Supplementary Data

for

Filtration of submicron soot particles, oil droplets, and their mixtures on single- and multi-layer fibrous filters
**Fig. S1.** Particle size distribution differences between the mixed aerosol measured concentrations and the sum of the respective soot and oil aerosols concentrations.

**Fig. S2.** Cumulative mass fraction for various aerosols.
Fig. S3. (a) The relative difference in efficiency between multi-layer filters and the product of the individual filter efficiencies and (b) relative difference in pressure drop between filters and the sum of the pressure drops of the individual filter layers.

Fig. S4. The value of the zero moments for different aerosols and different residence times.
Fig. S5. The value of the first moments for different aerosols and different residence times

Fig. S6. The value of the second moments for different aerosols and different residence times

Table S1. Effective density for various aerosols.

| Aerosol          | soot | oil_h | soot+oil_h | soot+oil_l |
|------------------|------|-------|------------|------------|
| Density (kg/m³)  | 280.28 | 914.00 | 907.54     | 857.24     |