

SUPPLEMENTARY MATERIAL

Table S1. Drawing data to Figure 2

Material	PAEs concentrations. $\mu\text{g}\cdot\text{g}^{-1}$ (μg PAE per g of sample)	PAE name				
		DEP	DBP	BBP	DEHP	DNOP
outer shell pre-washing	average	0.092	—	—	2.066	3.207
	SD	0.076	—	—	1.631	0.221
	Min	0.009	—	—	0.184	3.005
	Max	0.158	—	—	3.076	3.444
outer shell post-washing	average	—	0.110	0.014	—	3.263
	SD	—	0.191	0.024	—	0.212
	Min	—	0.000	0.000	—	3.020
	Max	—	0.330	0.041	—	3.07
membrane pre-washing	average	—	30.061	63.372	312.916	141.676
	SD	—	5.551	12.223	120.315	21.079
	Min	—	26.042	54.015	174.625	117.345
	Max	—	36.394	77.201	393.564	154.419
membrane post-washing	average	—	35.056	39.264	53.097	148.239
	SD	—	9.601	6.355	11.685	1.723
	Min	—	23.972	32.972	41.323	146.900
	Max	—	40.811	45.680	64.692	150.183
thermal barrier pre-washing	average	—	5.461	5.756	9.515	10.842
	SD	—	0.414	0.500	2.479	2.577
	Min	—	5.146	5.459	7.674	8.872
	Max	—	5.929	6.333	12.334	13.758
thermal barrier post-washing	average	—	5.518	5.669	7.710	9.010
	SD	—	0.373	0.435	0.467	0.690
	Min	—	5.175	5.413	7.433	8.606
	Max	—	5.916	6.171	8.249	9.807

Table S2. Drawing data to Figure 3

Material	PAEs concentrations. $\mu\text{g}\cdot\text{g}^{-1}$ (μg PAE per g of sample)	PAE name				
		DEP	DBP	BBP	DEHP	DNOP
outer shell pre-washing	average	—	10.876	10.828	11.233	5.469
	SD	—	0.415	0.425	0.312	0.151
	Min	—	10.417	10.375	10.950	5.299
	Max	—	11.223	11.217	11.568	5.586
outer shell post-washing	average	—	10.807	11.123	10.809	5.409
	SD	—	0.506	0.459	0.467	0.209
	Min	—	10.246	10.608	10.289	5.172
	Max	—	11.226	11.489	11.196	5.568
membrane pre-washing	average	—	15.639	14.550	18.882	20.411
	SD	—	0.038	0.628	1.234	0.998
	Min	—	15.607	14.046	17.918	19.799
	Max	—	15.680	15.254	20.272	21.563
membrane post-washing	average	—	15.355	14.224	17.831	20.395
	SD	—	0.844	0.282	0.089	0.420
	Min	—	14.562	13.899	17.729	20.027
	Max	—	16.242	14.404	17.890	20.852
thermal barrier pre-washing	average	—	5.128	7.534	8.741	11.618
	SD	—	0.088	0.107	0.097	0.153
	Min	—	5.049	7.411	8.635	11.508
	Max	—	5.223	7.603	8.825	11.793
thermal barrier post-washing	average	—	5.249	7.466	8.757	11.655
	SD	—	0.089	0.097	0.135	0.166
	Min	—	5.147	7.397	8.654	11.515
	Max	—	5.314	7.576	8.909	11.839

Table S3. Drawing data to Figure 4

Washing effectiveness. %						
Total PAE	Outer shell. clothing A	Outer shell. clothing B	Membrane. clothing A	Membrane. clothing B	Thermal barrier. clothing A	Thermal barrier. clothing B
average	31.50	0.69	48.18	2.31	10.39	−0.31
SD	22.90	1.125	13.63	4.23	9.821	0.231
Min	5.58	−0.18	32.49	−1.58	2.57	−0.53
Max	48.99	1.96	57.15	6.81	21.41	−0.07

Table S4. Results of statistical analysis of the comparison of the total phthalate concentration between material samples from system A and system B for protective clothing used in a live-fire training simulator for pre-wash conditions

Material	Type of clothing	Number of samples	Mean	Standard deviation	Median	Min.	Maks.	t/t_{cc}	df	p value
Outer shell	A	3	5.36	1.89	6.22	3.20	6.68	-25.03	4	<0.0001 ⁽¹⁾
	B	3	38.41	1.29	38.58	37.04	39.59			
Memebrane	A	3	548.02	91.79	590.97	442.64	610.47	9.03	2.00	0.0120 ⁽²⁾
	B	3	69.48	2.89	68.31	67.37	72.77			
Thermal barrier	A	3	31.57	5.93	29.04	27.33	38.35	-0.42	4	0.6948 ⁽¹⁾
	B	3	33.02	0.41	33.03	32.60	33.43			

⁽¹⁾ – t-test result. ⁽²⁾ – t-test result with Cochran-Cox correction.

Table S5. Results of statistical analysis of the comparison of the total phthalate concentration between material samples from system A and system B for protective clothing used in a live-fire training simulator for after-wash conditions

Material	Type of clothing	Number of samples	Mean	Standard deviation	Median	Min.	Maks.	t/t_{cc}	df	p value
Outer shell	A	3	3.39	0.36	3.41	3.02	3.74	-35.85	4	<0.0001 ⁽¹⁾
	B	3	38.15	1.64	38.65	36.31	39.48			
Memebrane	A	3	275.66	20.21	266.57	261.58	298.82	17.76	2.02	0.0030 ⁽²⁾
	B	3	67.80	1.59	67.81	66.22	69.39			
Thermal barrier	A	3	27.91	1.94	26.95	26.63	30.14	-4.53	2.22	0.0373 ⁽²⁾
	B	3	33.13	0.45	33.06	32.71	33.61			

⁽¹⁾ – t-test result. ⁽²⁾ – t-test result with Cochran-Cox correction.

Table S6. Results of statistical analysis of the comparison of phthalate removal effectiveness between material samples from system A and system B for protective clothing in a live-fire training simulator

Material	Type of clothing	Number of samples	Mean	Standard deviation	Median	Min.	Maks.	t/t _{cc}	df	p value
Outer shell	Ubranie 1	3	31.50	22.90	39.93	5.58	48.99	2.33	2.01	0.1448 ⁽¹⁾
	Ubranie 2	3	0.69	1.12	0.29	-0.18	1.96			
Memebrane	Ubranie 1	3	48.18	13.63	54.89	32.49	57.15	5.57	4	0.0051 ⁽²⁾
	Ubranie 2	3	2.32	4.23	1.71	-1.58	6.81			
Thermal barrier	Ubranie 1	3	10.39	9.82	7.18	2.57	21.41	1.89	2.00	0.1998 ⁽¹⁾
	Ubranie 2	3	-0.31	0.23	-0.34	-0.53	-0.07			

⁽¹⁾ – t-test result. ⁽²⁾ – t-test result with Cochran-Cox correction.