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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Characterization of urban amine-containing particles in Southwestern China: seasonal variation, source, and processing" *by* Yang Chen et al.

Yang Chen et al.

chenyang@cigit.ac.cn

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Dear referee,

The authors are thankful for the reviewer's efforts on the valuable comments for this manuscript. These comments would be very helpful for us to improve the manuscript. We would like to provide a point-to-point response. A native English-speaking Scientist did the proofreading for the text.

Major issue Section 3.4, please compare your results with the studies worldwide and describe the differences in various locations. Conclusion: the effect of relative humidity

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on DEA-containing particles should be mentioned. We sincerely appreciate this comment. Yes, this part has been expanded into a broader context, please see the revised Section 3.4.

Specific issues,

Line 68-69, how these amine-containing particles varied? Please briefly describe them.

Yes, we have expanded this part in the revised version (line 72-79): "In the five European cities such as Cork, Paris, Dunkirk, Corsica, and Zurich, amines were found internally mixed with sulfate and nitrate; but in Corsica, amines were internally mixed with methanesulfonate (Healy et al., 2015). In Barcelona, five unique types of amine-containing particles were observed (Dall'Osto et al., 2016). In a rural area site in the Pearl River Delta (China), the marker ion, (C2H5)2NH2+, was the most abundant (90% and 86% of amine-containing particles in summer and winter)(Cheng et al., 2018). In Guangzhou, TMA-containing particles were important (Zhang et al., 2012). "

Section 2.1 A map of sampling site would be helpful.

A map has been added in the supportive information (Figure S1).

Line 108-109, the sentence is unclear, please reword it.

The sentence has been modified (line 121-123):

"After the duplicate particles were removed from the query results, all amine-containing particles were combined into an amine-containing particle cluster."

Line 118, “impression” or “expression?”

It should have been “expression,” we have changed it.

Line 172, the effect of air stagnant should be addressed, which will be helpful to understand the atmospheric processing of amine-containing particles.

We have modified the text into: “Such low wind speed caused stagnant air conditions

in both summer and winter. “

Line 220-225, according to Figure 4, what the possible source for DPA-containing particle from the northeast?

It was also from traffic; please see the revised discussion (line 251).

Line 264 and 282, “easy” is an informal term, please change it into a formal one.

The comment has been accepted and the change made (Line 313).

Line 267, please put the comma after (Yao et al. 2011)

The comment has been accepted and the change made.

Line 306, “was” should be “were.”

The comment has been accepted and the change made (line 340).

Reference

Cheng, C. L., Huang, Z. Z., Chan, C. K., Chu, Y. X., Li, M., Zhang, T., Ou, Y. B., Chen, D. H., Cheng, P., Li, L., Gao, W., Huang, Z. X., Huang, B., Fu, Z., and Zhou, Z.: Characteristics and mixing state of amine-containing particles at a rural site in the Pearl River Delta, China, Atmos Chem Phys, 18, 9147-9159, 10.5194/acp-18-9147-2018, 2018.

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Healy, R. M., Evans, G. J., Murphy, M., Sierau, B., Arndt, J., McGillicuddy, E., O’Connor, I. P., Sodeau, J. R., and Wenger, J. C.: Single-particle speciation of alkylamines in ambient aerosol at five European sites, Anal Bioanal Chem, 407, 5899-5909, 10.1007/s00216-014-8092-1, 2015.

Zhang, G., Bi, X., Chan, L. Y., Li, L., Wang, X., Feng, J., Sheng, G., Fu, J., Li, M., and Zhou, Z.: Enhanced trimethylamine-containing particles during fog events detected by single particle aerosol mass spectrometry in urban Guangzhou, China, Atmos Environ, 55, 121-126, 10.1016/j.atmosenv.2012.03.038, 2012.

Please also note the supplement to this comment:
https://www.atmos-chem-phys-discuss.net/acp-2018-1119/acp-2018-1119-AC1-supplement.pdf

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