Supporting information for

Characterization and Demonstration of a Black Carbon Aerosol Mimic for Instrument Evaluation

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**Figure S1.** *D*m of q = +2 (black) and +3 (red) as a function of *D*m for q = +1 for *D*m selected CB aerosol. Dashed lines represent linear best fit of each dataset.



**Figure S2.** a) Aerosol concentration as a function of aerosol mass (mp) for *D*m = 300 nm CB 0.25 (grey), 0.50 (blue) 1.0 (red), 2.0 (green), 4.0 (black) mg CB mL-1 aqueous CB suspensions. b) Peak mp for *D*m = 300 nm CB aerosol as a function of CM suspension concentration.

**Table S1.**

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| *D*m (nm) | *MEC* λ = 405 nm (m2 g-1) | *MEC* λ = 660 nm (m2 g-1) |
| 150 | 13.45 ± 0.86 | 5.79 ± 0.28 |
| 200 | 14.02 ± 0.76 | 6.97 ± 0.43  |
| 250 | 13.84 ± 0.89 | 7.99 ± 0.95 |
| 300 | 13.14 ± 0.91 | 8.33 ± 0.78 |
| 350 | 12.27 ± 0.86 | 8.55 ± 0.96 |
| 400 | 11.83 ± 0.97 | 8.16 ± 1.02 |
| 450 | 11.17 ± 0.81 | 8.64 ± 0.57 |
| 500 | 10.65 ± 0.77 | 8.54 ± 0.62 |