

Interactive comment on “Characterisation of organic contaminants in the CLOUD chamber at CERN” by R. Schnitzhofer et al.

Anonymous Referee #3

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General comments

The paper describes the background conditions of VOCs determined in the CLOUD chamber at CERN. The influence of experimental conditions like varying humidity, temperature, SO₂- and O₃-concentrations on the VOC background concentrations were investigated and discussed.

The manuscript is well written and the results are presented well. The experimental data are of high quality and the interpretation of the results is appropriate.

Specific comments

Table 1 provides the relative abundance of certain VOCs during CLOUD3. Fig. 7 show

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that relative abundances can differ significantly while experimental conditions change. To account for the variability of the relative abundance please provide the respective min- and max-values to table 1.

It is unclear whether the given relative abundances in table 1 are representative for all campaigns. Please specify their reproducibility for the different CLOUD campaigns.

Page 7721 Line 22. The authors state that ozone yields to VOC formation by heterogeneous reaction on the chamber walls. While the influence of the ozone generator on VOC is clearly shown in Fig. 6 evidence for a further VOC formation process due to ozone (e.g. heterogeneous reaction) is not obvious from the presented results.

At the end of the conclusion section the authors propose a cleaning cycle for the chamber including a heating cycle (100 °C) together with a high ozone concentration and humidified air. According to the statement on page 7719, line 15 no influence of temperature on the VOC background concentration was found. Based on this result a heating cycle could be omitted and it is not clear why it has been included to the proposed cleaning cycle. The reasons for the chosen conditions could be justified in more detail. The conditions for a cleaning cycle could also be more specific (duration of a cycle, ozone and humidity levels) as they may provide guidance for other chamber experiments.

Technical corrections

Page 7717, Line 13: The use of "number" might be misleading in that context. Replace by "mixing ratio"?

Fig. 7, Top panel: The sum formula "C₃H₆OH" is unclear

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