

ELECTRONIC SUPPLEMENTARY INFORMATION



Figure S1. Photograph of in-house built reactive stage in the tandem IMS.

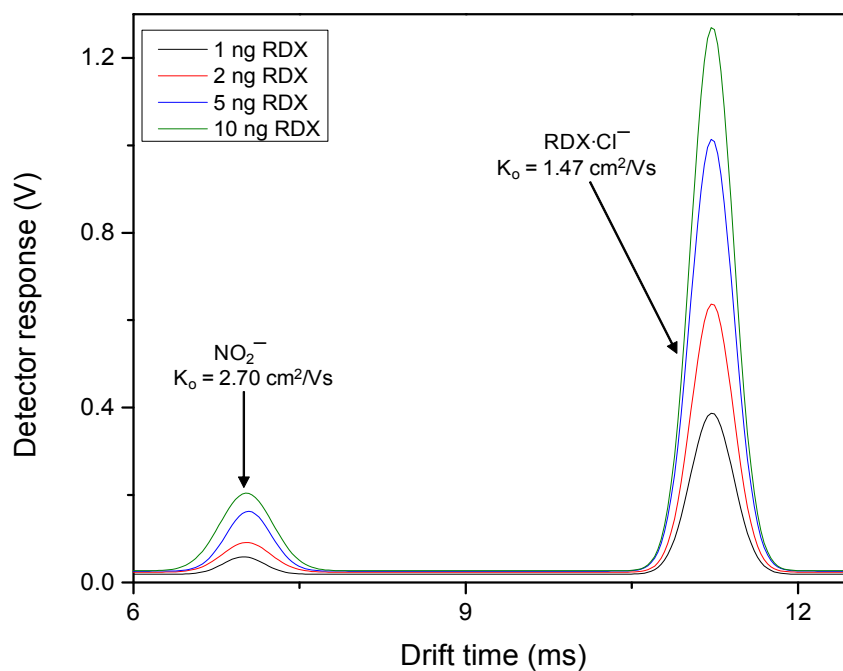


Figure S2. Ion mobility spectra of the chloride adduct of RDX at 170°C using mobility isolation and field induced decomposition at 112 Td in the reactive stage for different amounts of RDX on sample trap.

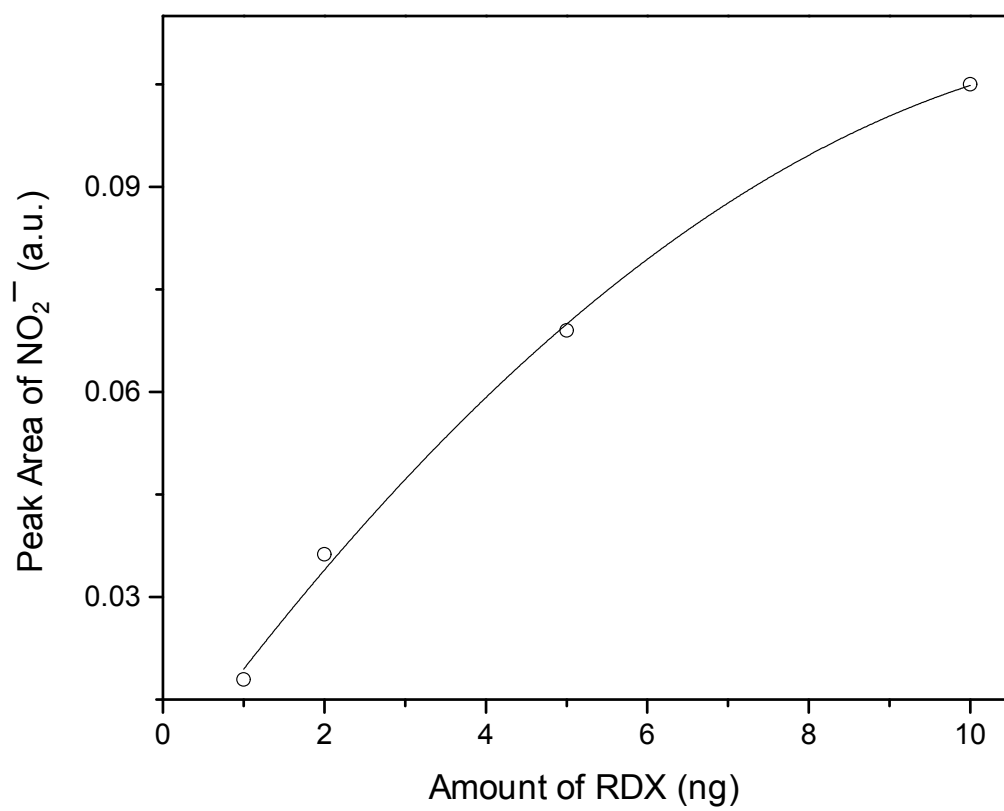


Figure S3. Plot of peak area of NO₂⁻ vs different amounts of RDX·Cl⁻ at 112 Td and 170 °C. The average standard deviation was 8.2 %.

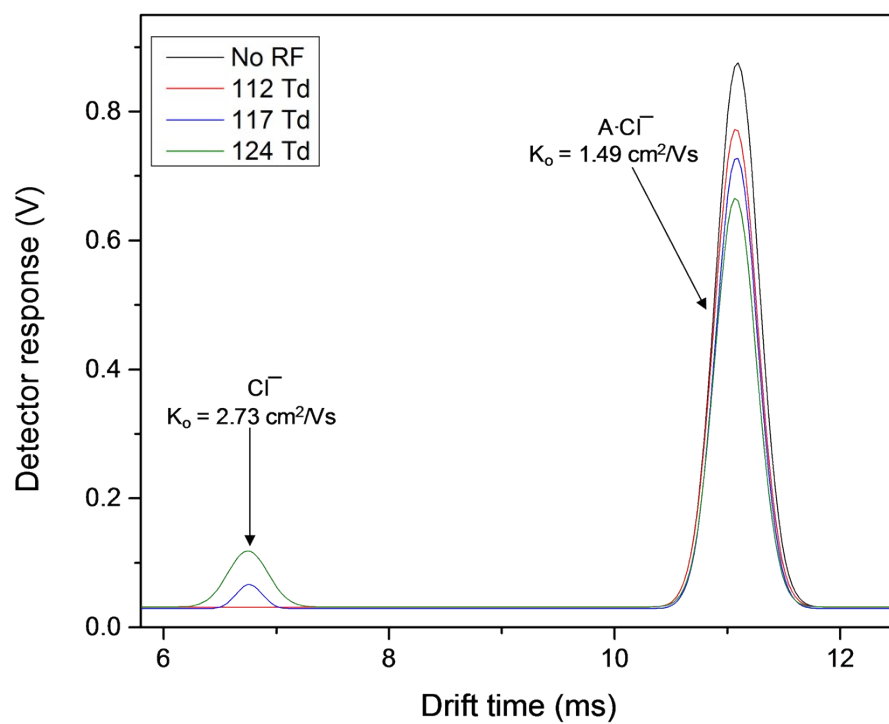


Figure S4. Ion mobility spectra at 170 °C for the chloride adduct of 10 ng Interferent A using mobility isolation at different electric fields.

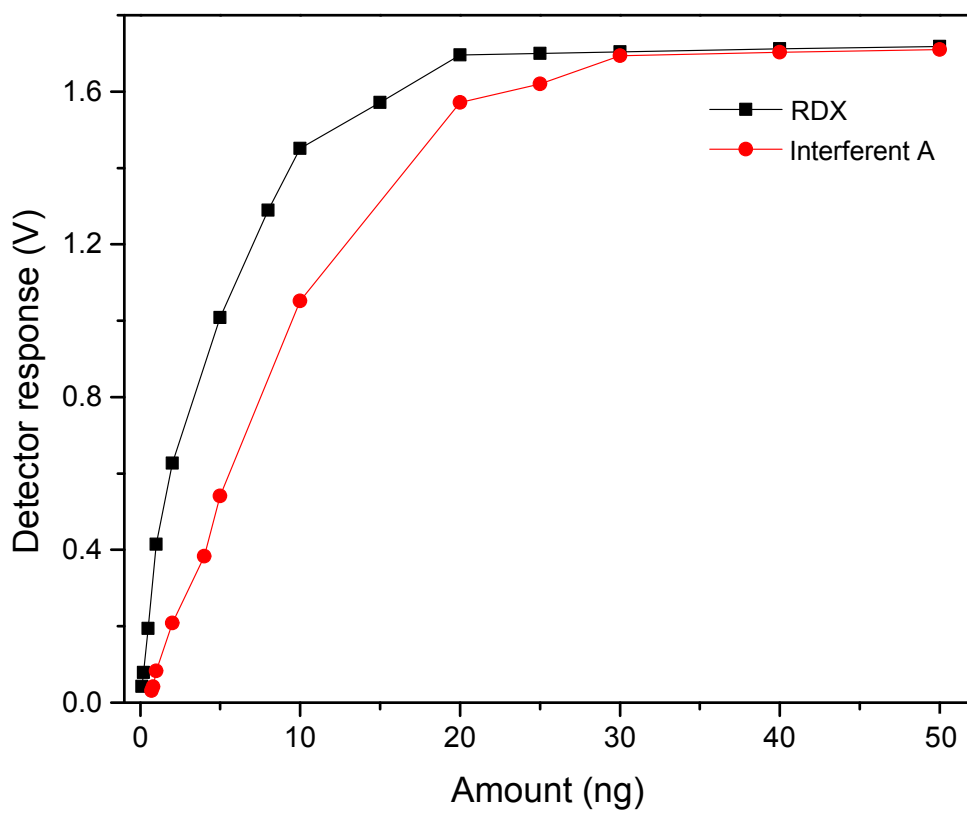


Figure S5. Response curve for chloride adduct of RDX and Interferent A using mode 2 at 170°C.

Table S1. Mobility Isolated Spectra of RDX

	1 ng RDX	2 ng RDX	5 ng RDX	10 ng RDX
Drift time (ms)	11.225	11.222	11.221	11.222
Intensity (V)	0.445	0.649	0.985	1.402
Peak Area	0.216	0.302	0.512	0.682
Peak width	0.900	0.980	1.010	1.040

Table S2. Mobility spectra for NO_2^- obtained from 10 ng RDX at different electric fields

	102 Td	112 Td	117 Td	123 Td
Drift time (ms)	6.972	6.971	6.982	6.982
Intensity (V)	0.061	0.088	0.197	0.255
Peak Area	0.0535	0.0836	0.117	0.154
Peak width	0.701	0.853	0.982	1.000

Table S3. Data for nitrite ion at various amounts of RDX at 112 Td.

	1 ng	2 ng	5 ng	10 ng
Drift time (ms)	6.982	6.971	6.990	6.981
Intensity (V)	0.042	0.075	0.145	0.187
Peak Area	0.0182	0.035	0.066	0.102
Peak width	0.701	0.858	0.955	1.040

Table S4. Table for different amount of A

	1 ng A	2 ng A	4 ng A	6 ng A	10 ng A
Drift time (t_d)	11.071	11.068	11.064	11.066	11.063
Intensity (V)	0.141	0.258	0.395	0.605	0.925
Peak Area (au)	0.071	0.131	0.193	0.279	0.436
Peak width (ms)	0.935	0.951	0.990	1.000	1.020

Table S5. Table for Nitrite obtained from 2 ng RDX+ diff. amount A at 112 Td

	0 ng A	1 ng A	2 ng A	4 ng A	6 ng A	10 ng A	Average
Drift time (t_d)	6.978	6.985	6.951	6.978	6.928	6.978	6.966±0.29 %
FWHM (ms)	0.555	0.428	0.547	0.499	0.507	0.415	0.492±11.98 %

Table S6. Difference in Response with increase in RDX ($\Delta \text{area} / \Delta \text{RDX}$) at six amounts of Interferent A (ng)

	Interferent A (ng)						
	0	1	2	4	6	10	
ΔRDX (ng)	Mode 3. Chloride Adduct						
2 to 4 ng	0.053	0.054	0.040	0.038	0.041	0.032	39.62 %
4 to 5 ng	0.042	0.050	0.049	0.038	0.037	0.031	26.19 %
	Nitrite ion Mode 2 at 112 Td						
2 to 4 ng	0.013	0.013	0.011	0.013	0.012	0.012	7.69 %
4 to 5 ng	0.006	0.005	0.006	0.004	0.008	0.0055	8.33 %
	Residual Adduct Mode 2 at 112 Td						
2 to 4 ng	0.022	0.022	0.020	0.018	0.019	0.017	22.72 %
4 to 5 ng	0.019	0.018	0.016	0.017	0.016	0.016	15.76 %