

Interactive comment on “A study of the phase transition behavior of mixed ammonium sulfate – malonic acid aerosols” by C. F. Braban and J. P. D. Abbatt

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This is the continued response to Reviewer number 1's comments, which follow directly on from the previous response.

The Figure caption saying AS observed to go into solution is misleading: In the text it is assumed that AS remains at least partly liquid.

The figure caption will be made clearer by changing it to “any crystallized AS observed to go into solution.”

Section 4.2, paragraph 2: The authors should specify the EDRH for the AS-MA system at 303 K and give a reference. It seems unlikely that it is close to the DRH of AS, as stated by the authors.

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This was a mistake, at 303 K the DRH of malonic acid is close to that of the EDRH and the sentence will be removed.

Section 4.2, paragraph 3: The water uptake starting from 20%RH described by Brooks et al. 2003 was observed for maleic acid alone. The explanation given by Braban and Abbatt is therefore not valid.

Fair point, the sentence will be removed.

Technical corrections:

Title: The authors should write ...ammonium sulfate – malonic acid aerosol particles, since mixed ammonium sulfate – malonic acid aerosols do not necessarily imply internally mixed particles.

We will change the title to: "A study of the phase transition behavior of internally mixed ammonium sulfate – malonic acid aerosols."

Page 2958, line 14: indicating instead of indication.

thank-you!

Page 2958, line 11: Add particles: ...aerosol particles.

We will make the change.

References

Brooks, S. D., Wise, M. E., Cushing, M. and Tolbert, M. A.: *Deliquescence behavior of organic/ammonium sulfate aerosol*, *Geophys. Res. Lett.*, 29, 1917, doi:10.1029/2002GL014733, 2002.

Choi, M. Y. and Chan, C. K.: *The effects of organic species on the hygroscopic behaviors of inorganic aerosols*, *Environ. Sci. Technol.*, 36, 2422-2428, 2002.

Seinfeld, J. H.; Pandis, S. N. *Atmospheric Chemistry and Physics: From air pollution to climate change*; John Wiley and Sons Inc.: New York, 1998.

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