

Interactive comment on “Elemental analysis of Oxygenated Organic Coating on Black Carbon Particles using a Soot-Particle Aerosol Mass Spectrometer” by Mutian Ma et al.

Anonymous Referee #2

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The manuscript by Ma et al. entitled ‘Elemental analysis of Oxygenated Organic Coating on Black Carbon Particles using a Soot-Particle Aerosol Mass Spectrometer’ focuses on validation of elemental ratio analysis by the soot-particle aerosol mass spectrometer (SP-AMS). The approach includes both laboratory and field studies. Three SP-AMs were employed for the study, allowing inter-comparison of the data. Chemical characteristics of coating material on soot particles is important for understanding the climatic impacts of aerosol particles. The content of the manuscript is within the focus of the journal. The manuscript is well written, and easy to follow. I support publication of the manuscript after addressing the following comments.

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1. Morphology of particles for laboratory study. The authors mixed Regal Black and aqueous solution of standard organic compounds. Subsequently, particles were generated using an atomizer. I wonder how the morphology of these particles are. In the case of ambient 'coated soot particles,' coating material should be located on the surface of particles. However, the generation method could produce particles with different morphology (e.g., homogeneously mixed; light-absorbing material is coating non-absorbing material). The discussion would be more convincing if the authors could describe the potential influence of particle morphology on experimental data.

2. Stability of Regal Black mass spectra The contributions of Regal Black on observed mass spectra were subtracted using a fragmentation table. I wonder if there were any differences in mass spectra of Regal Black those were observed by different instruments.

[Interactive comment on Atmos. Meas. Tech. Discuss., doi:10.5194/amt-2020-303, 2020.](#)

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