Supporting Information

Microscopic and Macroscopic Properties of Carbohydrate Solutions in the Ionic Liquid 1-ethyl-3-methyl-imidazolium acetate

Michael E. Ries [a,*], Asanah Radhi [a] , Stephen M Green [a], Jamie Moffat [b] and Tatiana Budtova [c]

[a] Soft Matter Physics Research Group, School of Physics and Astronomy, University of Leeds, Leeds, LS2 9JT. UK.

[b] Innovia Films R&D Centre, West Road, Wigton, Cumbria CA7 9XX, United Kingdom

[c] MINES ParisTech, PSL Research University, Center for Materials Forming (CEMEF), UMR CNRS 7635, CS 10207, 06904 Sophia Antipolis, France.

m.e.ries@leeds.ac.uk

Data for this publication can be found at doi: https://doi.org/10.5518/369

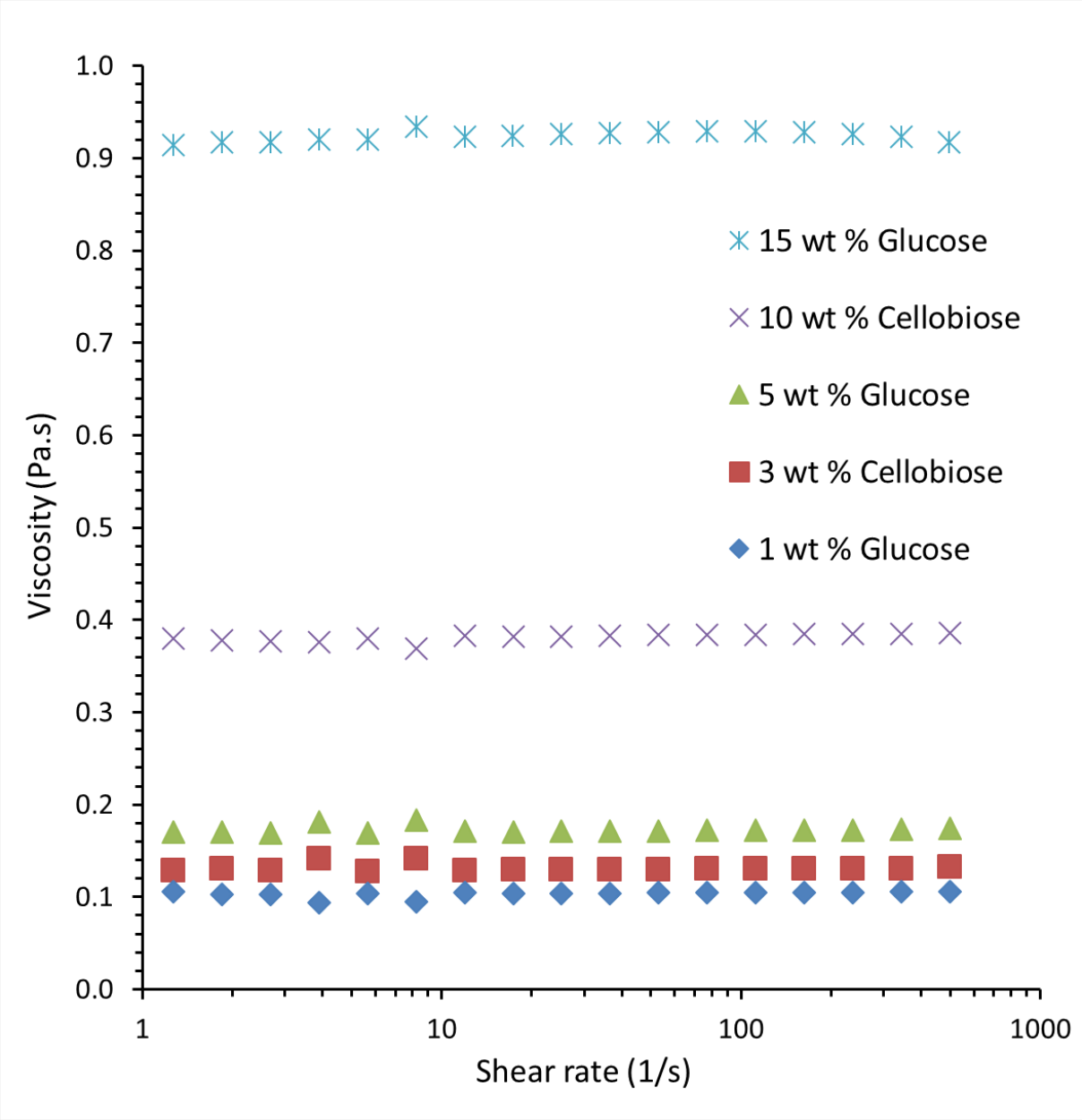

Figure S1. Viscosity against shear rate of carbohydrate-[C2mim][OAc] solutions at different concentrations of carbohydrates at 30 °C. Error bars are within the size of the symbols shown.

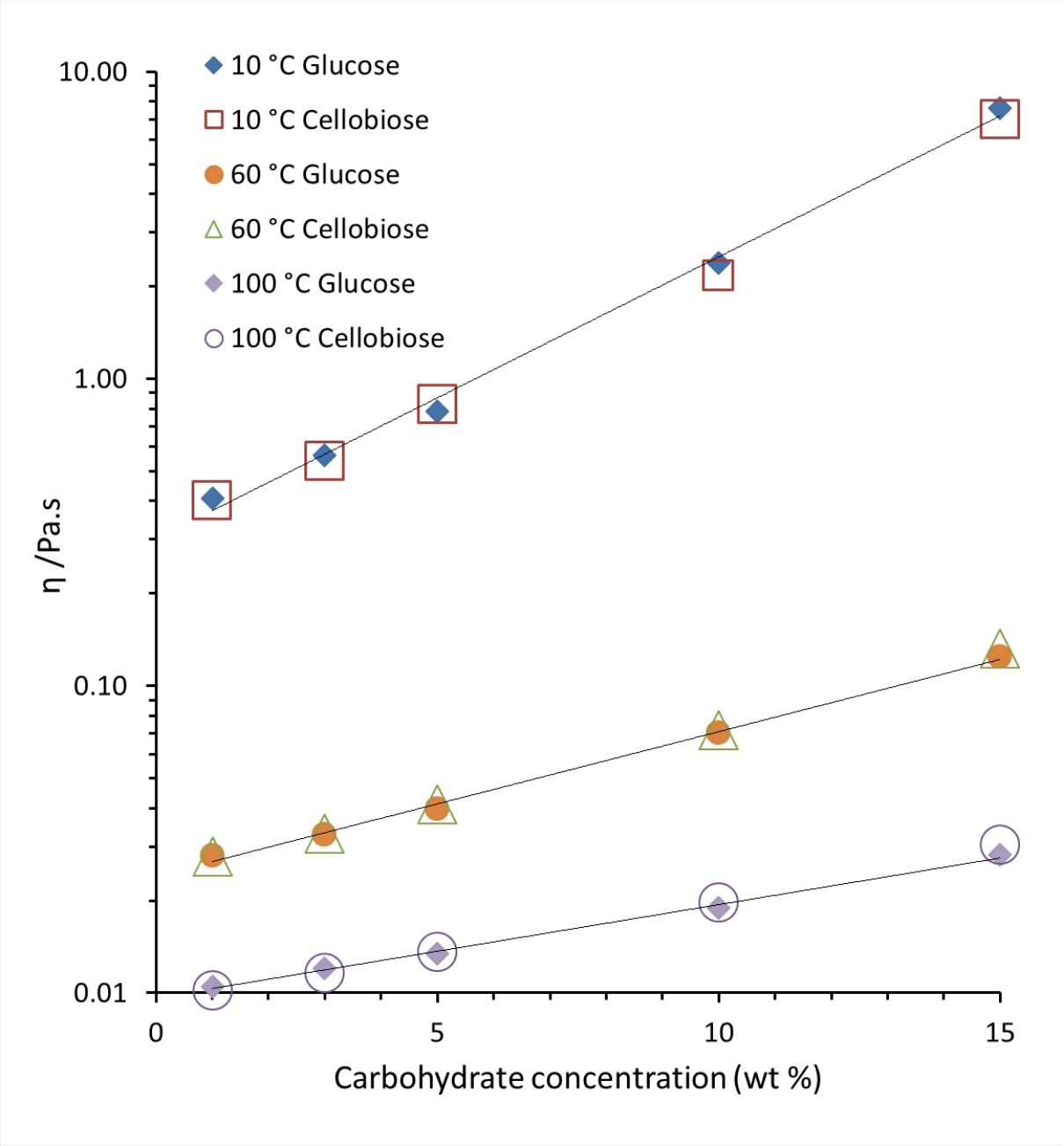

Figure S2. Viscosity at 10 °C, 60 °C and 100 °C for the glucose and cellobiose in [C2mim][OAc] solutions, against carbohydrate concentration. The straight lines are guides to the eye. Error bars are within the size of the symbols shown.

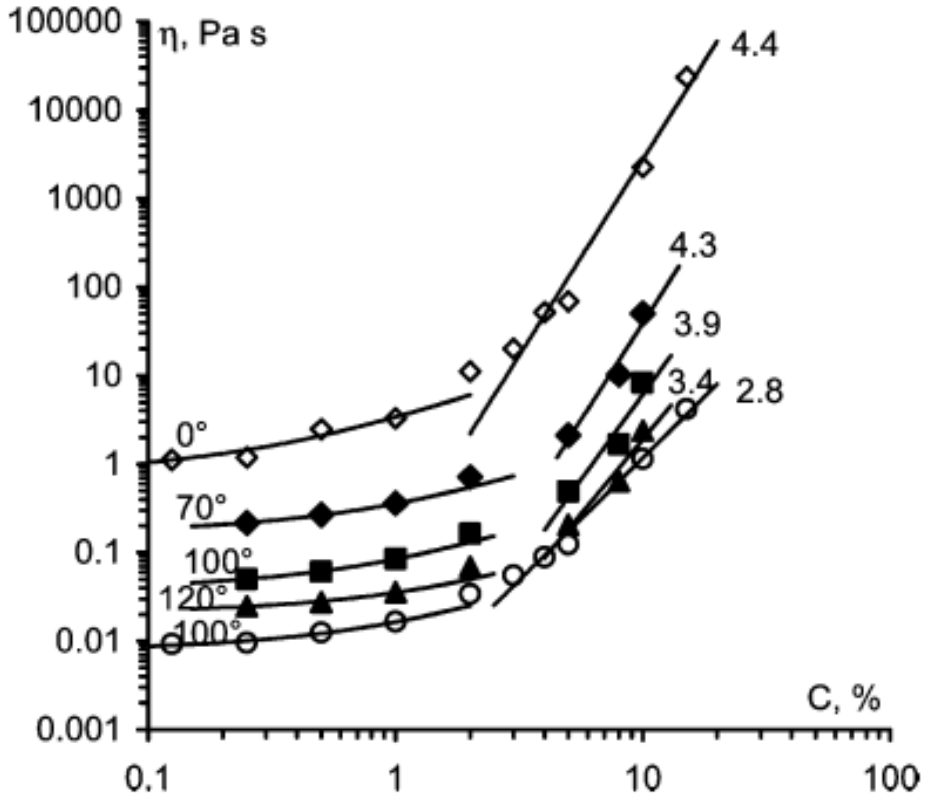

Figure 3. Viscosity−concentration dependence for cellulose−BMIMCl (dark symbols) and cellulose−EMIMAc (open symbols) solutions at various temperatures shown directly at the corresponding data. Lines are linear (in the dilute region) and power-law (in the semidilute region) approximations. Power-law exponents are shown for each set of data. The errors are of the size of symbols.

Figure S3. Viscosity of cellulose [C2mim][OAc] solutions against cellulose concentration. Reprinted with permission from {Journal of Physical Chemistry B, volume 114 page 7224-7228, 2010}. Copyright {2010} American Chemical Society.

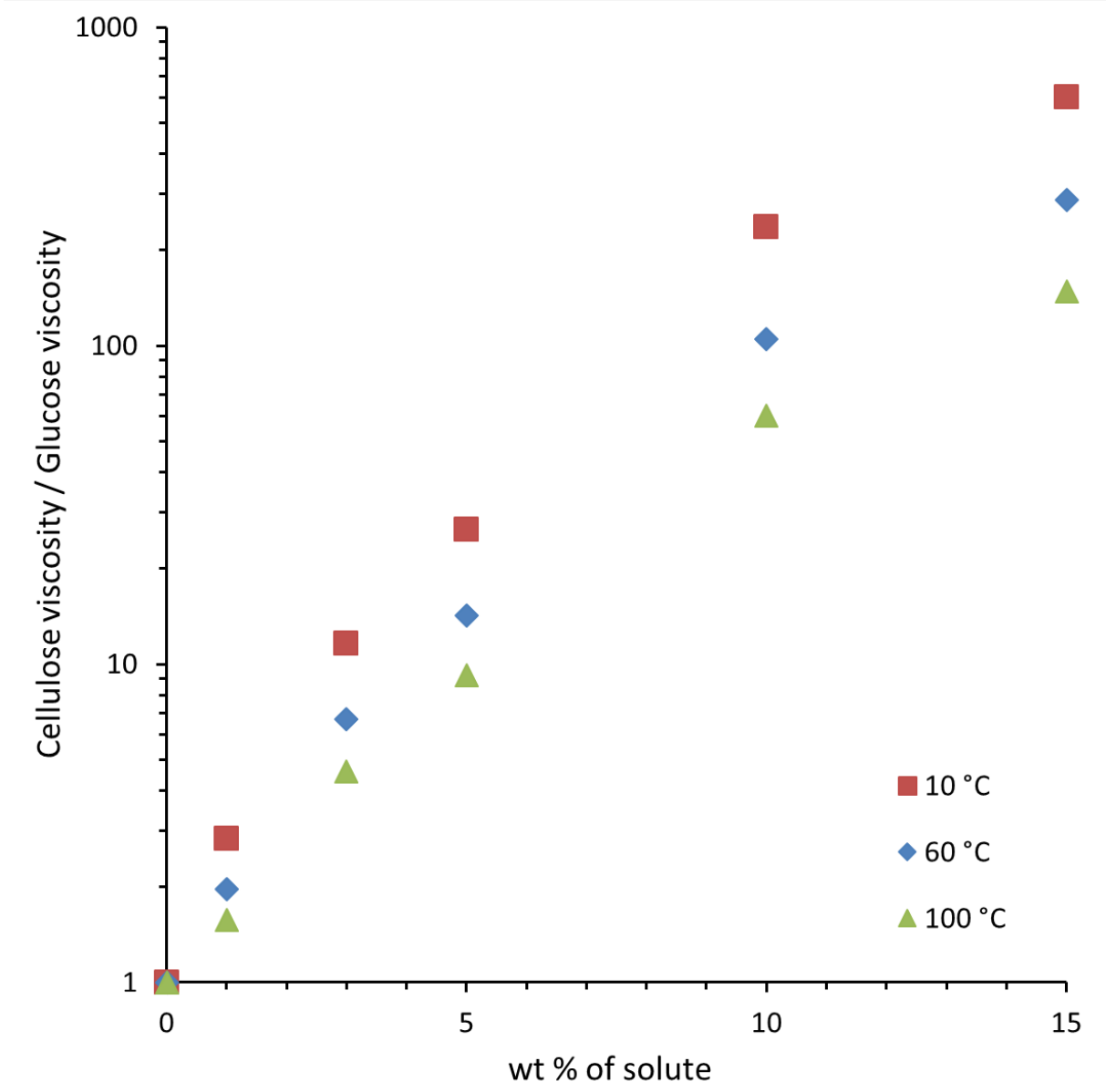

Figure S4. Viscosity ratio of cellulose to glucose in [C2mim][OAc] solutions (at the same solute concentrations), against solute carbohydrate concentration.

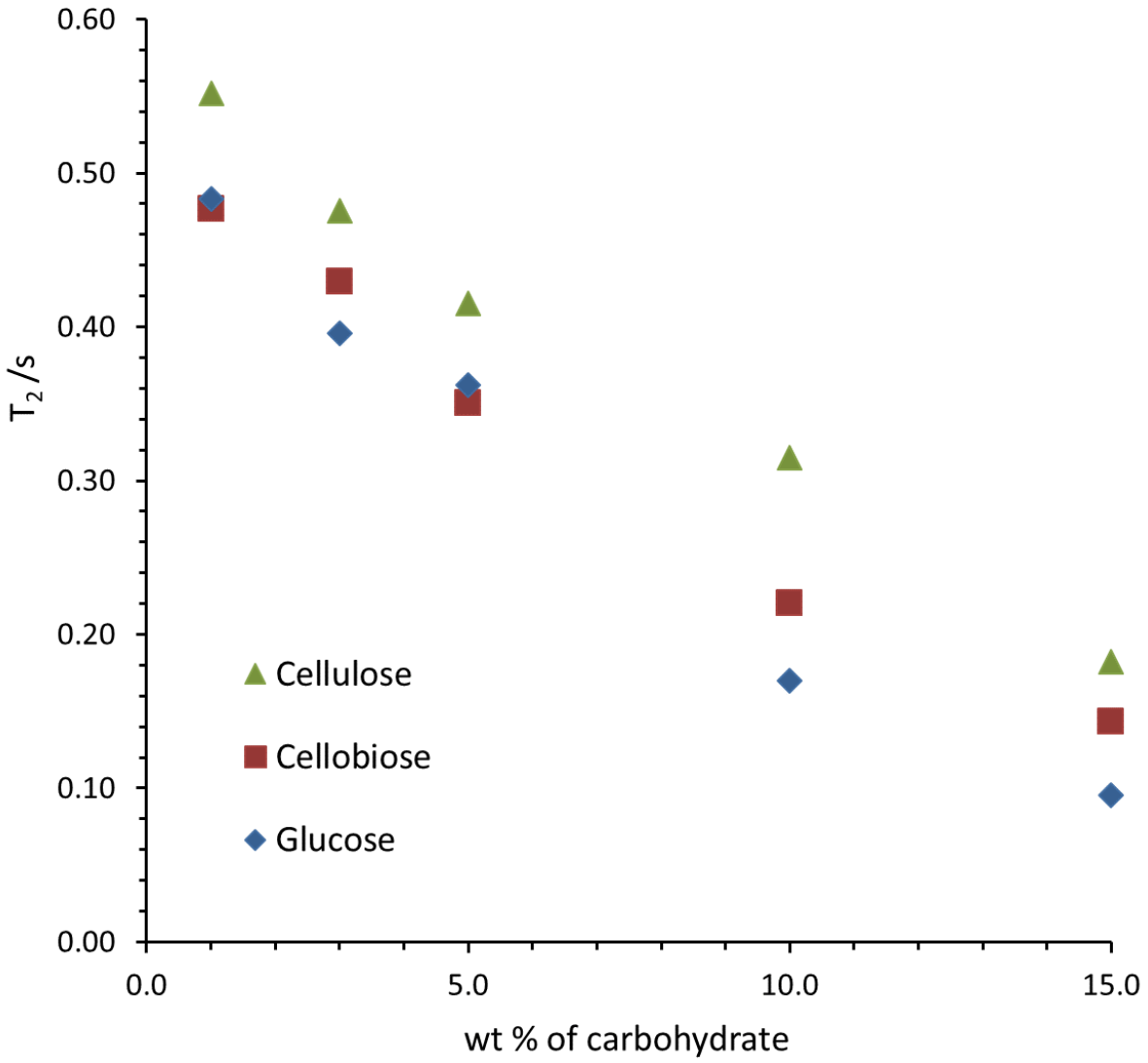

Figure S5. NMR spin-spin relaxation times T_2 for glucose, cellobiose and cellulose as a function of the wt % of carbohydrate in [C2mim][OAc] solutions at 70 °C. Uncertainties are within the size of the symbols used.