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Atmospheric Chemistry and Physics Discussions

Interactive comment on "A naming convention for atmospheric organic aerosol" *by* B. N. Murphy et al.

Anonymous Referee #2

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General comments: The authors present an interesting and comprehensive framework for naming organic aerosols. While their proposed approach is conceptually sound, I find it difficult to understand how it would apply in practice. It is unclear to me how such detailed naming should be applied to a range of field measurements where, as the authors acknowledge, the classifications generally must be operationally defined. Further, in order to assign all prefixes and suffixes (e.g., ELV, iv, etc.), isn't it necessary to track molecular information for all precursors and reaction products? That level of information is rarely available, unfortunately. It seems unlikely that that level of detail would additionally be tracked in models. For these reasons, I struggle to see how this framework will be broadly applicable in the near future. Though despite my skepticism, the manuscript overall is technically sound, and thus in agreement with the other

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reviewers, it will be up to the broader scientific community to decide to what extent the proposed naming convention is adopted. The paper is acceptable for publication following the suggested revisions below.

Specific comments: -While extensive hypothetical example names are given in Table 3, the paper would be much improved by including more explicit practical examples to demonstrate exactly how the one should map their laboratory, field, or modeling data/output to the naming scheme. This would particularly help those less familiar with VBS that may not understand how to obtain the necessary c* values for assigning volatility classes. This appears to be an essential point for readers to grasp, since the volatility labeling is the novel aspect here; without that, the naming scheme essentially falls back to the status quo.

-The discussion should also include measurement techniques other than the AMS. The AMS is certainly the most widely used, but there are other significant instruments applied to measuring organic aerosols (e.g., GC/MS, single-particle mass spectrometry, FTIR). The authors should offer additional examples of how these might be applied under the proposed scheme. Since the authors are attempting to transform how the community as a whole names organic aerosol constituents, such additional examples would go a long way toward achieving that goal.

- I have some issues with the “simplified” naming schemes outlined in section 4: 1. The authors should clarify that at the threshold of 320 ug/m3 (line 19 of pg 29995) POA compounds have C* values such that effectively all of the compound is in the particle phase (While conceptually obvious, it reads as if any compound that partitions to the particle phase at 320 ug/m3 is POA.) 2. Again, it is unclear how the non-VBS researchers should determine how to classify their data according to the presented scheme for use in policy decisions. This could create confusion among both scientists and policymakers. 3. The scientific rationale and policy benefit of lumping several non-traditional SOA categories into “POA” are not clear, particularly from semi-volatile precursors.

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Interactive comment on Atmos. Chem. Phys. Discuss., 13, 29983, 2013.

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13, C10931–C10933, 2014