

Interactive comment on “Effects of Gas-Wall Interactions on Measurements of Semivolatile Compounds and Small Polar Molecules” by Xiaoxi Liu et al.

Anonymous Referee #1

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This study investigates the time responses of semivolatile and intermediate-volatility organic compounds (S/IVOC) for different instrument inlet and tubing materials. The measured delay times could be explained by absorptive partitioning. The same model as developed earlier for VOCs could be applied for this data set by adjusting the material specific parameters. The results and the framework presented here is extremely useful for a proper design of instrument inlets and choice of tubing material to measure quantitatively low volatility multifunctional compounds. In a second part the authors also found that instrument response delay times for small polar molecules could be scaled with their Henry's Law coefficient. They partition to small amounts of water on the surfaces of the inlet or tubing. The manuscript is well written and data and results

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are clearly presented. The manuscript can be published as is. I have only a few minor comments. Line 227: you mean: residence time is 1 to 2 orders of magnitude shorter than diffusion time scale Figure 5: DHC measurements are mentioned but not shown. Figure 6a: Could you indicate roughly the expected response time for these volatility classes; basically an extrapolation of Figure 2?

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