On-site inspection system for explosives in a container using dust collection through a vent cover and ion mobility spectrometric detection

Supplementary Material

Table S1 Collection weights of the model dust through the vent cover ($\mathbf{W_{col}}$, μg).

Model dust	Sample position		
	A	B	C
Cotton fabric (CF)	801±51	1134±60	1899±90
Sawdust (SD)	930±120	1431±81	2100±150
Clay (CL)	69±30	300±99	531±60
Silica (SL)	570±30	630±30	831±30

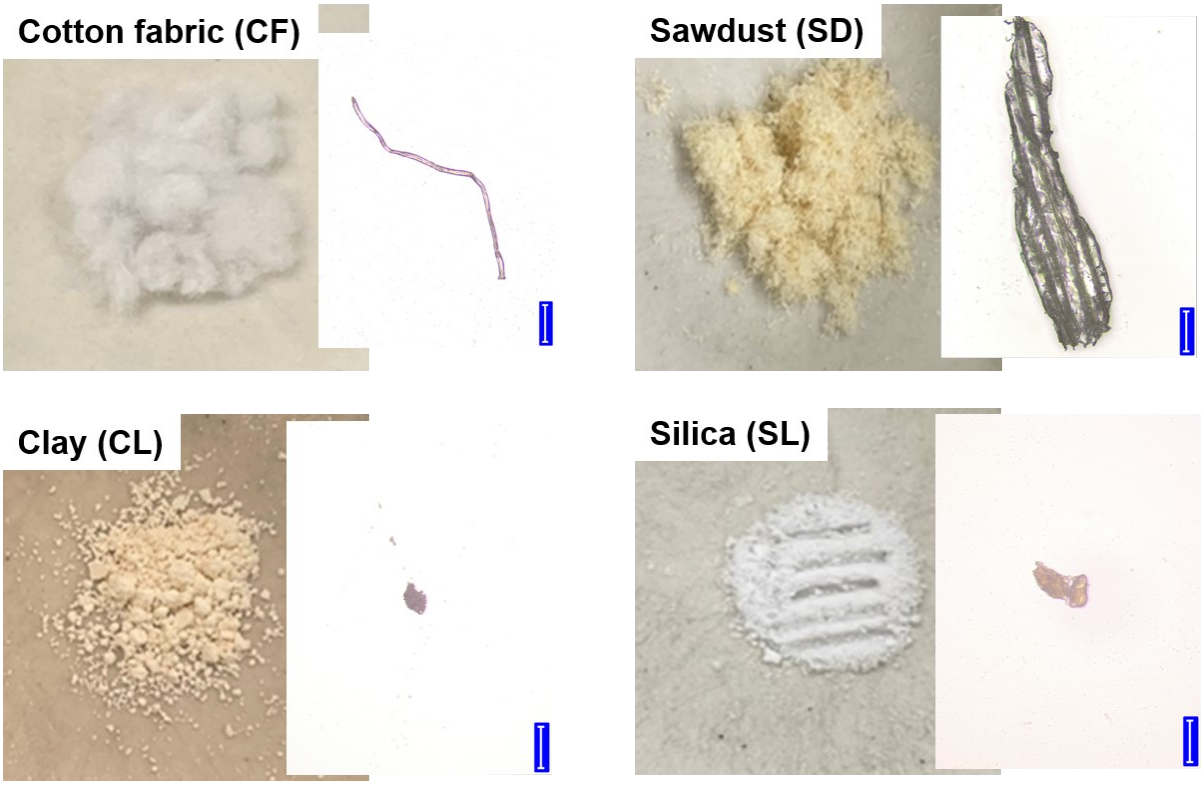

Fig. S1 Photos and magnified images (×100) of the single particles. The scale bars are 100 μm.

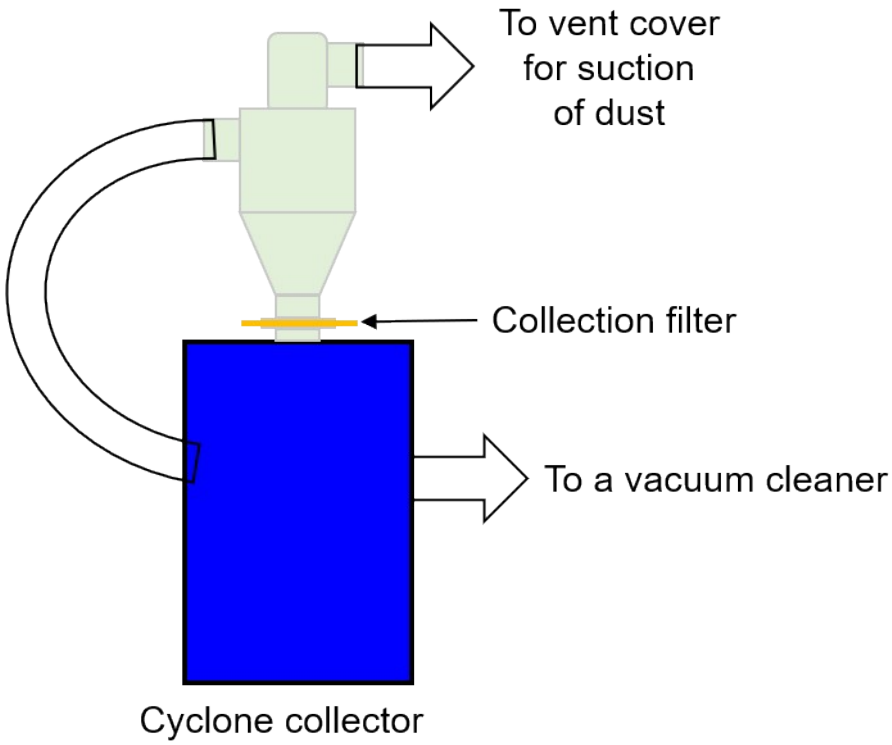

Fig. S2 Schematic diagram of apparatus for suction of dust in a vent cover using a cyclone collector and a vacuum cleaner.

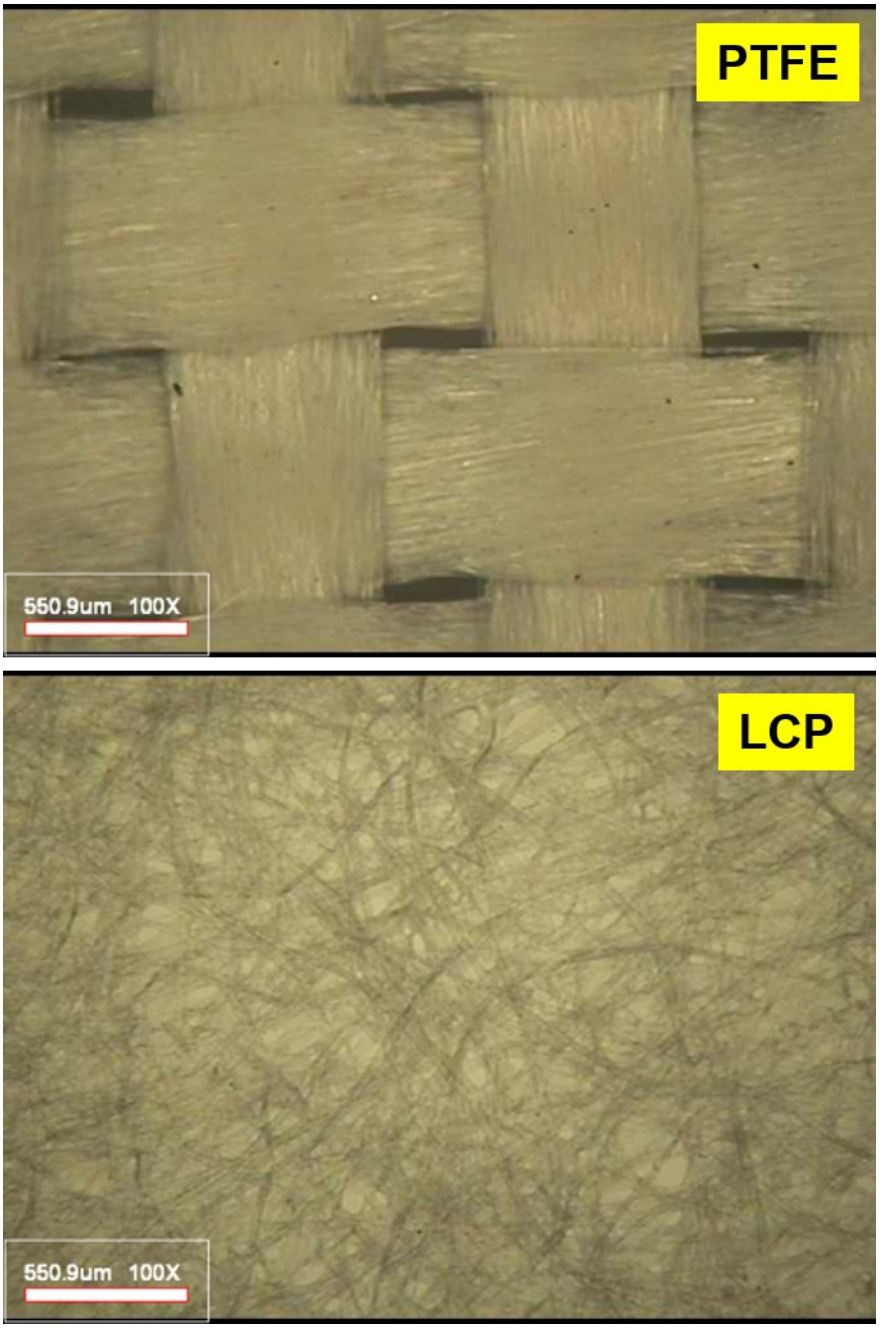

Fig. S3 Magnified images of the PTFE and LCP collection filters. The scale bars are 550.9 μm.

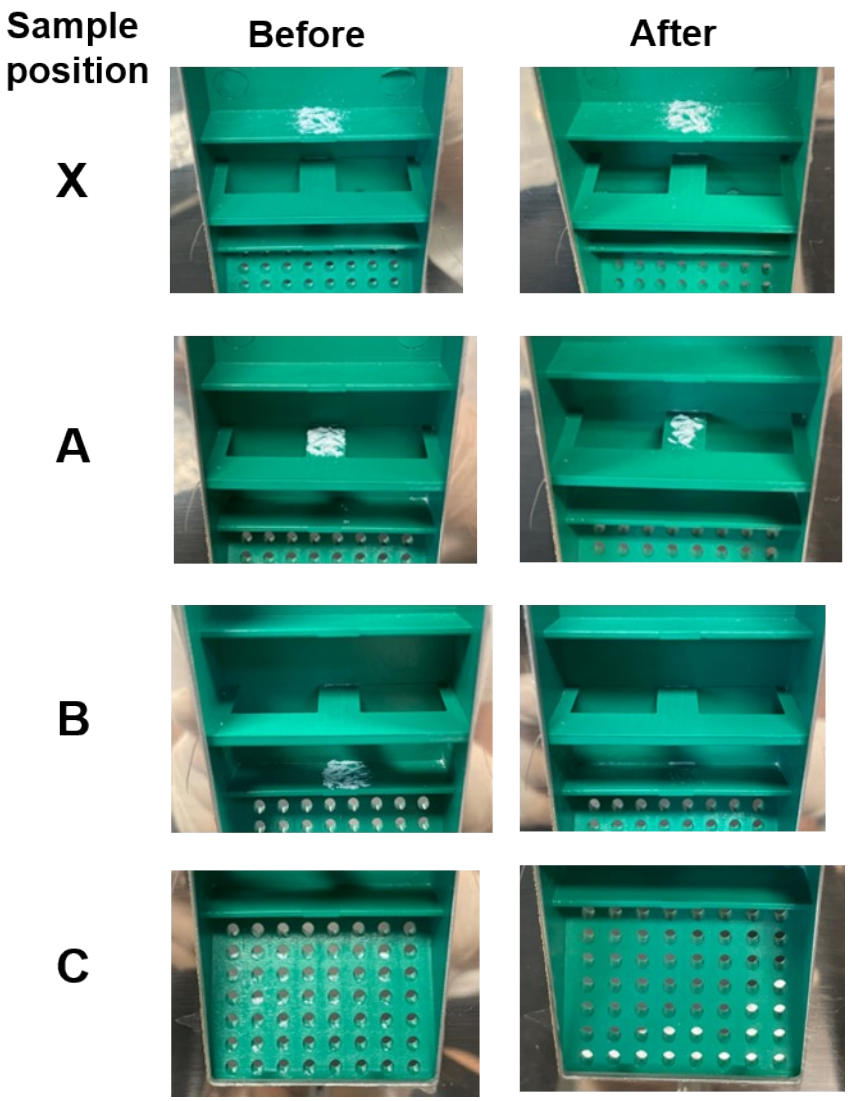

Fig. S4 Photos of the insides of the vent cover before and after suction of dust.

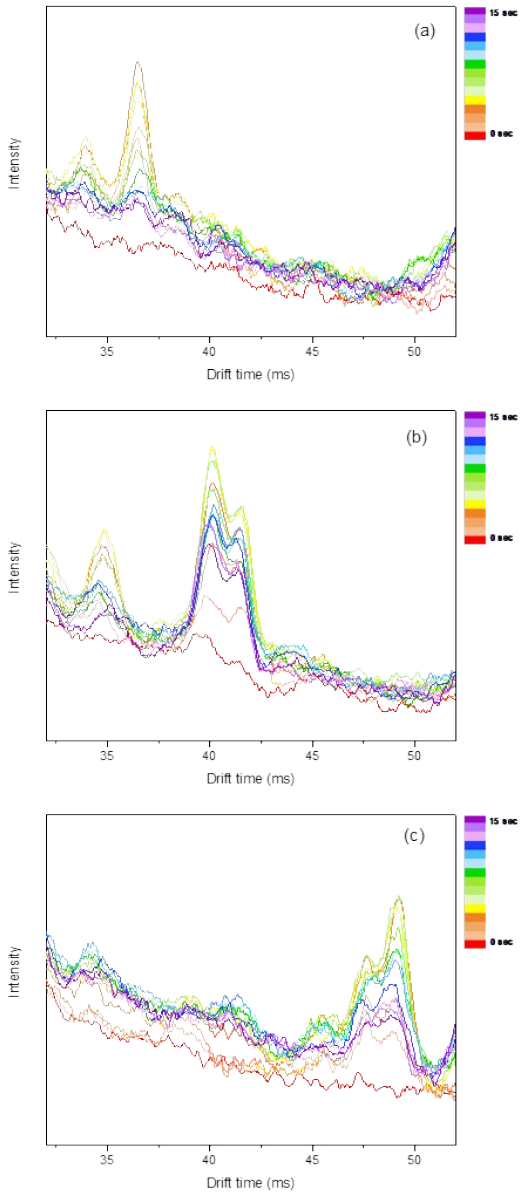

Fig. S5 IMS spectra of TNT (a), RDX (b), and PETN (c) at the minimum concentrations of explosives adsorbed in the model dusts ($\mathbf{C_{min}}$). LCP and CF were used as the collection filter and dust, respectively. The samples were collected at the Position-C.

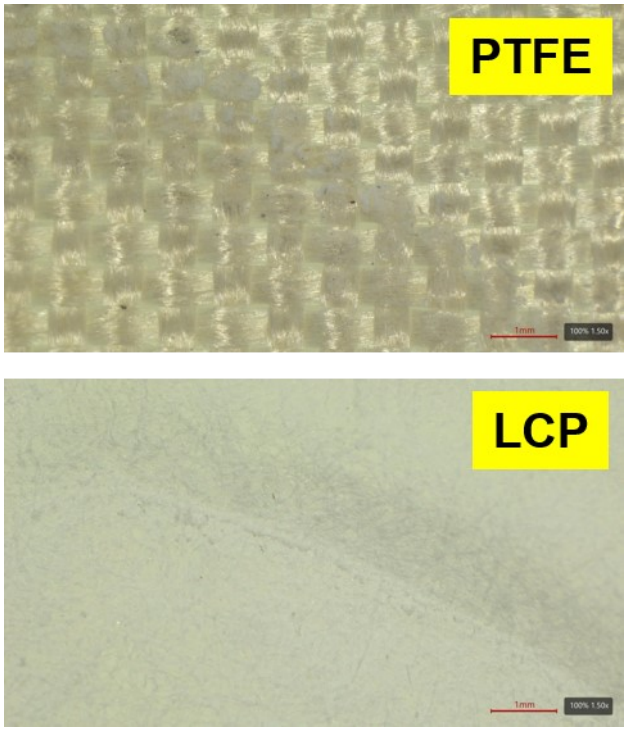

Fig. S6 Magnified images of the PTFE and LCP collection filters after collection of the CL dust. The scale bars are 1 mm.

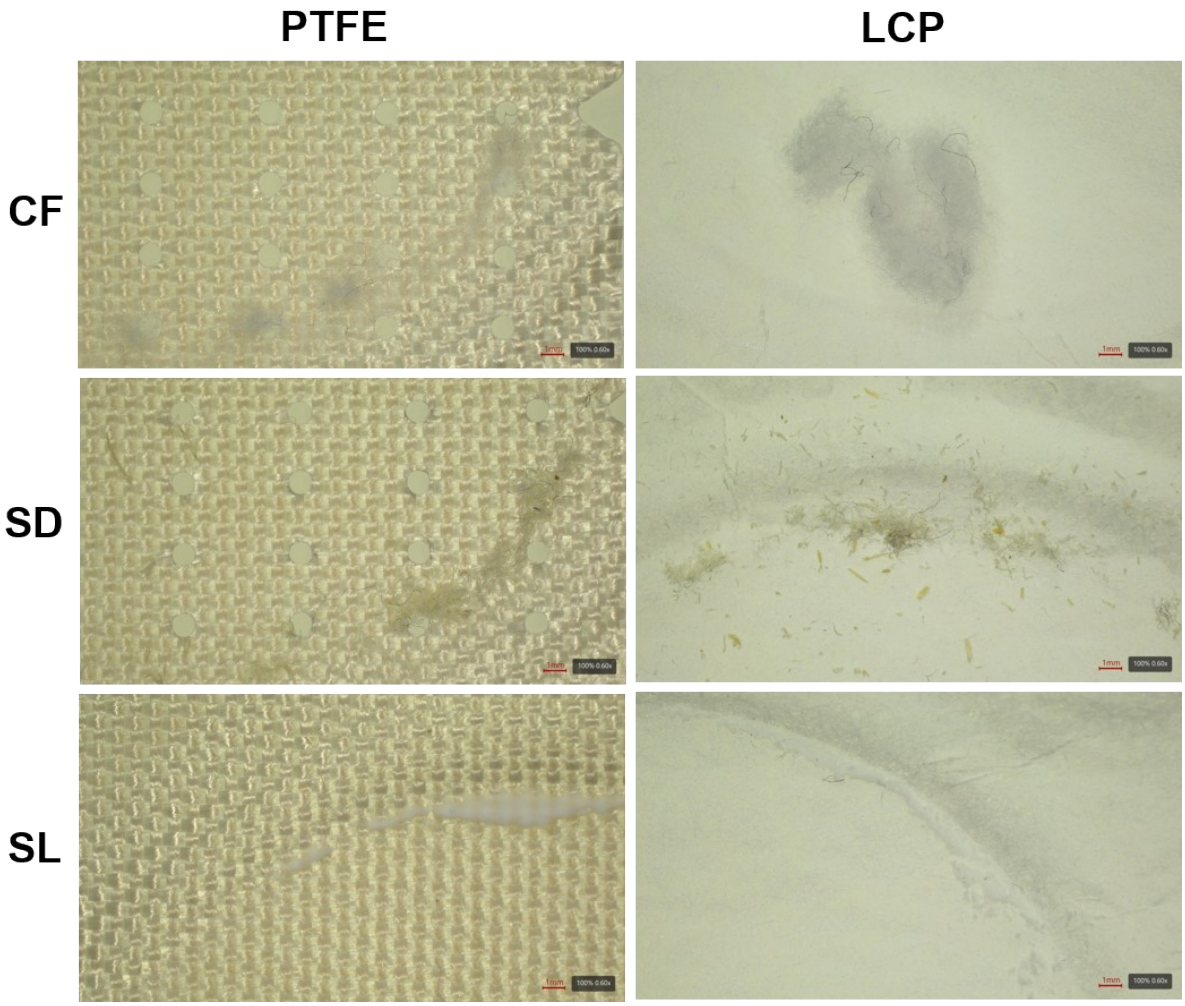

Fig. S7 Magnified images of the PTFE and LCP collection filters after collection of the CF, SD, and SL dust. The scale bars are 1 mm.