

### Supplement 3

The measurements of viscosity,  $\eta$  and of the specific conductance,  $\Lambda_0$ , are shown for  $\text{CaCO}_3$  supersaturated solutions containing different MEG concentrations, at constant ionic strength and temperature. The total solution volume in which measurements were done was 50ml. For viscosity measurement, a Couette viscometer was used and for the limiting conductance ( $\Lambda_0 = \text{Conductivity} \times \text{Volume of solution}$ ) measurements, a conductivity meter with the appropriate cell (Conductivity meter, Metrohm 660) was also used. The results of the measurements and Walden's product calculated are shown in Table S3.1

**Table S3.1. Viscosity, specific conductance and Walden's constant for different MEG- water mixtures; ionic strength,  $I=0.1$  M,  $25^\circ\text{C}$**

% v/v MEG	Limiting Conductance. $\Lambda_0$ / ( $\text{S}\cdot\text{cm}^2\cdot\text{mol}^{-1}$ )	Viscosity. $\eta$ /( $\text{mPa}\cdot\text{s}$ )	Walden product, $W=\eta\Lambda_0$ ( $\text{S}\cdot\text{cm}^2\cdot\text{mol}^{-1}$ ) $\cdot$ ( $\text{mPa}\cdot\text{s}$ )
10	199.86	5.58	1115.63
20	145.00	7.26	1053.20
30	120.14	8.73	1048.66
40	94.90	9.45	896.94
50	79.18	9.66	764.88
60	53.09	10.99	583.20
70	38.98	11.43	445.56
80	28.74	14.73	423.46
90	18.98	17.56	333.28

The values of the dielectric constant for the MEG-Water solutions are summarized in Table S3.2.

**Table S3.2.** Dielectric constant of water-MEG mixtures;  $25^\circ\text{C}$  (from Ref.41: Akerlöf G. Dielectric constants of some organic solvent-water mixtures at various temperatures, *J. Am. Chem. Soc.*, **1932**, 54, 4125–4139.)

%v/v MEG	$\epsilon$
0	80.37
10	74.60
20	68.70
30	62.63
40	56.49
50	50.38
60	44.67
70	39.14
80	33.89
90	44.90

