



EGUsphere, referee comment RC1
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Comment on egusphere-2022-1206

Anonymous Referee #1

Referee comment on "Pressure-dependent performance of CEN-specified Condensation Particle Counters" by Paulus S. Bauer et al., EGU sphere,
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The manuscript by Bauer et al. presents experimental and simulation characterization of two CPC models that fulfil the CEN technical standard. To my understanding, characterization of the CEN CPCs is the main progress of this paper, other methods and qualitative understandings on the instruments are previously known.

The size and dependent counting efficiency curves were measured and simulated at pressures ranging from 1 to 0.15 bar, and the cutoff diameter was found to increase with decreasing pressure, while the plateau counting efficiency was found to decrease with decreasing pressure. The pressure dependent effects were explained by the simulations, demonstrating that the length of the insulator between the saturator and condenser affects the results. The manuscript is well-written and the experiments and simulations appear valid, and I have only very minor technical suggestions for the manuscript.

- intro: I would take the opportunity in this manuscript to briefly summarize some of the past findings related to the pressure dependency of a CPC. Currently, only some recent studies are vaguely mentioned. It would give better introduction to the reader on this topic
- Line 82, η_{∞} , I would use something else than infinity. Already at $\sim 5 \mu\text{m}$ the detection efficiency starts to drop.
- L285, please include the inputs for loss calculations, I cannot reproduce your loss calculation results as they are now presented.
- L391-393, the temperature difference is 1 degree. I would say they are within the experimental/fitting uncertainties