

Interactive comment on “Amine exchange into ammonium bisulfate and ammonium nitrate nuclei” by B. R. Bzdek et al.

Anonymous Referee #1

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This paper describes measurements of the kinetics and thermodynamics of the exchange of ammonia for amines in small (charged) clusters \sim 1-2 nm in size. The clusters were generated by electrospray ionization of solutions containing various combinations of ammonium (or amines), bisulfate, sulfate, and nitrate. The evolution in the composition of selected clusters was then monitored using FT-ICR-MS which has sufficient mass accuracy for elemental composition of selected mass-to-charge-ratios. The work is clearly and concisely described, represents a significant contribution to the field of aerosol formation and growth, and should thus be published in ACP. I have only a few minor comments/suggestions.

Page 49, line 5. What is the likelihood of multiply charged clusters being created in the ESI source and the potential effect on the inferred cluster size distribution (and cluster

C99

selection)?

Page 54 line 15, A phrase “discussed in more detail below” would be helpful.

Page 55, lines 1 – 10, In the 4 – 3 ammonium – bisulfate clusters, the 4th substitution often seems to have a significantly higher reaction probability than the earlier substitutions (Table 3). This seems to break the trend described in this paragraph of lower reaction probabilities for higher substitutions. Am I missing something here?

In general, I found the text in the tables of too small a font size. I hope this issue can be corrected in the final version.

Interactive comment on Atmos. Chem. Phys. Discuss., 10, 45, 2010.