Supplemental Information

**Aerosol Size Distribution Measurement of Electronic Cigarette Emissions Using Combined Differential Mobility and Inertial Impaction Methods. Smoking Machine and Puff Topography Influence.**

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Figure S1. E—cigarettes used for the study.

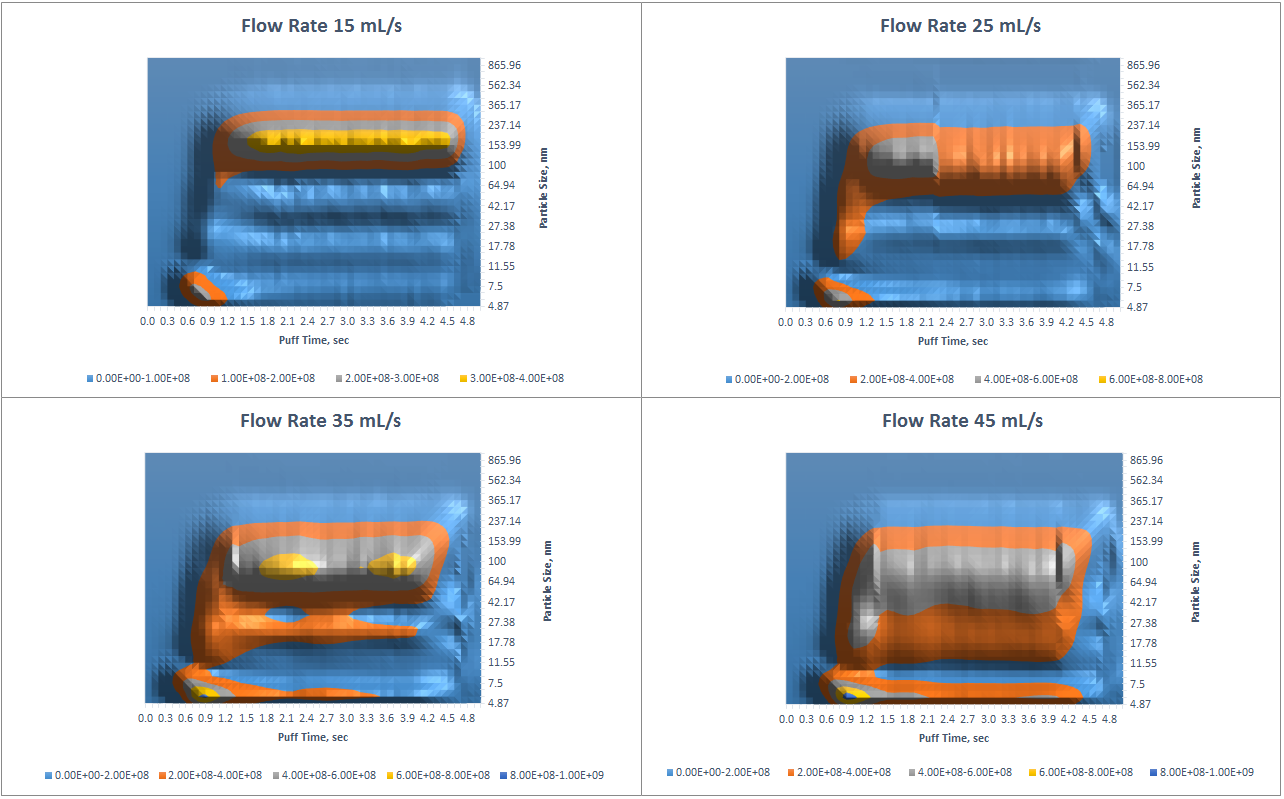


Figure S2. Aerosol Size Distribution, blu Classic Tobacco mid-nicotine. 5 s puff. Flow Rates 15, 25, 35, and 45 mL/s. Contour Plots.

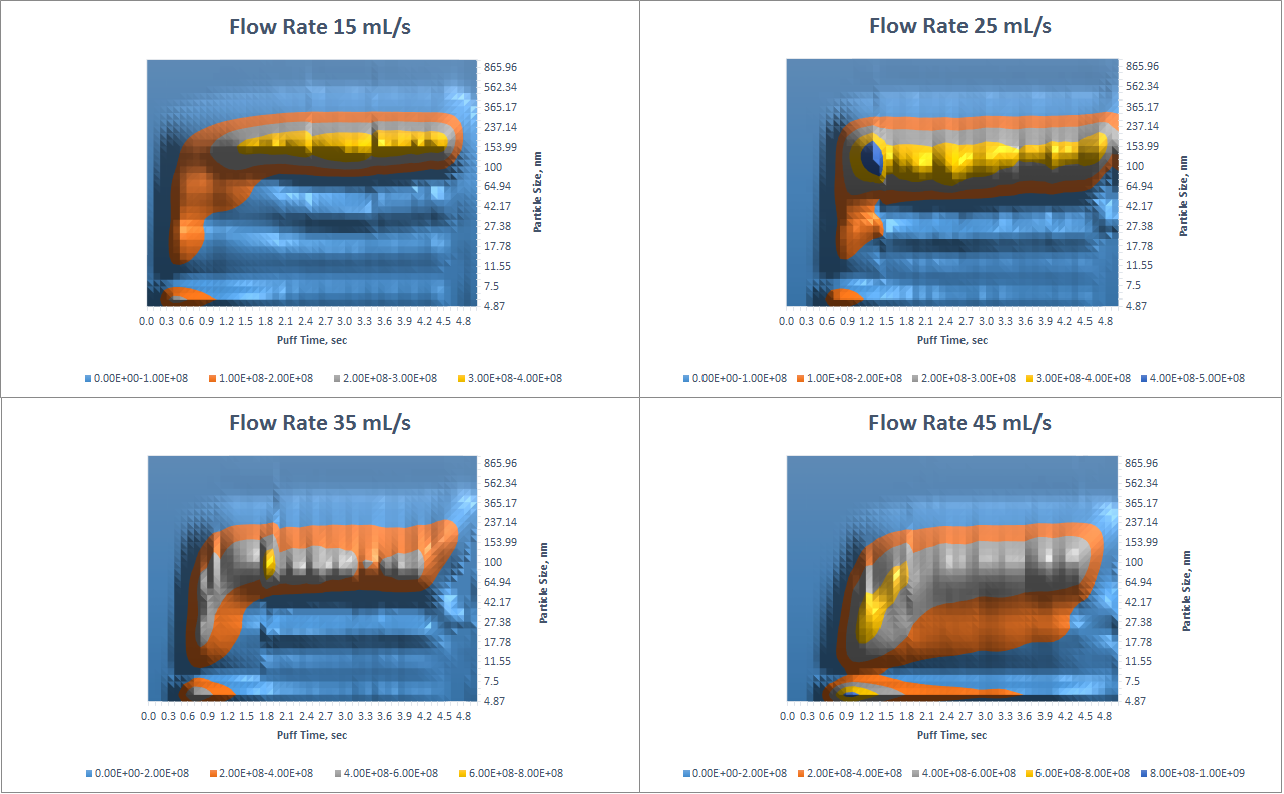


Figure S3. Aerosol Size Distribution, iTaste SVD, PG/VG=50/50, 5 V, 1.8 ohm. 5 s puff. Flow Rates 15, 25, 35, and 45 mL/s. Contour Plots.

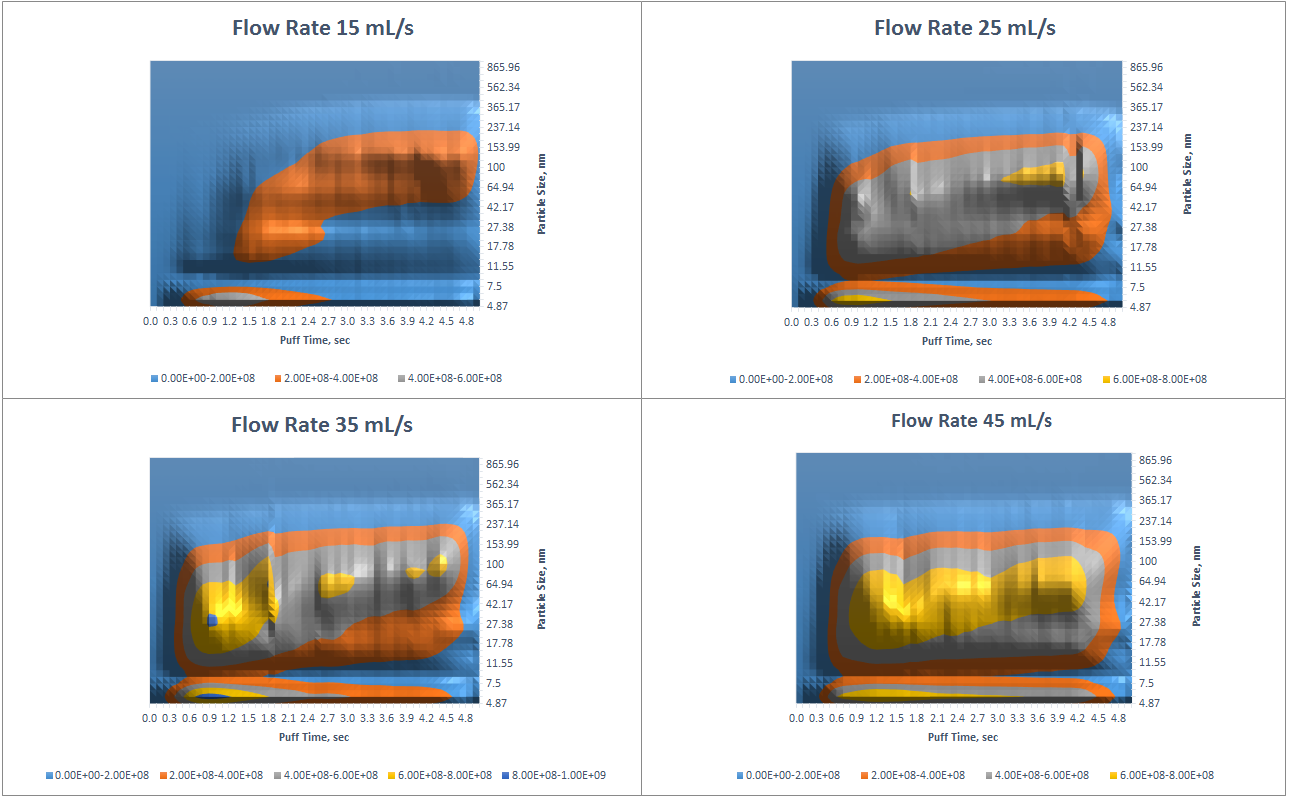


Figure S4. Aerosol Size Distribution, iTaste VTR, PG/VG=50/50, 4 V, 2.1 ohm. 5 s puff. Flow Rates 15, 25, 35, and 45 mL/s. Contour Plots.



Figure S5. Aerosol Size Distribution, HPP2, blu Classic Tobacco mid-nicotine. 5 s puff. Flow Rate 25 mL/s. Contour Plot.

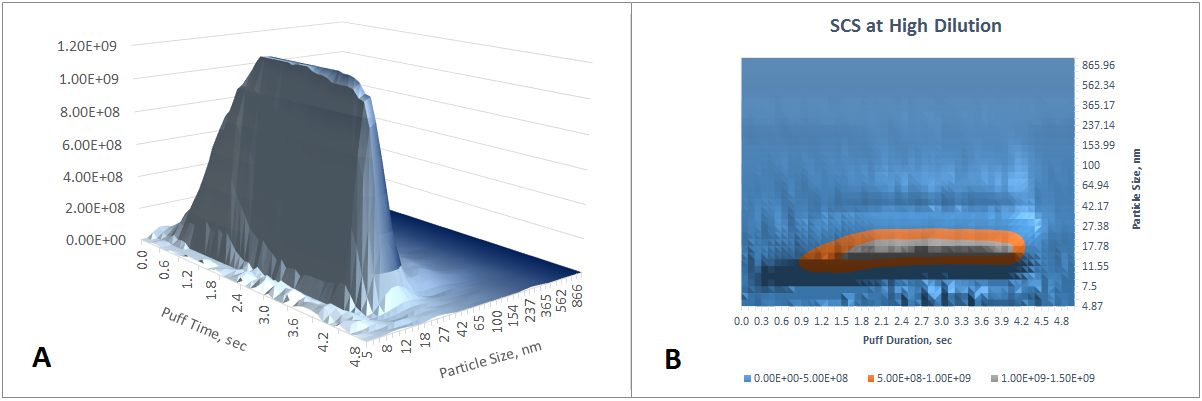


Figure S6. Aerosol Size Distribution, SCS, blu Classic Tobacco mid-nicotine. 5 s puff. Flow Rate 25 mL/s. Extra 1/500 Dilution. A -3D image generated by DMS500 software, B – is a contour plot.

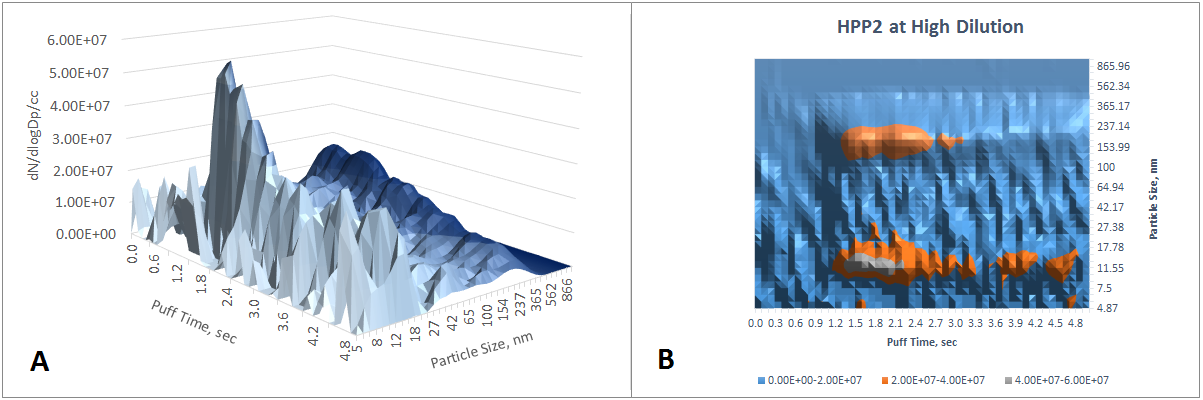


Figure S7. Aerosol Size Distribution, HPP2, blu Classic Tobacco mid-nicotine. 5 s puff. Flow Rate 25 mL/s. Extra 1/500 Dilution. A -3D image generated by DMS500 software, B – is a contour plot.

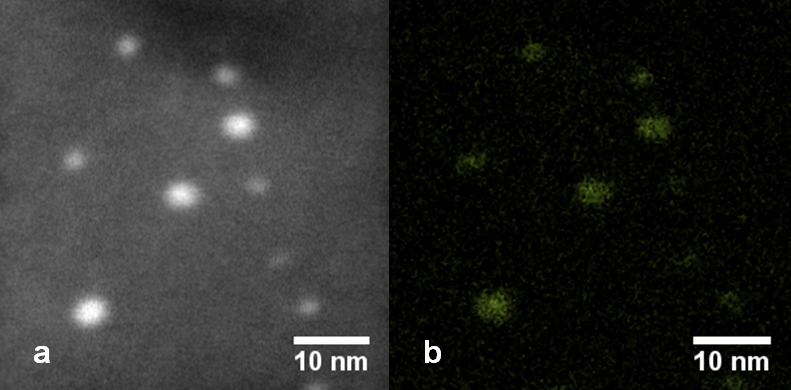


Figure S8. (a) HAADF STEM image of metallic nanoparticles collected on ELPI stage #5 (cut-off size ~93 nm). (b) STEM EDX map indicating the distribution of copper.

Table S1. LC-TOFMS Instrument Conditions

|  |  |
| --- | --- |
| LC-HRMS System  UPLC  Mass Spectrometer | Waters Acquity I-class  AB Sciex TripleTOF 5600 |
| Mass Spectrometer Source | DuoSpray: includes TurboIonSpray and APCI probes |
| Scan Ranges | TOF MS: 50-1000 m/z  IDA: 20-1000 m/z [High Resolution] |
| Mass Spec software | Analyst TF v 1.6 |
| Analytical Column | GL Sciences InertSustain C18; 2.1 × 150 mm, 3 µm |
| Column Temperature | 60°C |
| Autosampler Temperature | 5°C |
| Mobile Phase Components | A: 0.1% (v/v) acetic acid in water  B: 0.1% (v/v) acetic acid in methanol |
| Gradient Profile | |  |  |  | | --- | --- | --- | | Time, min | %B | Flow rate, mL/min | | 0 | 10 | 0.2 | | 0.5 | 10 | 0.2 | | 15 | 100 | 0.2 | | 20 | 100 | 0.2 | | 20.01 | 10 | 0.2 | | 30 | 10 | 0.2 |   All changes linear with respect to time. |
| Injection Volume | 10 µL |
| Run Time | 30 min |

Table S2. Newly formed organic compounds detected in blu e-cig aerosol by LC-TOFMS method.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Flavors** | **Observed m/z** | **LC column retention time, min** | **Mass Spectrometer Signal Intensity** | **Candidate Formula** |
| **Both CC and PC** | 213.07322 | 5.15 | 20005 | C8H11O3F3 |
| 287.13655 | 5.98 | 38596 | C10H19N6O2P |
| 291.13381 | 7.33 | 59950 | C15H18N2O4 |
| 215.11858 | 8.57 | 63037 | C13H14N2O |
| 215.11779 | 9.06 | 57964 | C13H14N2O |
| 239.08879 | 9.25 | 95246 | C8H20N2P2S |
| 295.14427 | 12.29 | 527691 | C18H18N2O2 |
| 309.16 | 13.25 | 203073 | C19H20N2O2 |
| **CC** | 241.06821 | 5.35 | 35704.5 | C9H11O4F3 |
| 225.07326 | 7.05 | 16081.5 | C7H16N2O2S2 |
| 211.08645 | 8.04 | 48740.75 | C13H10N2O |
| 255.07644 | 8.22 | 17532.5 | C14H10N2O3 |
| 293.12834 | 14.61 | 83302.5 | C18H16N2O2 |
| **PC** | 297.15932 | 6.62 | 31673 | C18H20N2O2 |
| 289.10661 | 11.78 | 30544 | C14H18O2F2S |