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Interactive
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Interactive comment on "Evaluation of Anthropogenic Secondary Organic Aerosol Tracers" *by* Ibrahim M. Al-Naiema and Elizabeth A. Stone

Anonymous Referee #2

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This paper describes analytical methods and a test ambient study to evaluate the applicability of a range of compounds to be used as tracers for SOA produced from anthropogenic aromatic VOCs.

I offer the following comments and suggestions to help improve the manuscript.

1. Abstract: The title's focus of "anthropogenic" SOA tracers is focused away from "anthropogenic" and toward "aromatic" derived SOA tracers in the abstract. Maybe "aromatic" should also be included somehow in the title.

2. Page 4, Line 32: A different derivatization condition was used for Nitromonoaromatics, but the reasoning for a different method is not discussed. Please describe why

alternate method was applied.

3. Page 5, Line 4: update Al-Naiema et al., in review if possible

4. Page 5, Line 24: assuming activity coefficient =1 introduces some large potential errors. Knowing something about the classes of interest and the greater aerosol mixture could help justify this assumption, or help to assume an alternate activity coefficient. Optionally, a lower and higher value could be incorporated in the final table to show a range of resulting partitioning values.

5. Page 7, Line 17: Regarding, "DHOPA accounted for 0.0079 ± 0.0026 of secondary OC mass", is that a fraction or percentage?

6. Page 7, Line 18: SOC has not been defined previously

7. Page 11, Line 9: Be sure to define all abbreviations before use in main text (e.g. FD and MFD here).

8. General: Would be useful to have another figure, maybe in Supplement, that incorporates other daily metrics from Nov4-17 such as T, RH, OC, EC, PM2.5, and any other supporting info.

9. General: With an understanding of the amount of work devoted to developing and testing new methods, the ambient results would be much more meaningful with a longer sample period, and a contrast with different seasons or different locations. However, I think the results provided on new methods and a test-case ambient example are sufficient to highlight good candidate tracers, but solid conclusions should be reserved for longer sample periods, various seasons (especially summer), and additional environments.

Interactive comment on Atmos. Chem. Phys. Discuss., doi:10.5194/acp-2016-805, 2016.