

Atmos. Chem. Phys. Discuss., referee comment RC2  
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## **Comment on acp-2021-110**

Anonymous Referee #2

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Referee comment on "Viscosity and phase state of aerosol particles consisting of sucrose mixed with inorganic salts" by Young-Chul Song et al., Atmos. Chem. Phys. Discuss., <https://doi.org/10.5194/acp-2021-110-RC2>, 2021

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In this paper the authors quantify the change in viscosity of particles comprised of inorganic salts mixed with sucrose.

I think the paper is well written and there is a clear discussion around the experimental procedure and results shown. It is important that more studies quantify the behaviour of mixed inorganic-organic systems and it is refreshing to see a submission focusing on targeted laboratory studies rather than broad extrapolation to global conditions.

Therefore, I believe the article can be published in ACP subject to a few general points raised below.

Whilst I do fully support the focus on simple mixtures, it would be nice for the authors to provide more context on why these salts were chosen and the expected source of particles with these mass ratios studied. Apologies if I missed this in the document. Likewise, can the authors comment on the expected timescales for equilibration under ambient conditions? This does not detract from the important of providing more data on previously unstudied systems.

Minor comment

Page 8, line 224: 'the shown AIOMFAC-VISC predictions for the ternary systems use an OIR of..' please change this to 'the AIOMFAC-VISC..'

