**Supplemental Information**

**Evaluation of the Alphasense Optical Particle Counter (OPC-N2) and the Grimm Portable Aerosol Spectrometer (PAS-1.108)**

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| Table S1: Manufacturer-reported and measured sizes of monodispersed PSL particles. | | | | | |
| **PSL size according to the manufacturer (µm)** | **OPC-N2**  **bin range diameter (µm)1** | **PAS-1.108**  **bin range diameter (µm)1** | **APS/SMPS2**  **Median diameter (µm)1** | **APS/SMPS2**  **Mode diameter (µm)1** | **APS/SMPS2**  **Geometric Standard Deviation** |
| 0.5 | 0.38-0.54 | 0.5-0.65 | 0.5 | 0.5 | 1.07 |
| 0.83 | 0.78-1.05 | 0.8-1.0 | 0.82 | 0.84 | 1.1 |
| 1.0 | 0.78-1.05 | 0.8-1.0 | 1.03 | 1.04 | 1.09 |
| 3.0 | 2.07-3.0 | 2.0-3.0 | 2.87 | 2.84 | 1.06 |
| 5.0 | 4.0-5.0 | 4.0-5.0 | 4.7 | 4.7 | 1.04 |
| 1Volumetric diameter | | | | | |
| 2SMPS only for the 0.5 µm particle size. | | | | | |

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| A) Salt |
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| B) Welding fume |
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| C) ARD |
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| Figure S1: Fractional number concentration by size measured for low and high concentrations for A) Salt; B) Welding fume; and C) ARD |

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| A) Salt |
|  |
| B) Welding fume |
|  |
| C) ARD |
|  |
| Figure S1: Fractional mass concentration by size measured for low and high concentrations for A) Salt; B) Welding fume; and C) ARD |