NIR hyperspectral images for identification of gunshot residue from tagged ammunition

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Figure S1: NIR average spectra (preprocessed with SNV) obtained from the images of GSR on the masking tape substrate.
Figure S2: Distribution maps of sample containing EuBDC 1 collected from weapon. The first row represents the distribution maps, the mean relative concentration (C) and the corresponding VCS image. The second row represents the pure spectrum of each component (blue) and the reconstructed spectra restored by the model (red) of each component. C represents the mean relative concentration of each component. The dimensions of the image in micrometers are 3030 x 1530.

Figure S3: Distribution maps of sample containing EuBDC 2 collected from cartridge. The first row represents the distribution maps, the mean relative concentration (C) and the corresponding VCS image. The second row represents the pure spectrum of each component (blue) and the reconstructed spectra restored by the model (red) of each component. C represents the mean relative concentration of each component. The dimensions of the image in micrometers are 3030 x 630.
Figure S4: Distribution maps of sample containing EuBDC 3 collected from hand. The first row represents the distribution maps, the mean relative concentration (C) and the corresponding VSC image. The second row represents the pure spectrum of each component (blue) and the reconstructed spectra restored by the model (red) of each component. C represents the mean relative concentration of each component. The dimensions of the image in micrometers are 3030 x 3030.

Figure S5: Distribution maps of sample containing EuBDC 4 collected from hand. The first row represents the distribution maps, the mean relative concentration (C) and the corresponding VSC image. The second row represents the pure spectrum of each component (blue) and the reconstructed spectra restored by the model (red) of each component. C represents the mean relative concentration of each component. The dimensions of the image in micrometers are 1620 x 360.
Figure S6: Distribution maps of sample containing EuBDC 5 collected from cartridge. The first row represents the distribution maps, the mean relative concentration (C) and the corresponding VSC image. The second row represents the pure spectrum of each component (blue) and the reconstructed spectra restored by the model (red) of each component. C represents the mean relative concentration of each component. The dimensions of the image in micrometers are 450 x 780.

Figure S7: Distribution maps of sample containing EuBDC 6 collected from cartridge. The first row represents the distribution maps, the mean relative concentration (C) and the corresponding VSC image. The second row represents the pure spectrum of each component (blue) and the reconstructed spectra restored by the model (red) of each component. C represents the mean relative concentration of each component. The dimensions of the image in micrometers are 1080 x 510.
Figure S8: Distribution maps of sample containing EuBTC 1 collected from weapon. The first row represents the distribution maps, the mean relative concentration (C) and the corresponding VSC image. The second row represents the pure spectrum of each component (blue) and the reconstructed spectra restored by the model (red) of each component. C represents the mean relative concentration of each component. The dimensions of the image in micrometers are 3030 x 1530.

Figure S9: Distribution maps of sample containing EuBTC 2 collected from cartridge. The first row represents the distribution maps, the mean relative concentration (C) and the corresponding VSC image. The second row represents the pure spectrum of each component (blue) and the reconstructed spectra restored by the model (red) of each component. C represents the mean relative concentration of each component. The dimensions of the image in micrometers are 1530 x 330.
Figure S10: Distribution maps of sample containing EuBTC 3 collected from hand. The first row represents the distribution maps, the mean relative concentration (C) and the corresponding VSC image. The second row represents the pure spectrum of each component (blue) and the reconstructed spectra restored by the model (red) of each component. C represents the mean relative concentration of each component. The dimensions of the image in micrometers are 3030 x 630.

Figure S11: Distribution maps of sample containing EuBTC 4 collected from cartridge. The first row represents the distribution maps, the mean relative concentration (C) and the corresponding VSC image. The second row represents the pure spectrum of each component (blue) and the reconstructed spectra restored by the model (red) of each component. C represents the mean relative concentration of each component. The dimensions of the image in micrometers are 1080 x 330.
Figure S12: Distribution maps of sample containing EuBTC 5 collected from cartridge. The first row represents the distribution maps, the mean relative concentration (C) and the corresponding VSC image. The second row represents the pure spectrum of each component (blue) and the reconstructed spectra restored by the model (red) of each component. C represents the mean relative concentration of each component. The dimensions of the image in micrometers are 5130 x 4230.

Figure S13: Distribution maps of sample containing EuBTC 6 collected from cartridge. The first row represents the distribution maps, the mean relative concentration (C) and the corresponding VSC image. The second row represents the pure spectrum of each component (blue) and the reconstructed spectra restored by the model (red) of each component. C represents the mean relative concentration of each component. The dimensions of the image in micrometers are 1830 x 1230.
Figure S14: Distribution maps of sample containing EuDPA 1 collected from weapon. The first row represents the distribution maps, the mean relative concentration (C) and the corresponding VSC image. The second row represents the pure spectrum of each component (blue) and the reconstructed spectra restored by the model (red) of each component. C represents the mean relative concentration of each component. The dimensions of the image in micrometers are 3030 x 1530.

Figure S15: Distribution maps of sample containing EuDPA 2 collected from cartridge. The first row represents the distribution maps, the mean relative concentration (C) and the corresponding VSC image. The second row represents the pure spectrum of each component (blue) and the reconstructed spectra restored by the model (red) of each component. C represents the mean relative concentration of each component. The dimensions of the image in micrometers are 9030 x 1530.
Figure S16: Distribution maps of sample containing EuDPA 3 collected from hand. The first row represents the distribution maps, the mean relative concentration (C) and the corresponding VSC image. The second row represents the pure spectrum of each component (blue) and the reconstructed spectra restored by the model (red) of each component. C represents the mean relative concentration of each component. The dimensions of the image in micrometers are 6030 x 1530.

Figure S17: Distribution maps of sample containing EuDPA 4 collected from cartridge. The first row represents the distribution maps, the mean relative concentration (C) and the corresponding VSC image. The second row represents the pure spectrum of each component (blue) and the reconstructed spectra restored by the model (red) of each component. C represents the mean relative concentration of each component. The dimensions of the image in micrometers are 2400 x 870.
Figure S18: Distribution maps of sample containing EuDPA 5 collected from cartridge. The first row represents the distribution maps, the mean relative concentration (C) and the corresponding VSC image. The second row represents the pure spectrum of each component (blue) and the reconstructed spectra restored by the model (red) of each component. C represents the mean relative concentration of each component. The dimensions of the image in micrometers are 1680 x 1020.

Figure S19: Distribution maps of sample containing EuDPA 6 collected from cartridge. The first row represents the distribution maps, the mean relative concentration (C) and the corresponding VSC image. The second row represents the pure spectrum of each component (blue) and the reconstructed spectra restored by the model (red) of each component. C represents the mean relative concentration of each component. The dimensions of the image in micrometers are 1530 x 630.
Figure S20: Distribution maps of sample containing EuDPA 7 collected from cartridge. The first row represents the distribution maps, the mean relative concentration (C) and the corresponding VSC image. The second row represents the pure spectrum of each component (blue) and the reconstructed spectra restored by the model (red) of each component. C represents the mean relative concentration of each component. The dimensions of the image in micrometers are 4230 x 4530.