

Interactive comment on “Chamber simulation on the formation of secondary organic aerosols (SOA) from diesel vehicle exhaust in China” by Wei Deng et al.

Anonymous Referee #3

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Deng et al. present results showing that diesel exhaust injected into a smog chamber produces SOA when the lights are switched on. This result is far from unexpected, as previous studies have shown the same. Reading through the article gives the impression that the authors followed a recipe. If anything, the main contribution of this work would be to demonstrate that a diesel car without after treatment is the same in China as anywhere else. Thus, considering ACP's scope '[ACP] is focused on studies with general implications for atmospheric science rather than investigations that are primarily of local or technical interest', I feel that this articles falls under the latter category, particularly with regard to local interest.

But perhaps the authors can add something, therefore, aside from criticism of the arti-

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cle's scope, there are other major issues of concern:

The grammar needs improvement throughout. While perfection does not need to be the goal, the language should not get in the way of understanding the research.

I also have a concern regarding data represented in Fig. 2C. The authors use the black carbon (BC) time series to quantify organic aerosol (OA) wall losses. Firstly, looking at the first hour after lights on, BC does not decrease. Despite this, wall lost OA is added (since the raw OA trace is decreasing after around 30 minutes). Secondly, variation in the raw trace does not match variation in the wall loss corrected traces. See for example the small perturbation just after $t=-1$ h, not represented in the wall loss corrected trace. Thirdly, variation in the BC trace is not present in the OA trace for the $w=1$ case. I also note that Equation 2 ($w=0$ wall loss) does not give the time dependent suspended OA mass, while equation 3 ($w=1$) does. Can the authors please provide here an equivalent expression for suspended OA mass as a function of time (i.e. the equation used to calculate corrected OA mass), and give assurance that the data, as calculated, is that which is shown?

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