Atmos. Chem. Phys. Discuss., 10, C318–C319, 2010
www.atmos-chem-phys-discuss.net/10/C318/2010/

Atmospheric Chemistry and Physics Discussions

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

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Received and published: 2 March 2010

We thank the referee for providing helpful comments. Our responses are given below:

1. Page 49, line 5: We did not observe the formation of multiply charged clusters for the clusters we examined in this work. This includes multiply charged clusters in the size range of interest, e.g. a doubly charged 4-3 cluster, and multiply charged larger clusters that would appear in the same m/z region as the clusters studied here, e.g. a doubly charged 8-6 cluster. The former cluster would have been observed in a "clear" region of the mass spectrum. The latter cluster would have overlapped the m/z range of the singly charged 4-3 cluster, but peak spacing at 0.5 Th would allow it to be detected. We will add a statement to the Experimental section in the final manuscript to clarify this point.

2. Page 54, line 15: We will add the requested statement to the final manuscript.

3. Page 55, lines 1-10: While the trend noted by the reviewer is observed in some cases, it is not in others. Furthermore, the magnitude of the trend is of similar to the measurement uncertainty. We will add the following text to the discussion in this section: "This trend does not appear to apply for the final substitution of the 4-3 ammonium bisulfate cluster with amine, as this substitution occurs more quickly than previous substitutions. We hypothesize that this observation may arise because enough internal energy has been built up in the cluster to allow for a rearrangement to occur, making substitution more facile. However, we must note that the uncertainties associated with these uptake coefficients are relatively large, so one must be cautious in making any definite conclusions."

4. General comment about size in text of tables: We agree with the reviewer and hope that upon publication the tables will be formatted in a way that is easier for the reader (for instance, by presenting Table 1 along the long axis of the page).

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