**Supplementary Material**

**Impact of Select PPE Design Elements and Repeated Laundering in Firefighter Protection from Smoke Exposure**

**Table S1. Toluene, Ethylbenzene, and Xylene concentrations (ppb) under zippered and hook & dee turnout jackets worn by mannequins.**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Analyte** | **Jacket Closure** | **N** | **Mean** | **Median** | **Range** |
| *Toluene* | *Zipper* | 17 | 5,440 | 4,400 | 2,850 – 9,900 |
| *Hook & Dee* | 8 | 6,050 | 5,260 | 2,870 – 11,000 |
| *Ethylbenzene* | *Zipper* | 17 | 190 | 200 | < LODA – 530 |
| *Hook & Dee* | 8 | 370 | 87.2 | < LOD – 2,000 |
| *Xylene* | *Zipper* | 17 | 3,050 | 2,490 | 1,000 – 6,230 |
| *Hook & Dee* | 8 | 3,500 | 3,200 | 1,430 - 8710 |
| 1. Ethylbenzene limit of detection (LOD) = < 75 ppb | | | | | |

**S2. Individual PAH concentration on filters under jackets and under hoods, and in air outside PPE.**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Compound | Median Under Jacket (µg, n=30) | % of total PAHs under jacket | Median under hood (ug, n=24) | % of total PAHs under hoods | Median air concentration (µg/m3, n=9) | % of total PAHs |
| *Anthracene* | 0 | 1.5% | 0 | < 1.0% | 3,405 | 1.9% |
| *Acenaphthene* | 0 | 0 | 0 | 0 | 42.5 | < 1.0% |
| *Benzo(a)anthracene* | 0 | < 1.0% | 0 | < 1.0% | 3,810 | 2.0% |
| *Benzo(a)pyrene* | 0.370 | 4.1% | 0.32 | 1.4% | 4,000 | 2.1% |
| *Benzo(b)fluoranthene* | 0 | < 1.0% | 0 | < 1.0% | 3,800 | 1.9% |
| *Benzo(g,h,i)perylene* | 0 | < 1.0% | 0 | 0 | 2,200 | 1.2% |
| *Fluorene* | 0.350 | 4.3% | 1.3 | 10.3% | 6,800 | 3.9% |
| *Fluoranthene* | 0.405 | 6.7% | 0 | 1.2% | 19,600 | 11% |
| *Benzo(k)fluoranthene* | 0 | 0 | 0 | 0 | 1,300 | < 1.0% |
| *Chrysene* | 0 | < 1.0 % | 0 | < 1.0% | 3,200 | 1.7% |
| *Dibenzo(a,h)anthracene* | 0.530 | 7.4% | 0 | 1.6% | 11,800 | 6.2% |
| *Indeno(1,2,3-cd)pyrene* | 0 | < 1.0% | 0 | < 1.0% | 2,800 | 1.4% |
| *Phenanthrene* | 1.2 | 17% | 1.3 | 9.48% | 24,000 | 13% |
| *Pyrene* | 0 | 2.5% | 0 | < 1.0% | 8,200 | 5.0% |
| *Naphthalene* | 3.65 | 54% | 10.5 | 75% | 84,000 | 47% |
| *Total PAHs* | 7.05 | N/A | 14.7 | N/A | 179,000 | N/A |