

Interactive comment on “Collection efficiency of α -pinene secondary organic aerosol particles explored via light scattering single particle aerosol mass spectrometry” by Ellis Shipley Robinson et al.

Anonymous Referee #1

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This paper reports a detailed investigation of the AMS collection efficiency of organic particles made in a laboratory using a light scattering module. The results are not wildly inconsistent with previous results but there is a need for careful and systematic studies of this nature as we begin to understand some of the detailed internal processes of the AMS as we try to move on from simply dealing with these issues empirically. There is currently some debate on the exact nature of some of the empirical factors and how best to extrapolate these in a general manner, so papers of this nature are important. Furthermore, the paper lays down a framework that other studies could easily follow, which should allow for the better determination of accurate CEs and RIEs of organic

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matter in the future.

The paper is well within AMT's scope (given how widely used the AMS and ACSM are) and was extremely well written. Besides from a few technical niggles, I have no hesitation recommending publication.

Technical comments:

Line 125: Becquerel (Bq) is the SI unit for activity.

Line 339: Please explain what you mean by 'sizzle'.

Figure 3: Please use two more distinct colours.

Figure 5: Rather than normalised frequency per bin, it would be better to do this as a probability density function (taking bin width into account). The data could then be legitimately plotted as lines (rather than sticks), making the figure easier to read.

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