Atmos. Meas. Tech. Discuss.,
doi:10.5194/amt-2018-104-RC1, 2018

Atmospheric Measurement Techniques Discussions

Interactive comment on "Organosulfates in atmospheric aerosol: synthesis and quantitative analysis of $PM_{2.5}$ from Xi'an, Northwest China" *by* Ru-Jin Huang et al.

Anonymous Referee #1

Received and published: 3 May 2018

Identification and quantification of organosulfates are essential in assessing their formation pathway and contribution to particulate matter. A significant obstacle in the analysis of organosulfates is a lack of commercially available organosulfate standards. Nine organosulfates with different functional groups were synthesized in this study; and analysis of organosulfates on real ambient filters is subsequently conducted. The results are potentially interesting; the paper is very well written and current contribution is a welcome addition to the field.

Major comments:

1. Line 156: Any purification is performed to obtain the organosulfate standards?

Printer-friendly version

Discussion paper

2. Line 160: Are the synthesized organosulfate standards stable? Was there any degradation/decomposition observed during storage?

3. Line 163: Readers might be interested in the NMR spectra of the synthesized standards. Please include the information in SI.

4. Line 163-174: What is the purity of the obtained standards?

5. Line 313: The authors suggest the anthropogenic origin of phenyl sulfate and glycolic acid sulfate. Trend of phenyl sulfate is more similar to that of OC, while glycolic acid sulfate is more similar to inorganic sulfate. Any explanation?

6. Line 316-320: Do the authors suggest that hydroxyacetone sulfate is biogenic origin? If so, why the concentration of hydroxyacetone sulfate is much higher than that of phenyl and benzyl sulfate, which were suggested from anthropogenic origin? I doubt if there is a large biogenic source for hydroxyacetone sulfate in Winter.

Minor comments:

7. Line 322: Please define “high polluted days” and “low polluted days”.

8. Line 615: “chromatogram” should read “chromatograms”

9. Line 611: Legends (a), (b), (c), (d) are missing on Figure 2

10. Line 620: Figure 4 (a), unit of concentration should be added to the legend.

Interactive comment on Atmos. Meas. Tech. Discuss., doi:10.5194/amt-2018-104, 2018.

Printer-friendly version

Discussion paper