

# ***Interactive comment on “Characterization of Anthropogenic Organic Aerosols by TOF-ACSM with the New Capture Vaporizer” by Yan Zheng et al.***

## **Anonymous Referee #1**

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This is a nice paper which performed a comprehensive evaluation of the new CV-TOF-ACSM in urban environment, and provided important information on source spectra of primary emissions, mass quantifications of non-refractory species, and the uncertainties in PMF analysis of CV-ToF-ACSM. This paper is well written and I recommend it for publication after minor revisions.

1. Can the authors give more information on the source experiments? For example, the relative number fractions of diesel trucks, heavy duty vehicles or gasoline vehicles during the tunnel sampling? For the coal and biomass burning experiments, what are the burning conditions, flaming or smoldering? The mass spectra can be quite different

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if the burning conditions are different.

2. Any reason to exclude  $m/z$  12 – 20 for PMF analysis? Some important spectral information can be missed, e.g.,  $m/z$  15 ( $\text{CH}_3^+$ ) for biomass burning OA. Did the elemental analysis in Figure 4 include  $m/z$  12 – 20?

3. The results showed considerable differences in apportionment of POA and SOA between CV-TOF-ACSM and HR-AMS. Do the authors have recommendations on how to report POA and SOA from CV-TOF-ACSM measurements in the future? This is critically important for modelers since CV-TOF-ACSM appears to report much higher SOA than traditional HR-AMS in polluted environment.

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