Interactive comment on “Atmospheric homogeneous nucleation of $\text{H}_2\text{SO}_4$ and $\text{H}_2\text{O}$” by D. R. Benson et al.

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I am a chinese phd student, currently i am working on a project regarding atmospheric nucleation (focus on the effects of ammonia and amines). Not sure whether my comments are useful, but i would like to point out that:

(1) The role of ammonia in the nucleation should always be paid careful attention. Indeed, impurities of $\text{NH}_3$ are hardly to remove. So a clear explanation and treatment to ensure a condition for binary nucleation is necessary.

(2) on the other hand, the effects of amines might be much more important. Recently, i found a couple of important papers, probably worthy to be mentioned.

\(\text{(Nanoparticle growth increased with relative humidity in the presence of glyoxal and trimethylamine)}\)

X. Ge, A.S. Wexler, S.L. Clegg. Atmospheric amines – Part I. A review Atmospheric Environment. doi:10.1016/j.atmosenv.2010.10.012 (Sources of a lot of amines are summarized, clearly shows that amines have similar sources as $\text{NH}_3$, probably can be referred as $\text{NH}_x$ to indicate $\text{NH}_3$ and amines)

X. Ge, A.S. Wexler, S.L. Clegg. Atmospheric amines – Part II. Thermodynamic properties and gas/particle partitioning. (I am communicating with the authors why they didn’t present the results regarding aminium sulfate/bisulfate while there are results for chlorides and nitrates. At least, they showed that amines typically have a stronger partitioning ability into the particle phase than ammonia based on equilibrium thermodynamics.)

(3) I am wondering Why 287K is chosen to be “atmospherically relevant conditions”?


This MS almost talked about the same question as this paper. The authors should compare with each other.

Thanks a lot
Jianxin

Interactive comment on Atmos. Chem. Phys. Discuss., 10, 29051, 2010.