**Table 1 – Raw Data Summary (Mahdavi & Siegel (2020) AS&T – Phase 1)**

| Item # | Raw Data Files & Name Conventions | Raw Data File Description | Variables/Columns | Variables/Columns Explanation |
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| 1 | LDS_Filter_Loading_Master_MAIN_test.xlsx<br><br>Name conventions:<br>n/a | Filter artificial loading master spreadsheet<br><br>(× 1)<br><br>(Total of 1 file with 21 observations corresponding to 21 experiments) | Filter type | Categorial: MERV8, 8e, 11, 14 (based on ASHRAE Standard 52.2) |
| | | | Test dust type | Categorical: ISO-A1, ISO-A2, ASHRAE #2 |
| | | | Test date | Date of test (yymmdd) |
| | | | Experiment no. | Experiment number (#) |
| | | | M_filter_blank | Mass of blank filter (not loaded) (g) |
| | | | Petri-dish_w_dust | Mass of petri-dish w dust before dust sprinkling on the filter (g) |
| | | | Petri-dish_w/o_dust | Mass of petri-dish w/o dust after dust sprinkling on the filter (g) |
| | | | Pre_hepa_sampler | Mass of loading HEPA sock prior to loading procedure (g) |
| | | | Post_hepa_sampler | Mass of loading HEPA sock prior to loading procedure (g) |
| | | | M_filter_pre | Mass of filter after loading prior to any extraction (g) |
| 2 | lds_extraction_tddd_exp_si_ftt_yymmdd.xlsx<br><br>Name conventions:<br>tddd: test dust type (iso1, iso3, ash2)<br>exp: experiment no. (001-021)<br>si: site number (00 in Phase 1 due to lab work)<br>ftt: filter type (08e, 08m, 11e, 14e)<br>yymmdd: data (e.g., 171206) | Lab data sheets collecting gravimetric analyses of samples<br><br>(× 21)<br><br>(Total of 21 xlsx files corresponding to 21 experiments; No. of observations are different depending on the No. of extraction cycles) | M_filter_blank | Mass of blank filter (not loaded) (g) |
| | | | M_filter_pre | Mass of filter after loading prior to any extraction (g) |
| | | | M_dust | Mass of dust loaded in the tested filter (g) |
| | | | M_vd_empty | Mass of recovery container for after-sieve dust before all extraction cycles (g) |
| | | | M_vs_empty | Mass of recovery container for sieved dust prior to all extraction cycles (g) |
| | | | Cycle_N | Dust extraction cycle number over the same filter (#) |
| | | | M_filter_post | Mass of HVAC filter after an extraction cycle (g) |
| | | | M_ph_clean | Mass of the after-sieve HEPA sock prior to an extraction cycle (g) |
| | | | M_ph_full | Mass of the after-sieve HEPA sock after an extraction cycle (g) |
| | | | M_ph_dumped | Mass of the after-sieve HEPA sock after dust transfer in recovery container (g) |
| | | | M_vd | Mass of after-sieve dust recovery container after an extraction cycle (g) |
| | | | M_vs | Mass of sieved dust recovery container after an extraction cycle (g) |
| | | | M_filter_change | Mass extracted from filter after an extraction cycle (g) |
| | | | M_filter_change_cum | Cumulative mass extracted from filter after all extraction cycles over the same filter (g) |
| | | | M_d | Mass of dust recovered from filter after an extraction cycle (after-sieve) (g) |
| | | | M_d_cum | Cumulative mass of dust recovered from the filter after all extraction cycles over the same filter (after-sieve) (g) |
| | | | M_s | Mass of dust recovered from the filter after an extraction cycle (pre-sieve) (%) |
| | | | M_s_cum | Cumulative mass of dust recovered from the filter after all extraction cycles over the same filter (pre-sieve) (g) |
| | | | E | Suction efficiency after an extraction cycle (mass extracted / total mass loaded in the filter) (%) |
| | | | E_cum | Cumulative suction efficiency after all extraction cycles (cumulative mass extracted / total mass loaded in the filter) (%) |

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| | | | C | After-sieve collection efficiency by the sampler (after-sieve mass collected / mass extracted) (%) |
| | | | D | Transfer efficiency after an extraction cycle (mass recovered into after-sieve recovery container / after-sieve mass collected) (%) |
| | | | CE | After-sieve recovery efficiency after an extraction cycle (after-sieve dust mass recovered / dust mass loaded in filter) (%) |
| | | | CE_cum | Cumulative after-sieve recovery efficiency after all extraction cycles (cumulative after-sieve dust mass recovered / dust mass loaded in filter) (%) |
| | | | M_C | Mass closure after an extraction cycle (dust recovered by sieve and after-sieve/ mass extracted from a filter) (%) |
| | | | M_C_cum | Cumulative mass closure after all extraction cycles (cumulative dust recovered by sieve + after-sieve/ cumulative mass extracted from a filter) (%) |
| 3 | v_exp.csv<br>c_exp.csv<br><br><u>Name conventions:</u><br>c, v: stands for "count" and "volume" distributions<br>exp: experiment number (e.g., 001 – 021) | Raw data from laser diffraction particle sizer (LDPS) sensor that measures particle size distribution (PSD) of samples<br><br>(× 21)<br><br>(Total of 21 files corresponding to 21 experiments. Different sample PSDs are recorded in the same csv raw file) | Record Number | A number that tracks the measurements of LDPS (#) |
| | | | Size bins (× 92) | Bin sizes varying from 0.1 to 3500 (total of 92 bins) (µm) |
| | | | Dx(10), Dx(50), Dx(90) | $10^{th}$, $50^{th}$, and $90^{th}$ percentile sizes of the samples PSDs (µm) |
| | | | Sample Name | Name of the sample at the measurement time given by the user |
| | | | Measurement Date Time | Date and time of measurement |
| | | | File Name | Name of the file (including all measurement observations) given by the user |
| | | | SOP File Name | Name of the Standard Operating Procedure (SOP) defined for the LDPS measurement |
| | | | Laser Obscuration | The obscuration of the sensor laser during measurement (%) |
| | | | Particle Refractive Index | Light Index of Refraction (IR) during the measurement (-) |
| | | | Particle Absorption Index | Light Index of Absorption (IR) during the measurement (-) |
| | | | Particle Density | Density of particle assumed in SOP (inputted not measured) ($g/cm^3$) |
| | | | Ultrasonication Duration (SOP) | The duration of ultrasonication to the sample prior to testing (to avoid particle agglomeration during PSD measurement) (s) |
| | | | Ultrasonication Mode | Mode of ultrasonication |
| | | | Original Record Number | The original number tracking LDPS measurement prior to PSD recalculation for changing input parameters (#) |
| | | | Specific Surface Area | Specific surface area of the particles ($\mu m^2$) |
| 4 | dust_psd_ex_tdd_ftt. xlsx<br>Name conventions:<br>ex: experiment number ( 01 –21, 50, 51)<br>tdd: test dust type (e.g., iso or ash corresponding to ISO-A2 or ASHRAE #2 test dust) | Spreadsheets to fit measured PSDs to estimated by the combination of log-normal distributions<br><br>(× 23) | Mode # | Log-normal distribution number (out of 3 or 6 depending on the test dust) (#) |
| | | | Total | Peak volume fraction assigned to the log-normal distribution (%) |
| | | | GSD | Geometric standard deviation assigned to the log-normal distribution (µm) |
| | | | GM | Geometric mean assigned to the log-normal distribution (µm) |
| | | | Mode-Fraction | Fraction of the log-normal mode contributing to the total dust volume (%) |
| | | | Size | Particle size (µm) |
| | | | Mode 1 | The distribution of mode 1 log-normal distribution vs. particle size (%) |

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| | | Total of 23 including 21 recovered dust PSD files along with 2 test dust samples PSD files | Mode 2 | The distribution of mode 2 log-normal distribution vs. particle size (%) |
| | | | Mode 3 | The distribution of mode 3 log-normal distribution vs. particle size (%) |
| | | | Mode 4 (if any) | The distribution of mode 4 log-normal distribution vs. particle size (%) (if any) |
| | | | Mode 5 (if any) | The distribution of mode 5 log-normal distribution vs. particle size (%) (if any) |
| | | | Mode 6 (if any) | The distribution of mode 6 log-normal distribution vs. particle size (%) (if any) |
| | | | Made | Summary of bin distribution from all 6 (or 3) modes (%) |
| | | | Made_Cum | Cumulative distribution from the variable “Made” (%) |