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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Size distribution of alkyl amines in continental particulate matter and their online detection in the gas and particle phase" *by* T. C. VandenBoer et al.

Anonymous Referee #2

Received and published: 23 December 2010

General comments:
This manuscript reports gas- and particle-phase small alkylamine data obtained at urban and rural sites in Ontario, Canada. While it can be argued that the manuscript is rather descriptive in nature, the size resolved alkylamine data is still rare and this will be of interest to those who work in this field. I recommend that this manuscript be published once all specific comments, especially about the comments on introduction and section 2 are addressed by the authors.

Specific comments:
Introduction:

I found introduction somewhat too long, cumbersome and redundant. For example, does basic chemistry information such as reactions 1-4 essential in introduction? Potential readers of this manuscript are well aware of the subject and the cited papers. The authors do not need to summarize and restate the findings in the cited papers to emphasize the importance of amines. Currently, introduction is over 1500 words. Considering the content of the manuscript, I feel that this can be reduced to less 1000 words.

Section 2:
I agree with referee 1 that this section does not read well. I feel that Section 2.1, 2.1.1, 2.4, Figures 1-4 and Tables 1-2 can be moved to Supporting Information or alternatively a separate paper (or technical note) focusing on the improved IC method for the separation of alkylamines. At this moment, it does not provide enough information about merits of the analytical method (e.g. relative standard deviations for peak areas and retention time, recoveries, etc.) to be considered as a method oriented paper but main text contains too much information about analytical details for a field measurement paper.

Page 27448 line 25 and page 27449 line 10:
Method detection limits need to be determined from a standard solution that still gives at least S/N = 3, not a blank solution. There is no guarantee that a detector responds to target analytes at an S/N = 3 concentration. Furthermore, a word of caution is warranted here for potentially much higher detection limits in the ambient samples due to matrix effects and extraction efficiencies.

Page 27452 line 18:
Can the authors comment on a possible reason for an elevated concentration of amines in the 3.2–5.6 μm size range?

Page 27455 line 14 and Page 27460 line 7:
What do the authors mean by "... the fine aerosol population is internally mixed ..."?

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Do the authors mean that all fine particles are assumed to be internally mixed or the same chemical composition? It is not clear from the sentence if the authors state about the mixing state or chemical composition. Please clarify.

Interactive comment on Atmos. Chem. Phys. Discuss., 10, 27435, 2010.

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