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## ***Interactive comment on “Determination of alkyl amines in atmospheric aerosol particles: a comparison of gas chromatography-mass spectrometry and ion chromatography approaches” by R.-J. Huang et al.***

### **Anonymous Referee #1**

Received and published: 2 April 2014

The authors presents a comparison of the two methods (GC/MS and IC) for the determination of alkyl amines in aerosol particles. They commented that the level of knowledge of amines in aerosol particles is weak due to lack of measurement data, which further is explained by difficulties in achieving accurate amine measurements. I completely agree with the author’s viewpoint. However, the rating is not top notch, because in my opinion, the authors fail to go in depth on matters of special importance for this compound class and in this type of measurements. I recommend substantial revision and major modifications, before it could be considered for publications. 1. Al-

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though the data are corrected for field blanks, the field blanks should be presented. This is of great importance for the GC/MS method due to the high sensitivity, but is also important for the IC method. Amines can be present in surprisingly many places with a great diversity of sources. 2. The calibration principle is weak for the GC/MS method. If the reaction yield is low, you may have an unreacted amine residue in the discarded aqueous phase without knowing it. The only presented link to an independent measurement is one sample from Hong Kong. It is of critical importance to strengthen the calibration part by synthesizing the pure carbamate reference material and use the pure material for quantification. 3. A description is lacking of how the reproducibility and recovery data were obtained. 4. The lack of measurement on real samples is in itself a weak point. One typical observation with amine measurements is how sample matrix constituents easily impair the measurement quality. Thus, a greater sample site diversity needs to be used for validation. 5. If possible, isotope labelled target amines should be used as internal standards for GC/MS to improve the quality control (is available for several of the target amines). In addition, techniques as standard addition quantification will improve the QA/QC part substantially, both for the GC/MS and the IC.

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