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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Single particle characterization using a light scattering module coupled to a time-of-flight aerosol mass spectrometer" *by* E. S. Cross et al.

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Comment W: p. 21356: Using the single particle detection capabilities of this instrument, the detection efficiency of the AMS was quantitatively determined. This statement makes it sound like there was one detection efficiency when in fact the AMS showed a strong size dependence which varied significantly over the course of the study (as shown by the scatter in Fig 3). Thus, it would be more informative to state (and show) the detection "efficiencies" of the AMS and how they changed over the 75 hour sampling period. The average value is misleading as it has been reported to change from 0.25 to 1 over the course of one ambient study. It also changes as a function of size as shown in Figure 2. The light scattering module offers the ability to monitor CE over time which could be a powerful addition and helpful in advancing the

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quantitative ability of the AMS.

Response: We have discussed this important issue in our responses to comments C-1, C-2, and D2-7.

Comment X: p. 21356: Prompt particles made up 23% of the total number and 59% of the total mass. Delayed particles made up 26% of the total number and 38% of the total mass. Null particles made up 51% of the 10 total number and 3% of the total mass. The study shows that the mass content of particles undergoing prompt vaporization is reliably measured. Detailed analysis was preformed for this class of particles. This should be re-worded to state: "59% of the total mass detectable by the AMS" or it is extremely misleading.

Response: This point first arose in connection with comment D2-1. The same issue appears, as pointed out above, on p. 21356. The text has been modified as suggested.

Comment Y: p. 21356 conclusion 7. From 09:00-12:00 LT all particles within the ambient ensemble, including HOA particles originating from local traffic sources, were coated with NH4NO3 due to

-Again, they state "all particles within the ambient ensemble," but this is not accurate.

Response: The conclusion has been re-written and the statement highlight in comment Y is no longer included. .

Interactive comment on Atmos. Chem. Phys. Discuss., 8, 21313, 2008.