

Supplementary Information:

A pulsed laser photolysis - pulsed laser induced fluorescence study of the kinetics and mechanism of the reaction of HgBr with NO₂ and O₂

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Table S1: Values of the decay rates for the decays shown in Figures 3a and 3b. The errors and the error as a % of the decay rate are shown.

NO2	decay rate	error	error as %
3.71E+15	236592	2274.08	0.96118212
3.10E+15	198693	1968.43	0.99068915
2.55E+15	163852	1960.51	1.19651271
2.05E+15	138562	1204.35	0.8691777
1.53E+15	97607.6	1100.52	1.12749417
9.77E+14	68908.4	942.89	1.36832375
1.33E+15	84290.7	913.98	1.08431891
8.20E+14	51431.6	704.52	1.36981933
5.24E+14	32870.7	204.17	0.62113067
2.33E+14	14904.6	95.7	0.64208365
7.83E+13	4038.53	75.84	1.87791102

Table S2:

The calculated rate coefficients together with the 2σ error and zero concentration offsets for all the pseudo first order decay plots in Figure S1.

	Flow				Absorption			
N2	Rate	Rate Error	Offset	Offs Error	Rate	Error	Offset	Offs Error
150	5.7E-11	1.6E-12	187.914	261.147				
150	5.7E-11	1.6E-12	631.372	254.336				
600	8E-11	7.9E-13	11792.9	830.886				
500	8.6E-11	5.1E-13	7584.37	388.365				
400	8.1E-11	1.4E-12	6675.96	1390.94				
400	6.5E-11	8.3E-13	14833.6	1462.1	6.6E-11	7.6E-13	18.9729	1450.82
300	5.8E-11	3.4E-12	8549.51	6389.48	6.1E-11	1.8E-12	52.6943	3331.46
200	5.6E-11	2.4E-13	7320.19	343.211	5.9E-11	3.2E-13	1582.29	461.636
60	3.9E-11	2.6E-13	11904	875.436	4.4E-11	2.4E-13	197.351	764.07
100	4.5E-11	3.4E-13	10149.4	645.114	4.8E-11	6.1E-13	10.2057	1210.58
755	6.9E-11	1.4E-12	26563.8	6338.84	7.3E-11	1.3E-12	-136.208	5814.3
600	6.7E-11	9.3E-13	21334.8	3063.93	6.9E-11	9.3E-13	3026.04	3124.13
500	6.5E-11	5.2E-13	15788.5	1406.27	6.8E-11	5.1E-13	806.785	1409.92
	Flow				Absorption			
Air	Rate	Rate Error	Offset	Offs Error	Rate	Error	Offset	Offs Error
600	6.4E-11	6E-13	18790.4	1567.97	6.7E-11	5.5E-13	270.564	1506.67
	Flow				Absorption			
He	Rate	Rate Error	Offset	Offs Error	Rate	Error	Offset	Offs Error
750	2.7E-11	4.8E-13	8098.08	2128.85				
600	5.4E-11	1E-12	20399.2	4337.51	5.5E-11	6.9E-13	5031.34	3015.33
400	5.4E-11	7.8E-13	6812.58	2894.02	5.2E-11	5.3E-13	-493.718	2057.2
150	4.1E-11	8.3E-13	1437.81	1301.44	4.4E-11	7.4E-13	2070.86	1076.61
100	3.5E-11	9.7E-13	6318.39	2749.52	3.6E-11	8.9E-13	1768.12	2528.91
50	2.5E-11	2.8E-14	7373.71	63.5709	2.9E-11	5.8E-13	2215.51	1231.9
30	1.5E-11	2.5E-13	11061.8	693.185	2.3E-11	1.6E-13	3149.72	329.631
745	4.4E-11	1.3E-12	22179.9	6625.54	5.4E-11	1.3E-12	10317.5	5396.71
500	6.2E-11	9.9E-13	1674.69	3646.74	5.6E-11	5.6E-13	1939.72	2275.68
300	5.5E-11	5.4E-13	1492.64	1299.17	5.1E-11	9.4E-13	1814.5	2428.68
200	5.3E-11	6.1E-13	-1221.21	2168.11	4.8E-11	5E-13	-4449.96	1961.22
100	4.3E-11	9.6E-13	3741.62	3361.08	3.9E-11	5E-13	705.74	1943.69
50	2.5E-11	2.7E-13	5362.02	1374.25	3E-11	2.4E-13	-327.717	1038.31