

Interactive comment on “On the effects of hydrocarbon and sulphur-containing compounds on the CCN activation of combustion particles” by A. Petzold et al.

A. Petzold et al.

Received and published: 2 November 2005

In the discussion phase of manuscript Petzold et al., ACPD 5, 2599-2642, 2005, referee #4 mentioned in the major comment 8) that there is some mismatch between the data on aerosol chemical composition and related CCN activation in Table 3 and the data plotted in Fig. 14 of the manuscript as published in Petzold et al. (2005).

In the paper revision submitted for publication in ACP, respective data are plotted in Fig. 11, while the numerical values are still compiled in Table 3, which however contains one data line less than Table 3 in the ACPD paper. In the current revised version of the manuscript submitted to ACP, data points plotted in Fig. 11 and data values given in

Full Screen / Esc

Print Version

Interactive Discussion

Discussion Paper

Table 3 match each other.

The reasons for changing the data compiled in Table 3 are found in the complex data protocol of the experiment PartEmis. The measurements which form the basis of data compiled in Table 3 and Fig. 11 were collected during various test runs of the combustor at medium fuel sulphur content for old and modern operation conditions, see Wilson et al. (2004) and Petzold et al. (2005) for details. During these test runs, the sampling probe was moved to probe positions 11, 10, 9, 8, 7, 6, 5, 4, 3, 1 for old conditions and 11, 9, 8, 7, 5, 4, 3, 1 for modern conditions. At these probe positions the probe was kept for the duration of 20 minutes with aerosol microphysics and CCN activation being measured. Aerosol chemical composition was determined from filter samples which integrated over several probe positions in order to collect sufficient matter for the chemical analyses over sampling times extending 20 minutes. These integrated probe positions were 11, 10, 9-7, 5-3, 1 for old conditions and 11, 9-7, 5-3, 1 for modern conditions. For the centre probe position 6 at old conditions no filter samples were taken during the traversing of the sampling probe. Hence, no chemical information is available for this test point.

Additionally, samples for chemical analyses were taken during one test point at each condition with the probe being kept at the centre position 6. These data are also given in Table 3 in order to complete the information on the chemical composition. However, during these test points, no size distribution data were collected since the DMA were operated in the Tandem DMA mode for a detailed determination of particle volatility. The data on microphysical properties, CCN activation, and chemical composition summarised in Table 3 and plotted in Figure 11 are an intersection of collected microphysical and CCN data on one hand and chemical composition data on the other hand. The data given in Table 3 for probe position 6 refer to the test points where no size distribution information is available. Concluding, the mismatch of the values collected in Table 3 and Figure 14 of Petzold et al. (2005) is mainly a matter of confusion of the lead author during the preparation of the manuscript. There was never the intention of

[Full Screen / Esc](#)[Print Version](#)[Interactive Discussion](#)[Discussion Paper](#)

omitting inconvenient data points.

References:

Petzold, A., M. Gysel, X. Vancassel, R. Hitzenberger, H. Puxbaum, S. Vrochticky, E. Weingartner, U. Baltensperger, and P. Mirabel, On the effects of organic matter and sulphur-containing compounds on the CCN activation of combustion particles, *Atmos. Chem. Phys. Discuss.*, 5, 2599-2642, 2005.

Wilson, C.W., A. Petzold, S. Nyeki, U. Schumann and R. Zellner: Measurement and Prediction of Emissions of Aerosols and Gaseous Precursors from Gas Turbine Engines (PartEmis): An Experimental Overview, *Aerospace Science Technol.*, 8, 131-143, 2004.

[Interactive comment on Atmos. Chem. Phys. Discuss.](#), 5, 2599, 2005.

[Full Screen / Esc](#)

[Print Version](#)

[Interactive Discussion](#)

[Discussion Paper](#)