

***Interactive comment on* “Technical Note:
Intercomparison of formaldehyde measurements
at the atmosphere simulation chamber SAPHIR”
by A. Wisthaler et al.**

A. Wisthaler et al.

Received and published: 25 January 2008

We would like to thank Referee #2 for the positive review of our manuscript. In contrast to the referee, we think that PTR-MS can be improved to provide reliable HCHO measurements in the atmosphere. This is demonstrated in this chamber study and by a recent paper (Inomata et al., 2008) on atmospheric measurements. In the following we will answer step by step the referee's comments.

1. The experiments at SAPHIR were done as part of a larger intercomparison of different OVOCs. During the days 2, 3, and 4 the mixture was similar, i.e. 13 OVOCs were added to the chamber along with formaldehyde; only ozone and water was changed. We agree with the referee that the overall agreement of all

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- instruments is fair, but single instruments agree well. We would reword this in the revised version.
2. We agree with the referee that we cannot provide an explanation for the ozone dependence of the Hantzsch. We will add a statement in the revised version.
 3. The study of Hak et al. nicely describes all the different intercomparison attempts for HCHO. With the exception of the EUPHORE experiments all other were published. We contacted J. Kleffmann (Hak et al. refer to personal communication with J.K.) to receive additional information about the EUPHORE experiments. At the moment, these experiments are not published. They were performed in a very complex environment of diesel exhaust with added hydrocarbons. The HCHO mixing ratios were substantially higher than the values in this study. Given the complex environment, we would like to see a fully evaluated and interpreted dataset of the EUPHORE experiments before again referring to it as a personal communication.
 4. The main purpose of the study was to intercompare the 15 different instruments for the detection of different OVOCs, as described by Apel et al. (submitted to JGR). In general ozone and water are the most abundant, known interferences for most of the instruments, while NO_x is not. Therefore, the setup was to have similar conditions during the days 2 to 4, with only water and ozone changed. Day 1 was intended as an instrument test without any OVOC added. However, this day failed due to sampling problems.

References

Inomata, S., Tanimoto, H., Kameyama, S., Tsunogai, U., Irie, H., Kanaya, Y. and Wang, Z.: Technical Note: Determination of formaldehyde mixing ratios in air with PTR-MS:

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ACPD

7, S8808–S8810, 2008

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