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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Measurements of particle masses of inorganic salt particles for calibration of cloud condensation nuclei counters" *by* M. Kuwata and Y. Kondo

Anonymous Referee #2

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To my knowledge, this is the first paper that describes the calibration of a DMT CCN chamber using both a DMA and a direct measurement of particle mass, from the APM technique. The APM is not widely available and so has not been used before for experiments of this type, although the DMT CCN chamber has been frequently calibrated with standard aerosol types such as sodium chloride and ammonium sulphate. The authors extract shape factors for these aerosol types that appear to match those in the literature quite well. They also indicate that the use of the Pitzer/Clegg models /parameterizations for the water activity are the most accurate to use, when trying to extract absolute measures of the true supersaturation in the DMT chamber.

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Interactive Discussion
Discussion Paper

The paper is very clearly written and the experiments appear to have been well done. I recommend publication and do not have substantial specific comments to make, aside from those below. On a more general note, I think that this paper might have been more appropriate for another journal such as Aerosol Science and Technology or Atmospheric Measurements Techniques, but with it already at the ACPD stage, then that point is somewhat moot. However, I do ask the question of whether it should be labelled as a technical note, because its focus is very much directed to the calibration of a specific instrument (albeit a very valuable and now widely used instrument)from one supplier.

Page 1, Line 18 – "most probable" – change to "most accurate" Page 5, "Density calculated using Eqs. (14) and (1) (in this case, we can assume dve=dme, as PSL particles have spherical shape) agreed with the values given by the manufacturers to within 5%, and this difference was corrected for inorganic salt particles." More details can be given on why this difference might arise, and how the correction is applied. Is it known that the difference will persist for different types of species? i.e. is it necessarily a constant offset, independent of particle type?

Interactive comment on Atmos. Chem. Phys. Discuss., 9, 4653, 2009.