Atmospheric
Measurement
Techniques

Supplement of

Mapping the performance of a versatile water-based condensation particle counter (vWCPC) with numerical simulation and experimental study

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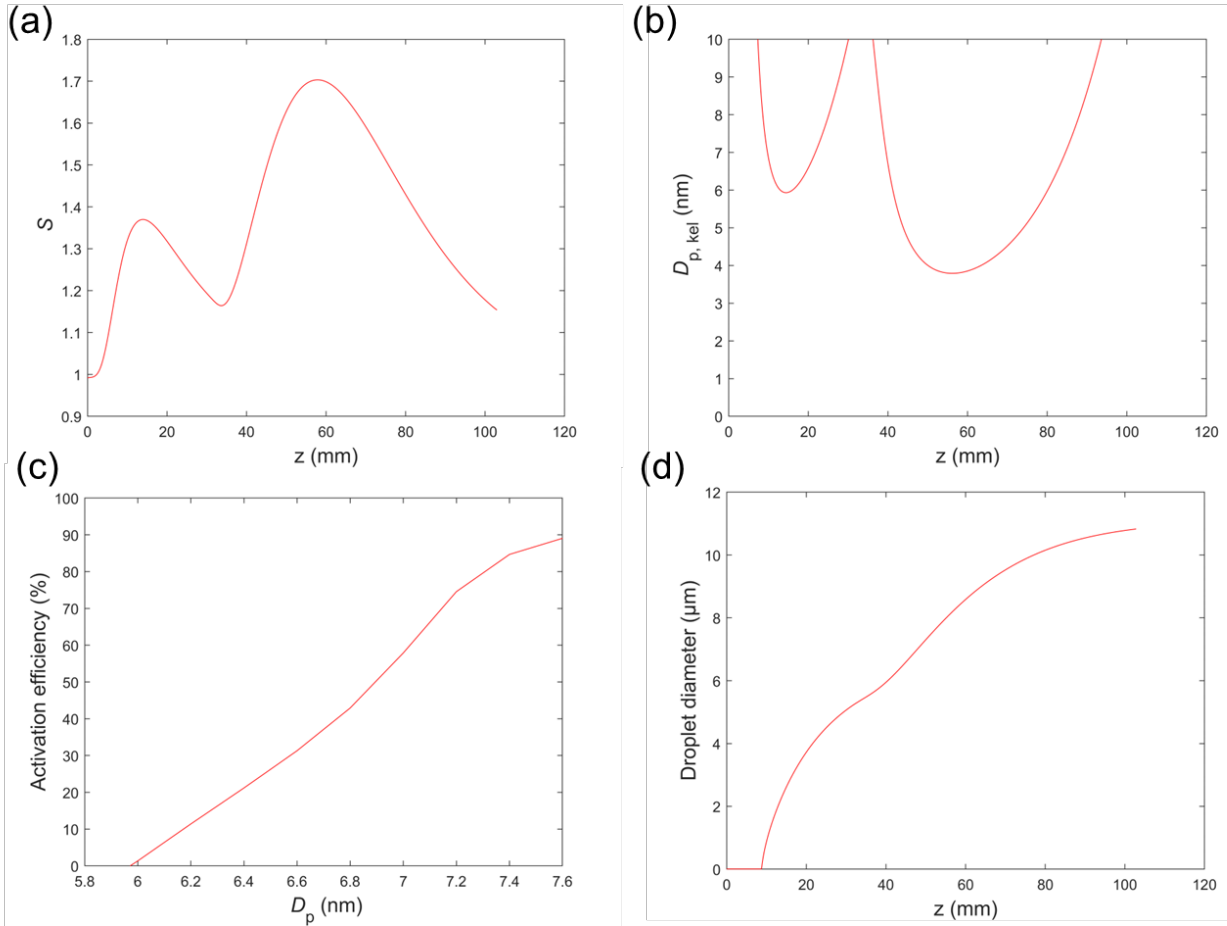**Figure S1. Evaluation of particle activation and droplet growth performance at the default temperature condition of T_{con} = 30 ºC, T_{ini} = 59 ºC, T_{mod} = 10 ºC. (a) saturation ratio (S), (b) Kelvin equivalent size ($D_{p,kel}$) as a function of distance along the axis centerline ($r = 0$) of the tube, (c) activation efficiency as a function of particle diameter, and (d) droplet growth size as a function of distance along the axis of the tube. The condensational growth of 8 nm particles was simulated along the centerline ($r = 0$).**
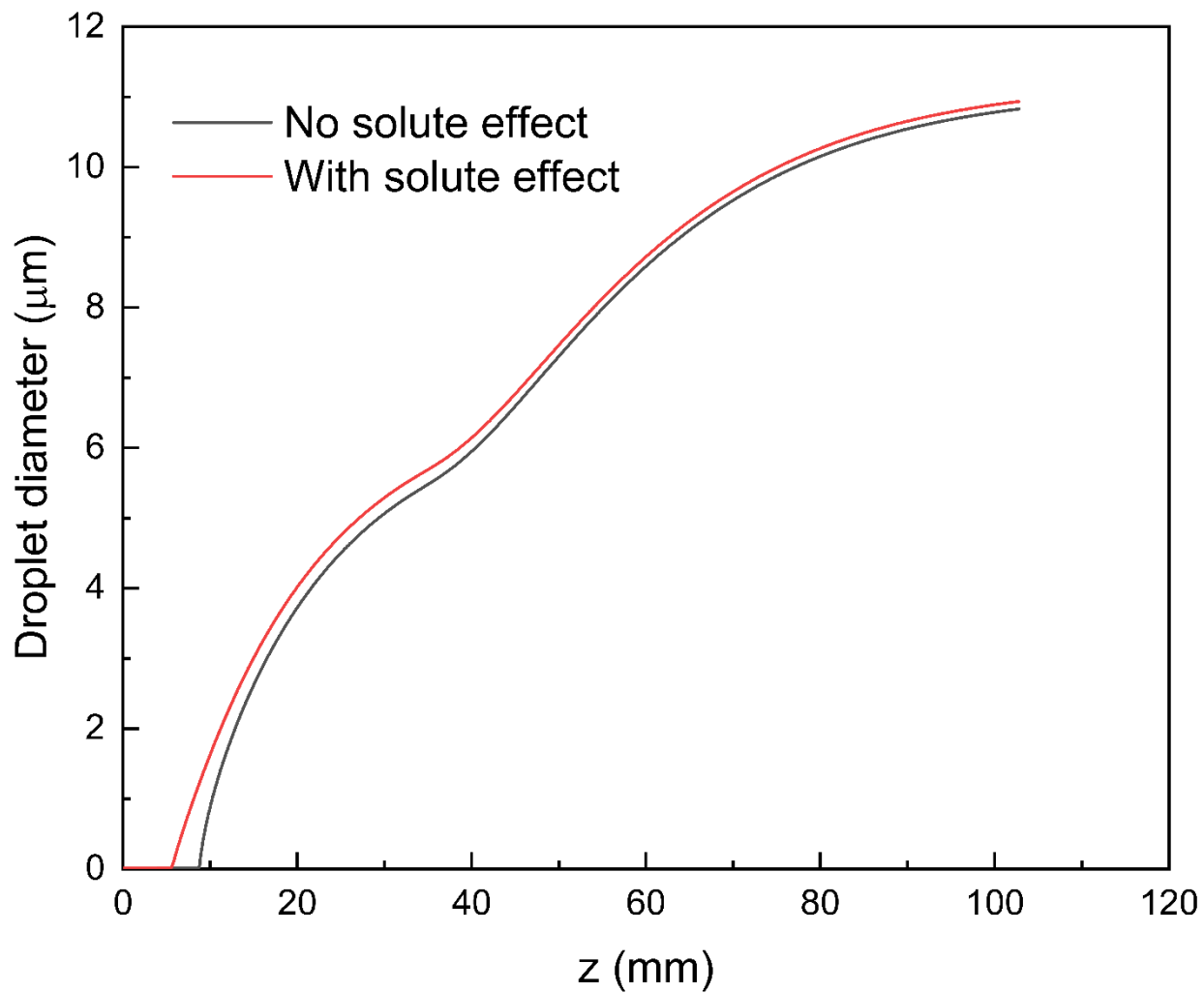
Figure S2. Comparison of with and without solute effect on the droplet growth size as a function of distance along the axis of the tube. The condensational growth of 8 nm particles was tested as seed particles.
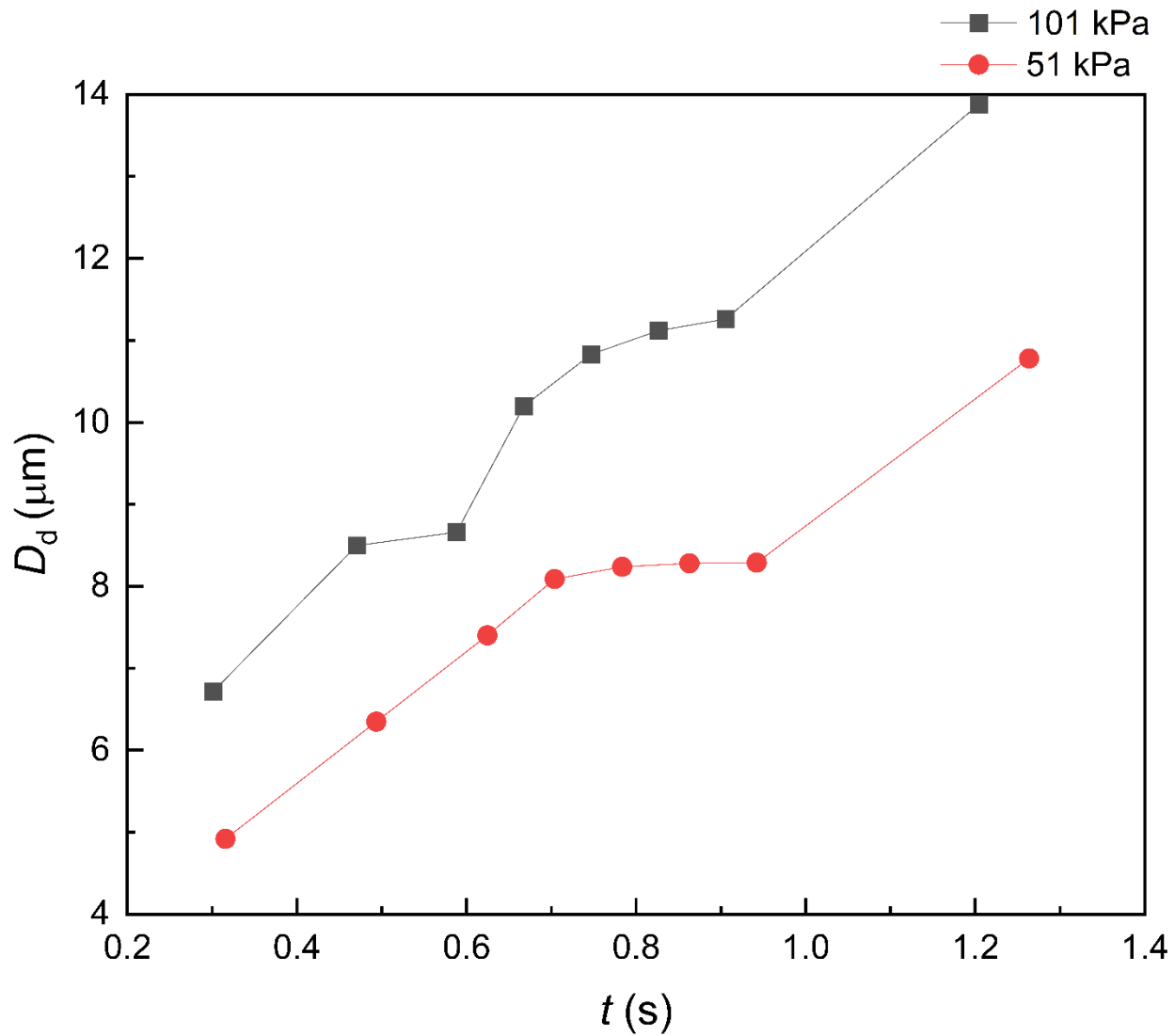
Figure S3. Effect of allowed particle growth time (*t*) at the standard pressure and the reduced pressure of 51 kPa on final growth particle size at the outlet of moderator along the centerline (r = 0), D_d. The condensational growth of 8 nm particles was tested as seed particles.