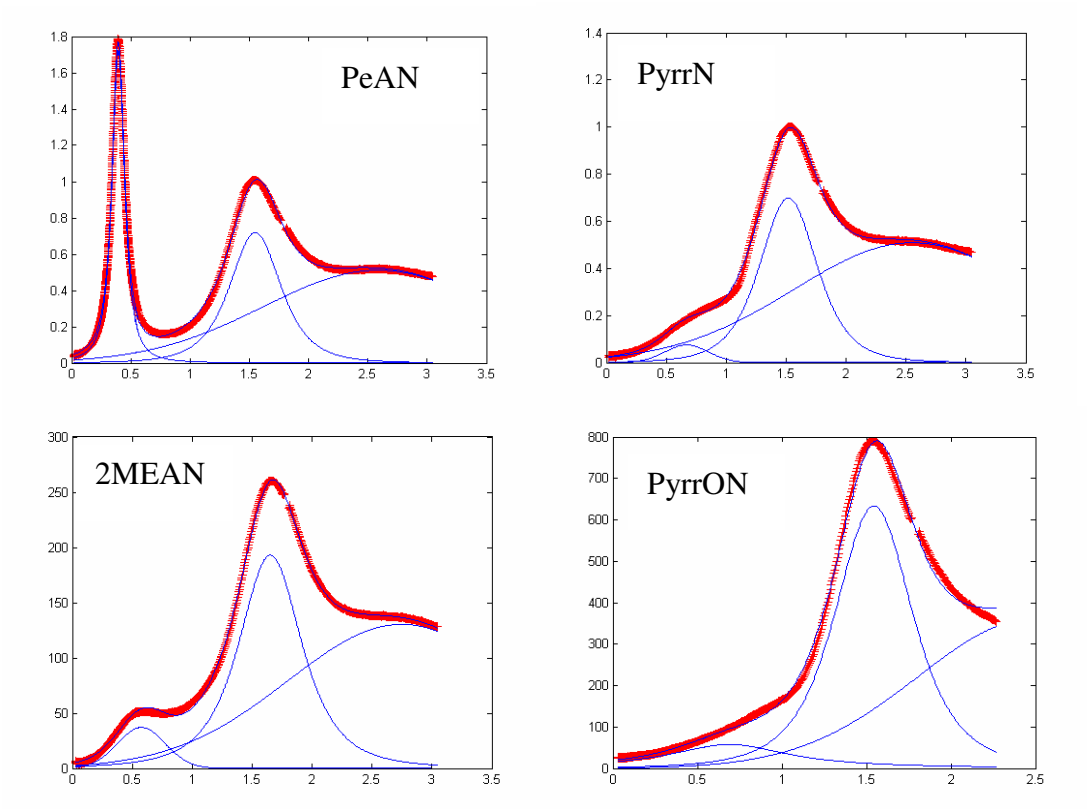
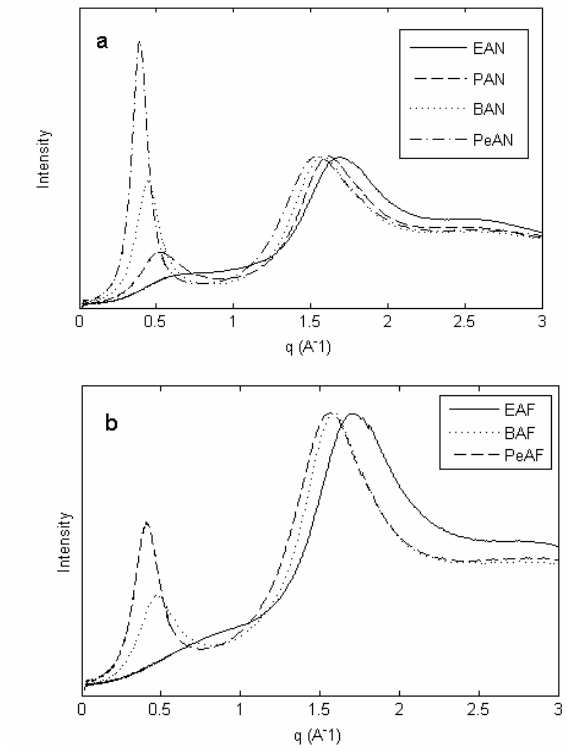

EAG

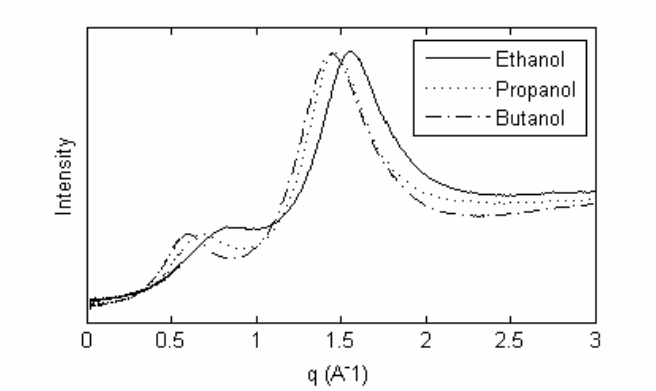

PyrrOF



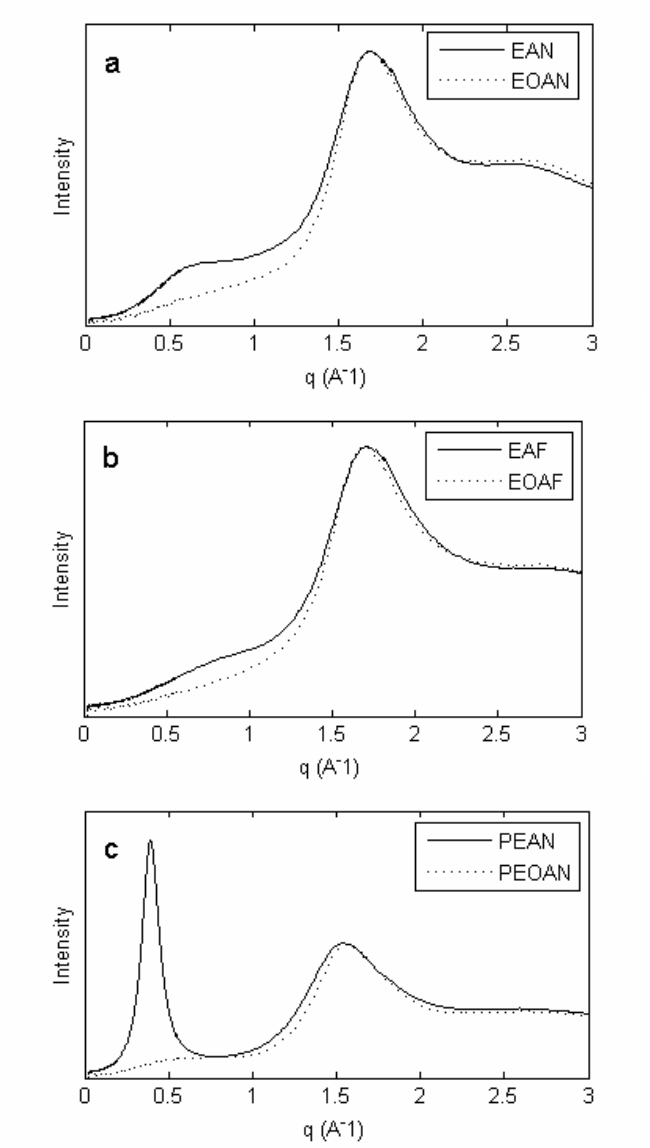
Reproduction of Figures containing SWAXS profiles in manuscript using data normalised to peak 2

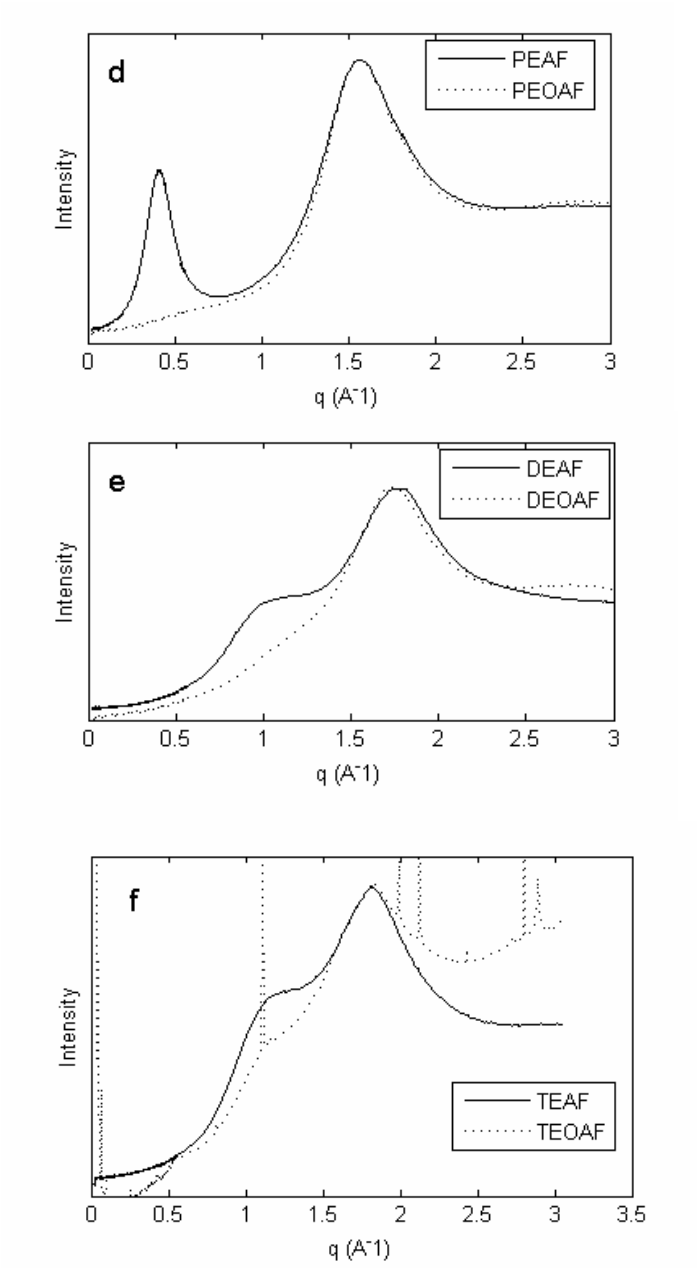


Supplementary Figure 3: SWAXS profiles for the ethyl-, propyl-, butyl- and pentyl-ammonium cations with a) the nitrate anion and b) the formate anion.

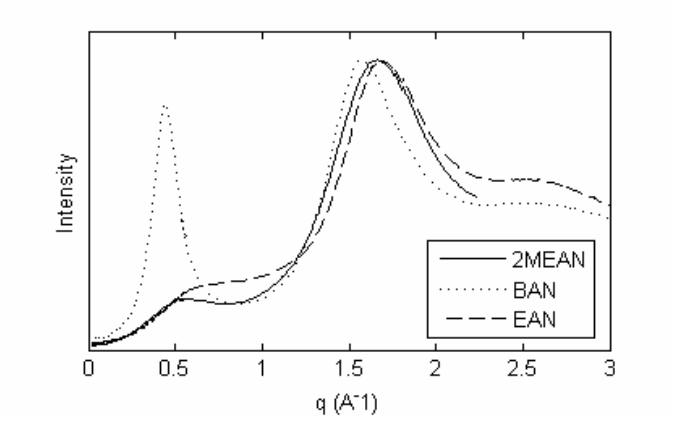


Supplementary Figure 5. SWAXS profiles of primary alcohols.

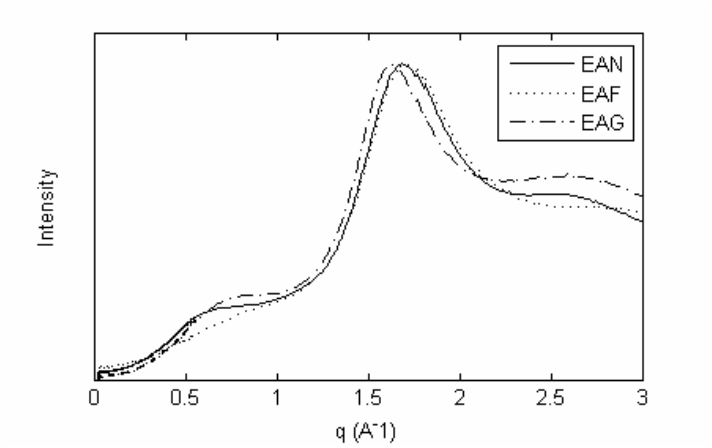




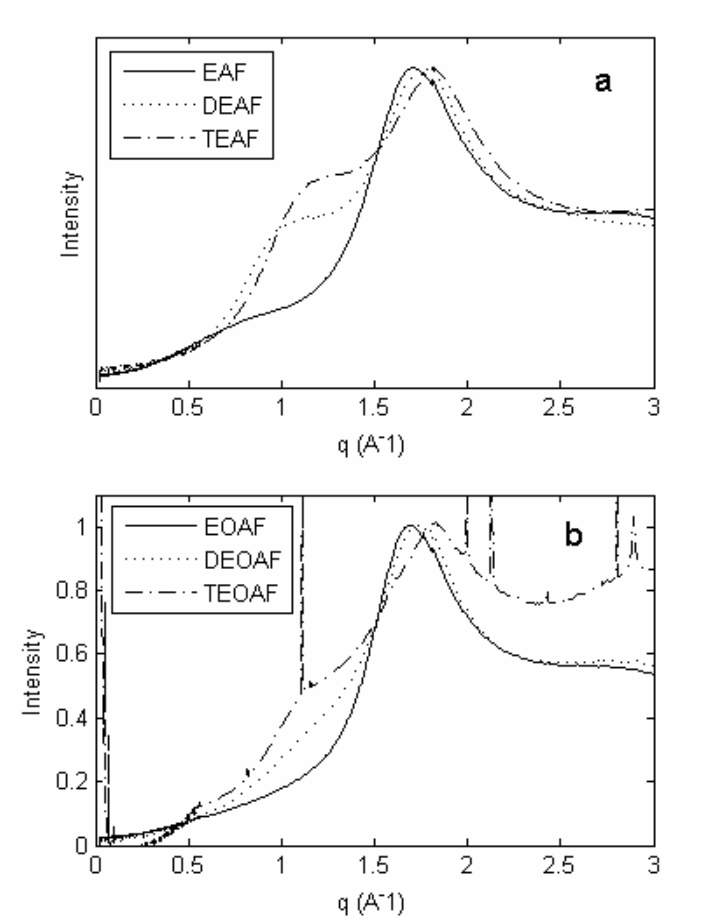
Supplementary Figure 6: SWAXS profiles showing the effect of hydroxyl groups on the intermediate range order for a) EAN/EOAN, b) EAF/EOAF, c) PeAN/PeOAN, d) PeAF/PeOAF, e) DEAF/DEOAF and f) TEAF/TEOAF.



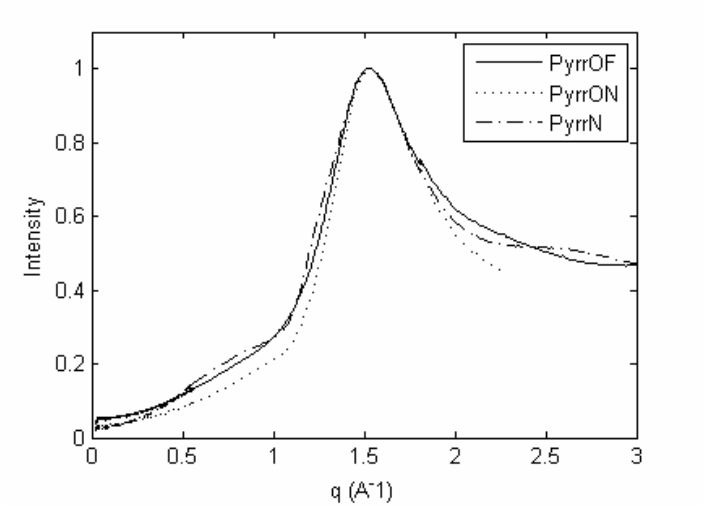
Supplementary Figure 7. Comparison of SWAXS profiles of 2MEAN to EAN and BAN.



Supplementary Figure 8. SWAXS profiles showing the effect on the nanostructure due to different anions for the PILs EAN, EAF and EAG.



Supplementary Figure 9. SWAXS profiles showing changes to the nanostructure due to different numbers of alkyl chains substituted onto the ammonium cation for a) EAF, DEAF and TEAF and b) EOAF, DEOAF and TEOAF.



Supplementary Figure 10. SWAXS profiles for the PILs with cations containing pyrrolidinium groups.