Supplemental Information

for

Inter-comparison of Low-cost Sensors for Measuring the Mass Concentration of Occupational Aerosols

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Table S1: Assumed density and shape factor used in diameter conversions.

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| Aerosol | Density (kg/m3) | Shape Factor |
| Oleic Acid | 900 | - |
| Salt aerosol1 | 2200 | 1.08 |
| Arizona Road Dust2 | 2650 | 1.5 |
| Diesel Fume3 | (540-1200)5 | 2.2 |
| Welding Fume4 | 3400 | (1.9-3.9)6 |

1Peters et al. (1993)

2Endo et al. (1997)

3Park et al. (2004)

4Kim et al. (2009)

5Density was a function of particle diameter Park et al. (2004)

6Shape factor was a function of particle diameter Kim et al. (2009)

For diesel fume, density was calculated as a function of particle diameter but a constant shape factor of 2.2 was used, following Park et al. (2004). Following Kim et al. (2009), we calculated shape factor as a function of particle diameter but assumed a constant density of 3400 kg/m3.

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| Figure S1: pDR-1500 measured mass concentration relative to reference mass concentration for diesel fume. Reference mass concentration was calculated by correcting SMPS+APS data with mass concentration measured with a gravimetric filter for each aerosol. The error bars represent one standard deviation. The y-axis error bars represent one standard deviation. |

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| 1. Low Mass Concentrations | 1. High Mass Concentrations |
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| Figure S2: Size distribution for diesel fumes based on SMPS and APS measurements at steady state concentrations for low (a) and high (b) mass concentrations. | |

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| Figure S3: Size distribution for welding fumes based on SMPS and APS measurements at steady state concentrations. |

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| Figure S4: DC1700 calculated mass concentration relative to reference mass concentration Based on the Regression model. The error bars represent one standard deviation. |
| ARD: Arizona Road Dust |

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| 1. Sharp DN |
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| 1. Sharp GP |
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| Figure S5: Sharp sensors calculated mass concentration relative to reference mass concentration for: A) Sharp DN; B) Sharp GP. The error bars represent one standard deviation. |
| ARD: Arizona Road Dust |