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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Functional group composition of ambient and source organic aerosols determined by tandem mass spectrometry" *by* J. Dron et al.

Anonymous Referee #2

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General Comments

The authors present results of measuring functional group composition of organic aerosols (primary emissions, secondary organic aerosol, and ambient aerosol) using a newer analytical approach: APCI-MS/MS. The analytical method of APCI tandem mass spectrometry is a well capable approach to better understand functionilization of ambient aerosols. The findings of this article add to the further scientific understanding of source appropriation of ambient aerosols. The authors present a sound study with sufficiently interpreted results, in a well-written article. The paper should be published in ACP after minor comments listed below have been attended to.

Specific Comments

1. Page 9255, Line 24-26: Please update reference on the difficulties of separating carbonyls from carboxylic acid using FTIR analysis. The authors even cite an article (Liu et al., 2009) that uses FTIR analysis to separate carbonyls from carboxylic acids. I would suggest looking at the following article: Russell et al, 2009 "Oxygenated Fraction and Mass of Organic Aerosol from Direct Emission and Atmospheric Processing Measured on the R/V Ronald Brown during TEXAQS/GoMACCS 2006," L. M. Russell, S. Takahama, S. Liu, L. N. Hawkins, D. S. Covert, P. K. Quinn, and T. S. Bates, Journal of Geophysical Research - Atmospheres, 114(D00F05), doi10.1029/2008JD011275, 2009.

2. Page 9257, Line 5-16: Authors should clarify why they chose o-xylene photo-oxidation for their representative SOA system. Why were no additional SOA systems used as a comparison in this study?

3. Page 9267, Lines 4-8: Authors should reconsider whether or not it was safe to assume photo-oxidation of o-xylene was the most representative system for SOA formation.

4. Page 9287- Figure 2: Authors should explain the fit of the lines in the figure. Were these a simple two-point fit? Why are the fits curved and not straight?

Technical Corrections

1. Term functionalization rates should be defined on Page 9260, where it is first introduced, instead of on Page 9262.

2. Page 9287- Figure 2: Error bars for analytical deviations should be defined (75%, 1 standard deviation, etc.).

3. General comment on figures: Centering axis labels is more visually pleasing, than being positioned to far right or left.

Interactive comment on Atmos. Chem. Phys. Discuss., 10, 9253, 2010.