

# ***Interactive comment on “The charging of neutral dimethylamine and dimethylamine-sulphuric acid clusters using protonated acetone” by K. Ruusuvuori et al.***

## **Anonymous Referee #2**

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Ruusuvuori et al. presented an experimental and theoretical study to quantify neutral dimethylamine and dimethylamine-sulphuric acid clusters in the ambient atmosphere using a CI-API-TOF instrumentation package. As the authors claimed the current understanding in roles of amine in new particle formation has significant uncertainty mainly due to lack of an ambient observational dataset. Therefore, the motivation of this research is appeared to be well aligned with the publication aims of AMT. However, The quality of works is difficult to evaluate in the current form since the critical information is not presented. I summarized three main points should be added in the revised manuscript for further evaluation. In addition, I would recommend for the authors to go

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through a proof reading again.

1) The authors claimed that a previous work (Yu and Lee., 2012) with ethanol ion chemistry may suffer artifacts due to the less selective nature. As Yu and Lee (2012) used a quadrupole system, the ToF system, the authors utilized should provide much higher mass resolution in the level of the enough separation of potential artifacts. At least the authors should present convincing arguments or specific examples why more selective ion chemistry is required to properly quantify atmospheric amines even with the ToF system by sacrificing sensitivity.

2) The experimental method is very poorly described in two fronts. First, More thorough descriptions on calibration techniques (e.g. calibration curve) and the lower detection limit should be presented. Especially, for sticky compounds like amine, the authors should thoroughly describe how they prevent and characterize the wall loss. It is also unclear how the DMA standard permeation rate is characterized.

3) The more extensive field observational dataset should be presented. In the same context as pointed out in 2), the authors should describe how an inlet was configured for the field observations. It is also highly unclear the time frame and duration of the presented observational data points. Therefore, It is impossible to determine the statistical validity and representativeness of the presented observational data points.

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Interactive comment on Atmos. Meas. Tech. Discuss., 7, 11011, 2014.

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