

Interactive comment on “Programmable thermal dissociation of reactive gaseous mercury – a potential approach to chemical speciation: results from a field study” by C. Tatum Ernest et al.

Anonymous Referee #1

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The authors should be congratulated for presenting an honest discussion of a new method. On the other hand, the paper is a bit puzzling. It addresses an important issue (identification of oxidized Hg compounds in power plants) but arrives at no conclusions. The abstract (very short) ends without making any significant statement about the results. At first I was puzzled over this, but after reading the paper, I see why. It is very difficult or impossible to interpret the data presented. The PTD method, as presented in this manuscript, cannot be used to qualitatively identify RGM compounds, nor can it be used to quantify RGM. So its not clear what the method is good for. My key concerns are as follows: 1. Large variability in recovery of RGM (table 1 and 2). 2. Large variability in PTD profiles for a single compound (HgCl₂), 3. No comparisons

with other compounds so we are left to qualitatively compare a PTD for HgCl₂ with highly variability PTD from ambient samples. If the point is to show this method can identify HgCl₂, then it is essential that other compounds be shown.

The current manuscript, in my opinion, does not warrant publication. The authors would need to show a much stronger analysis to demonstrate that this method is useful. If the method is not useful, then it is not really worth a publication.

Interactive comment on Atmos. Chem. Phys. Discuss., 12, 33291, 2012.

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