Electronic Supplementary Material (ESI) for Physical Chemistry Chemical Physics.
This journal is © the Owner Societies 2018

Supporting Information

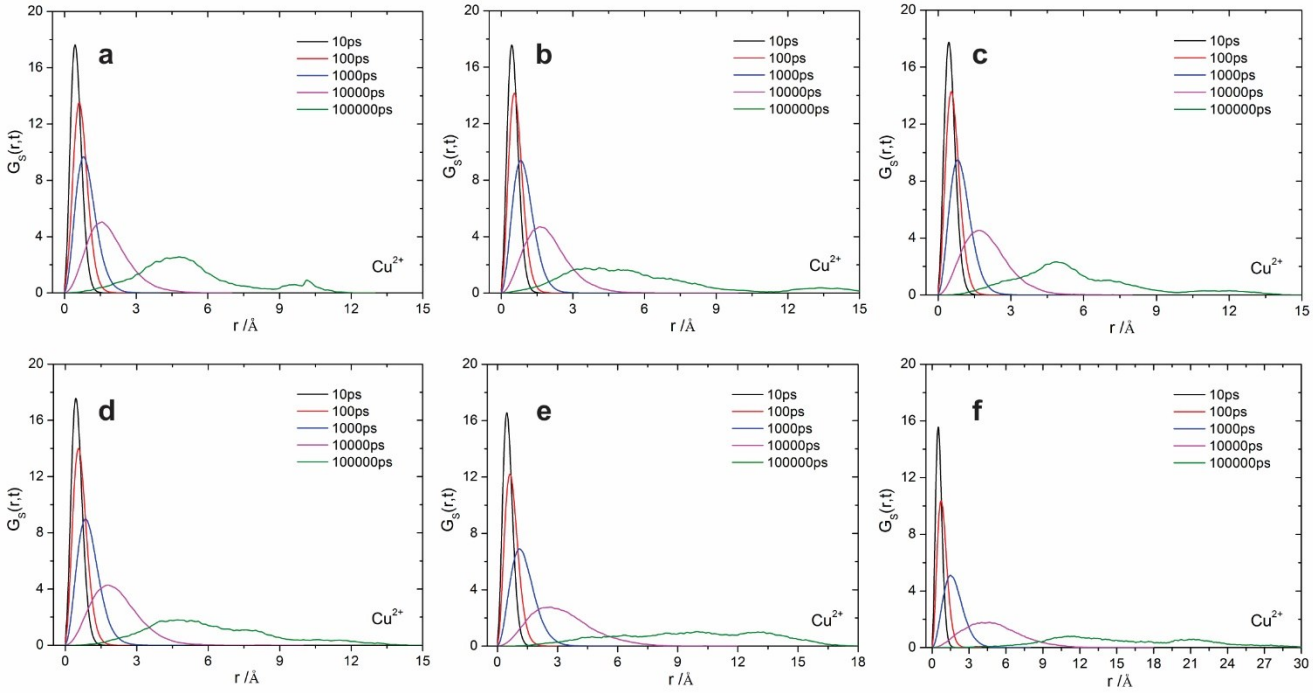


Fig. S1: The van Hove function of Cu^{2+} ions in DES ethaline. (a) no water; (b) 0.1 % v/v water; (c) 0.5 % v/v water; (d) 1.0 % v/v water; (e) 5.0 % v/v water; (f) 10 % v/v water.

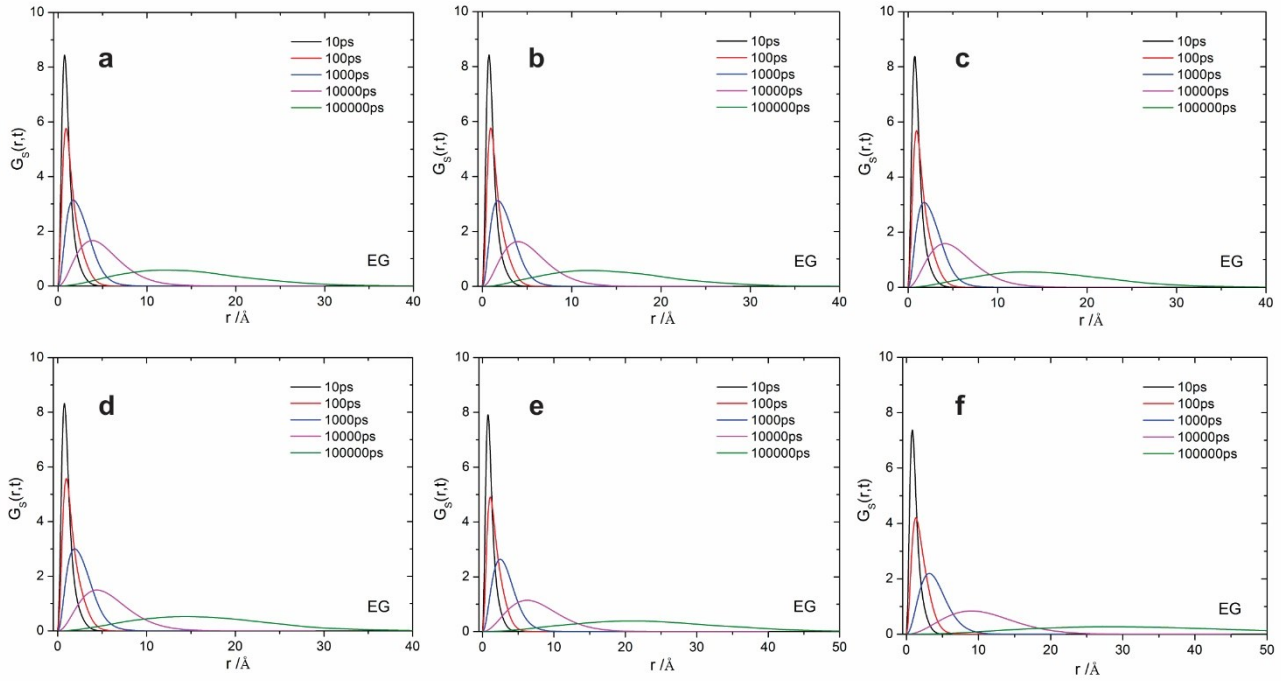


Fig. S2: The van Hove function of EG molecules in DES ethaline. (a) no water; (b) 0.1 % v/v water; (c) 0.5 % v/v water; (d) 1.0 % v/v water; (e) 5.0 % v/v water; (f) 10 % v/v water.

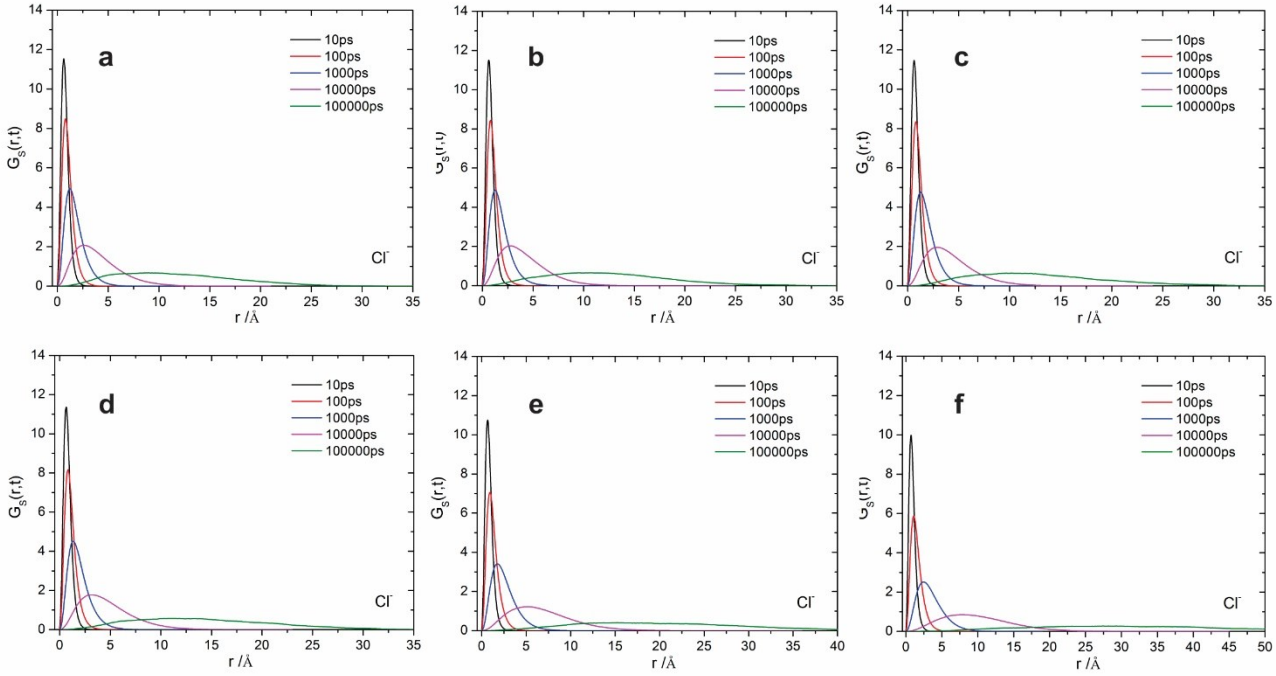


Fig. S3: The van Hove function of Cl^- ions in DES ethaline. (a) no water; (b) 0.1 % v/v water; (c) 0.5 % v/v water; (d) 1.0 % v/v water; (e) 5.0 % v/v water; (f) 10 % v/v water.

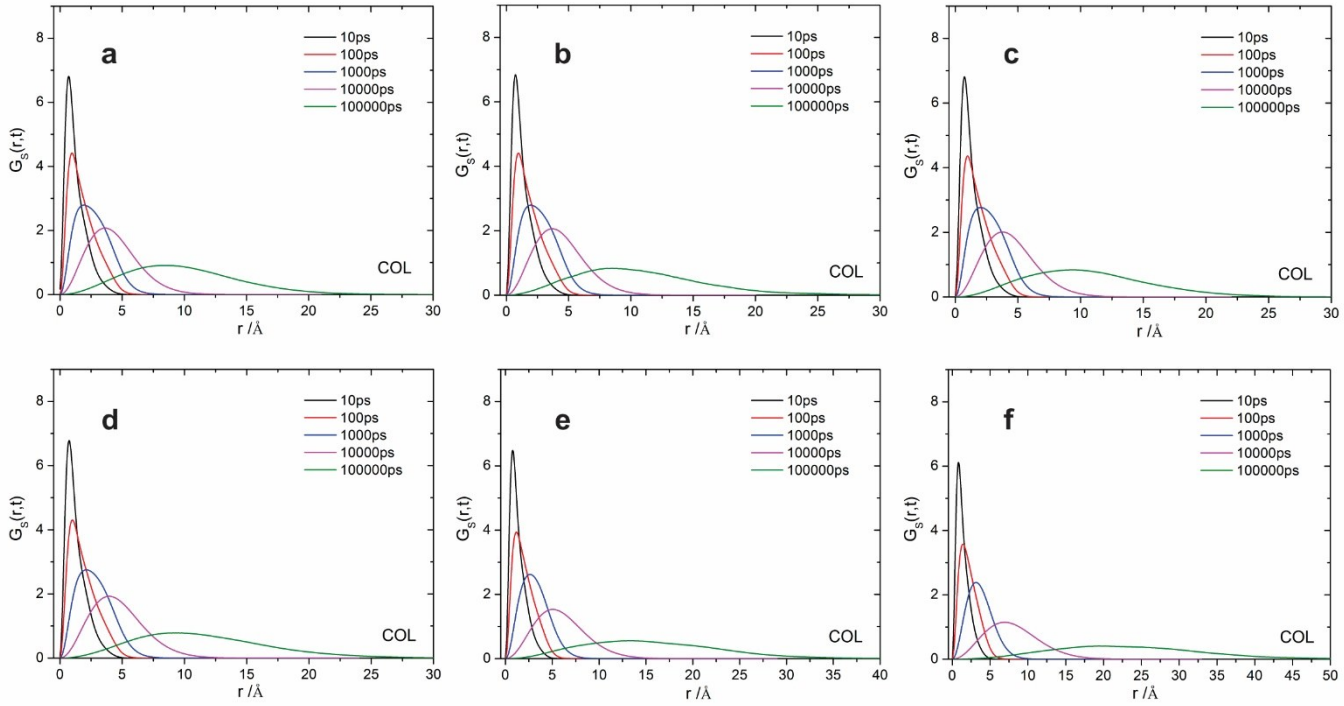


Fig. S4: The van Hove function of Col ions in DES ethaline. (a) no water; (b) 0.1 % v/v water; (c) 0.5 % v/v water; (d) 1.0 % v/v water; (e) 5.0 % v/v water; (f) 10 % v/v water.

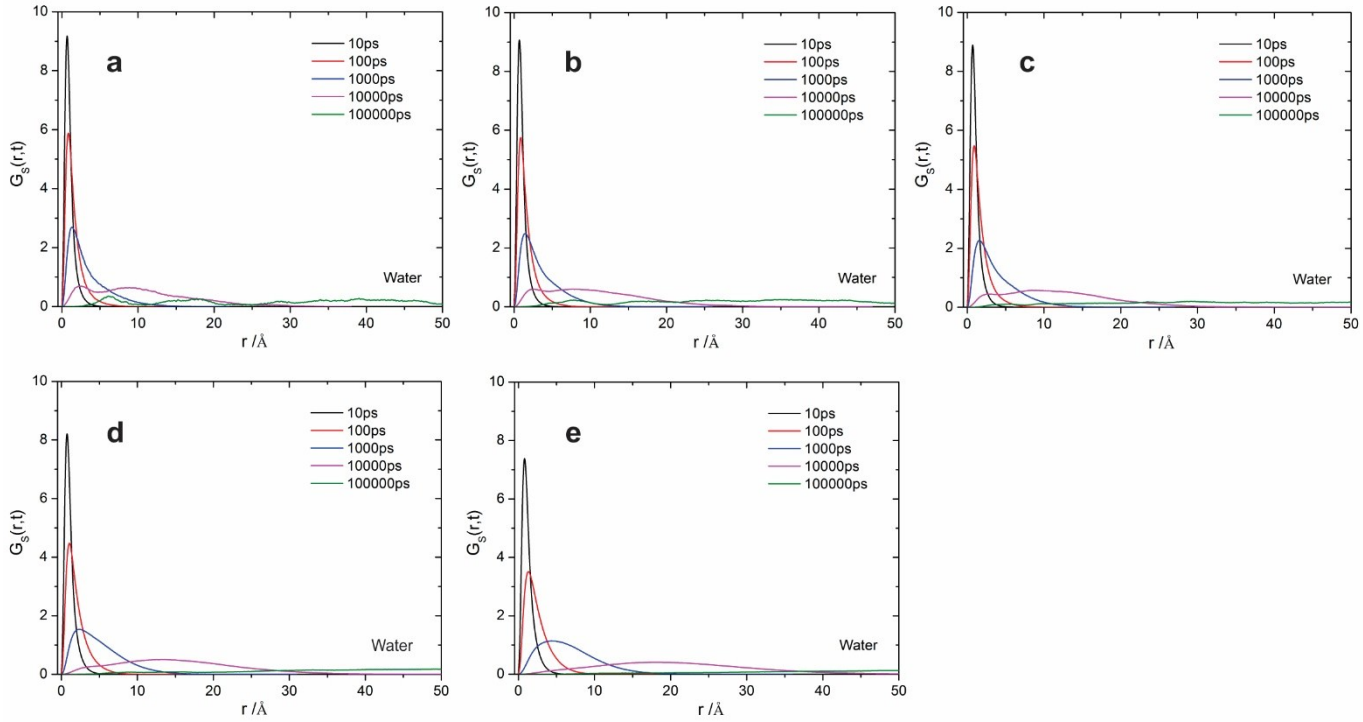


Fig. S5: The van Hove function of water molecules in DES ethaline. (a) no water; (b) 0.1 % v/v water; (c) 0.5 % v/v water; (d) 1.0 % v/v water; (e) 5.0 % v/v water; (f) 10 % v/v water.

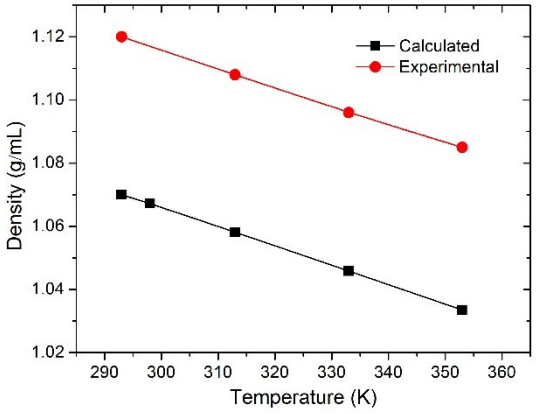


Fig. S6: Variation of the experimental (red circle) and calculated (black square) densities of the EG:ChCl mixture with the temperature.

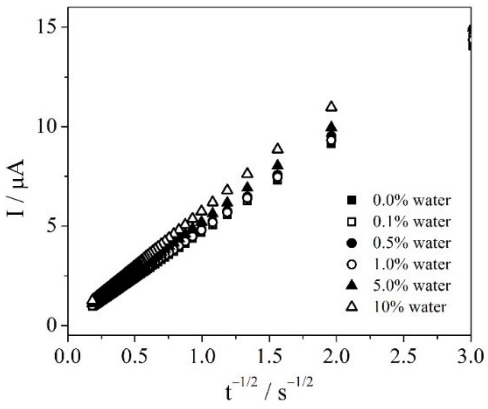
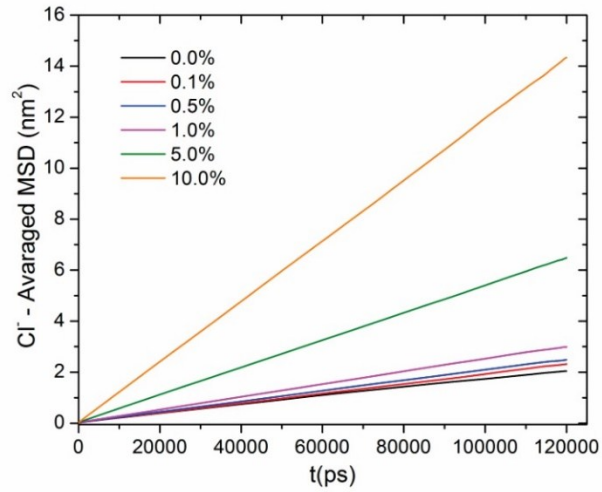
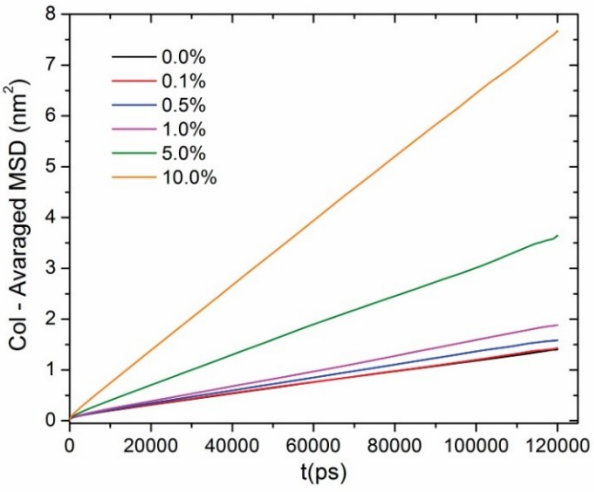
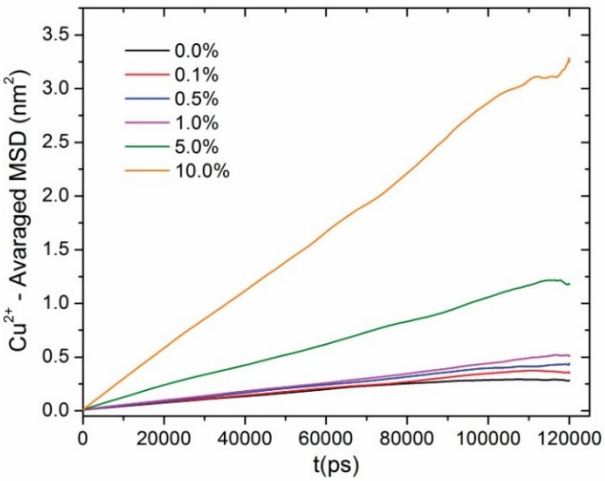
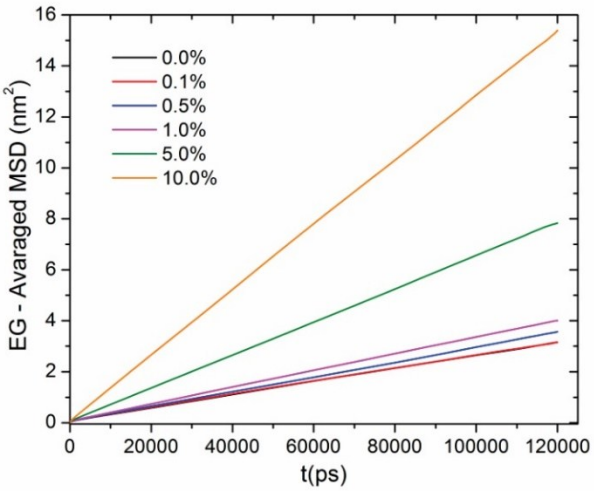


Fig. S7.:Cottrell plots obtained from current time transients for the redox couple Cu2+/Cu+ on Pt substrate at room temperature ~25ºC in the ethaline containing 0.05 mol L^{-1} $CuCl_2$ with several water volumes.









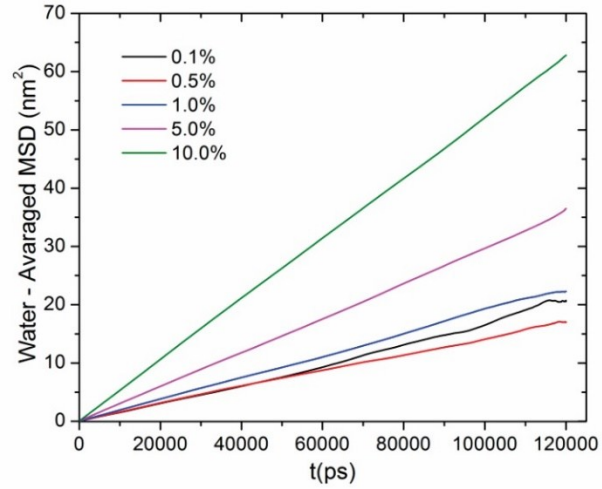


Fig. S8: msd of all the species present in the system.

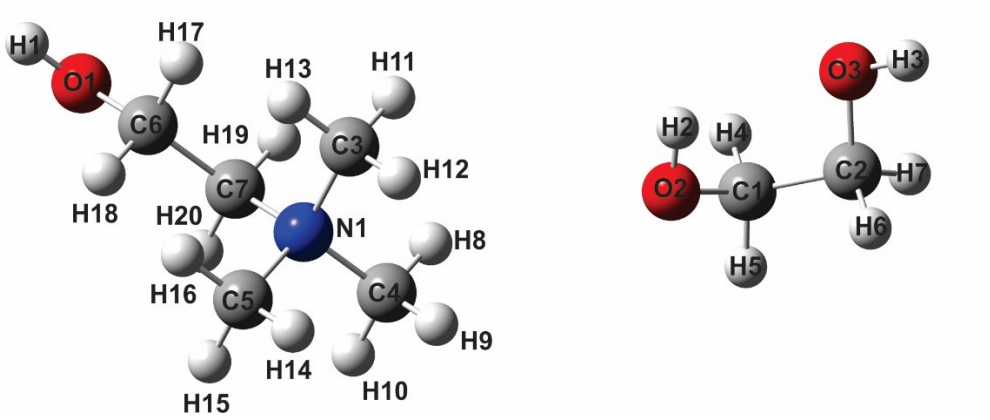


Fig. S9: Nomenclature of atoms in choline and Ethylene Glycol.

Table S1: Partial charges of Choline atoms.

Atom name	Partial charges (e)
C1	0.207
O2	-0.680
C2	0.320
H4	0.005
H5	-0.018
H6	-0.002
H7	0.005
O3	-0.665
H2	0.425
H3	0.403

Table S2: Partial charges of Ethylene Glycol atoms.

Atom name	Partial charges (e)
N1	0.034
C3	-0.272
C4	-0.190
C5	-0.186
H8	0.155
H9	0.155
H10	0.168
H11	0.131
H12	0.142
H13	0.139
H14	0.145
H15	0.126
H16	0.142
C6	0.295
C7	-0.027
O1	-0.679
H17	0.011
H18	0.008
H19	0.127
H20	0.117
H1	0.459