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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Release of mercury halides from KCl denuders in the presence of ozone" *by* S. N. Lyman et al.

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Thanks a lot for your comments.

The results of our study may seem disconcerting, but I think achieving a better understanding of the measurements we have been making is a step forward for our scientific community, not a step back. Knowing the limits of and problems with our instruments is an essential part of drawing correct conclusions from the data they generate.

Your point about our work with uncoated quartz denuders is valid. Thanks for bringing it up.

The first scenario you mention, in which oxidized Hg compounds become recalcitrant and are not decomposed by pyrolysis, is unlikely to be important, at least for the mer-

cury compounds we tested. For replicate denuder samples, the amount of mercury recovered from denuders that were analyzed by ozonation and then pyrolysis was similar to the amount recovered from denuders that were analyzed by pyrolysis only, showing that "unrecoverable mercury" probably wasn't produced by ozone.

As for the second scenario, in which some of the oxidized Hg on denuders is not converted to elemental Hg during pyrolysis and isn't analyzed by the Tekran 2537, it is an interesting idea, but I'm afraid this research is unable to shed much light on the issue. We did show that mercury released from denuders by ozone was able to pass through a subsequent denuder, but we didn't attempt any experiments to understand the nature of mercury lost from denuders during pyrolysis.

Interactive comment on Atmos. Chem. Phys. Discuss., 10, 12563, 2010.