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Atmospheric Measurement Techniques Discussions

Interactive comment on "Development of parallel sampling and analysis for the elucidation of gas/particle partitioning of oxygenated semi-volatile organics: a limonene ozonolysis study" *by* S. Rossignol et al.

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After reading the first referee comments, we realized that a paragraph has been moved from its initial place to another. We provide here a rectification to the on-line discussion paper as this would help understanding the manuscript and facilitate its reading.

Required changes:

- Page 1169. The following paragraph corresponds to point 3.2.2 and has to be inserted between lines 18 and 19: "For general purpose, PFBHA derivatisation is usually

achieved in aqueous or water containing solution (Cancilla and Que Hee, 1992) and a molecule of water is formed for each derivatised compound (Fig. 5). A positive influence of the humidity contained in the sampled air is consequently expected on the derivatisation process. On another hand, humidity can disturb compounds collection reducing the adsorption efficiency (Harper, 1993 ; Loedwyckx and Vansant, 2000). In order to evaluate this humidity influence a series of aldehydes was sampled from dry (0 % RH) and wet (50 % RH) simulated atmosphere. The experiment was carried out in the INERIS dynamic simulation chamber. The system is adjusted to generate crotonaldehyde, benzaldehyde, butanal, pentanal and hexanal at respective concentrations of 11.7, 17.7, 12.0, 14.3, and 16.7 μg m-3. Sampling was performed during four hours at a sampling flow rate of 150 mL min-1, connecting coated sorbent tubes to the chamber through a sampling cane. Five and six replicates were respectively performed for the 0 % RH and 50 % RH experiments. Results are shown Fig. 5. They reveal that humidity in the sampled air promotes trapping and/or derivatisation, with an average response ratio of 2.4 between wet and dry experiments (ranging from 1.9 and 3.6 depending on compounds). A complementary experiment was achieved in order to evaluate bias linked with humidity variations within a realistic relative humidity range. Three sampling series of three replicates were achieved at 30, 50 and 80 % RH. Sampling was performed during one hour at a sampling flow rate of 100 mL min-1. Results are shown Fig. 6. They reveal no significant bias linked to humidity variations within this realistic relative humidity range. A relative humidity of 30 % appears to be sufficient to reach maximum derivatisation yield in these conditions. However, a slight repeatability decrease is observed at 80 % HR, probably due to competition between water and adsorbed organic molecules on adsorbent surface sites. Nevertheless, this observation is consistent with the fact that high humidity levels are known to affect sampling on classic adsorbents, decreasing breakthrough volumes for example (Harper, 1993 ; Loedwyckx and Vansant, 2000). The developed method to trap and derivatise gaseous carbonyl compounds is consequently considered as suitable under realistic sampling conditions."

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- Pages 1177 and 1178: paragraphs from line 19 page 1177 to line 28 page 1178 have to be removed.

We apologize for not pointing out the problem at the proof-reading step.

Interactive comment on Atmos. Meas. Tech. Discuss., 5, 1153, 2012.

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