

Interactive comment on “Water activity and surface tension of aqueous ammonium sulfate and D-glucose aerosol nanoparticles” by Eugene F. Mikhailov et al.

Comments:

This work reported water activity and surface tension of aqueous AS and D-glucose aerosol particles using DKA. The manuscript fits well to the scope of ACP. I recommend it to be published after the following comments have been adequately addressed.

1. I am worried about the novelty. AS and D-glucose chemicals are not new in hygroscopicity study. Growth factor, water activity and surface tension have been reported in many papers, but not cited in the manuscript. I would suggest the authors demonstrate the new findings (maybe the mixtures and high RH) relative to the previous studies.
2. Section 4.1: why is the distinct trend of restructuring of AS/Gl particles (g_d) between mass ratio of 4:1 and 1:1, as shown in Figs.1c and 1d.
3. Line 186: any explanation?
4. Line 190: is there any evidence about the phase state description?
5. Figure 9b: could you explain why the surface tension decrease firstly, and then increase along with increasing solution concentration?
6. Is it possible to provide the parametrization for water activity and surface tension of different chemicals using DKA? Then the method could be used more widely.