Supporting information

Accurate Detection of Perchlorate in epoxy resins via Chlorine-35 Quantitative Quadrupolar NMR (qQNMR)

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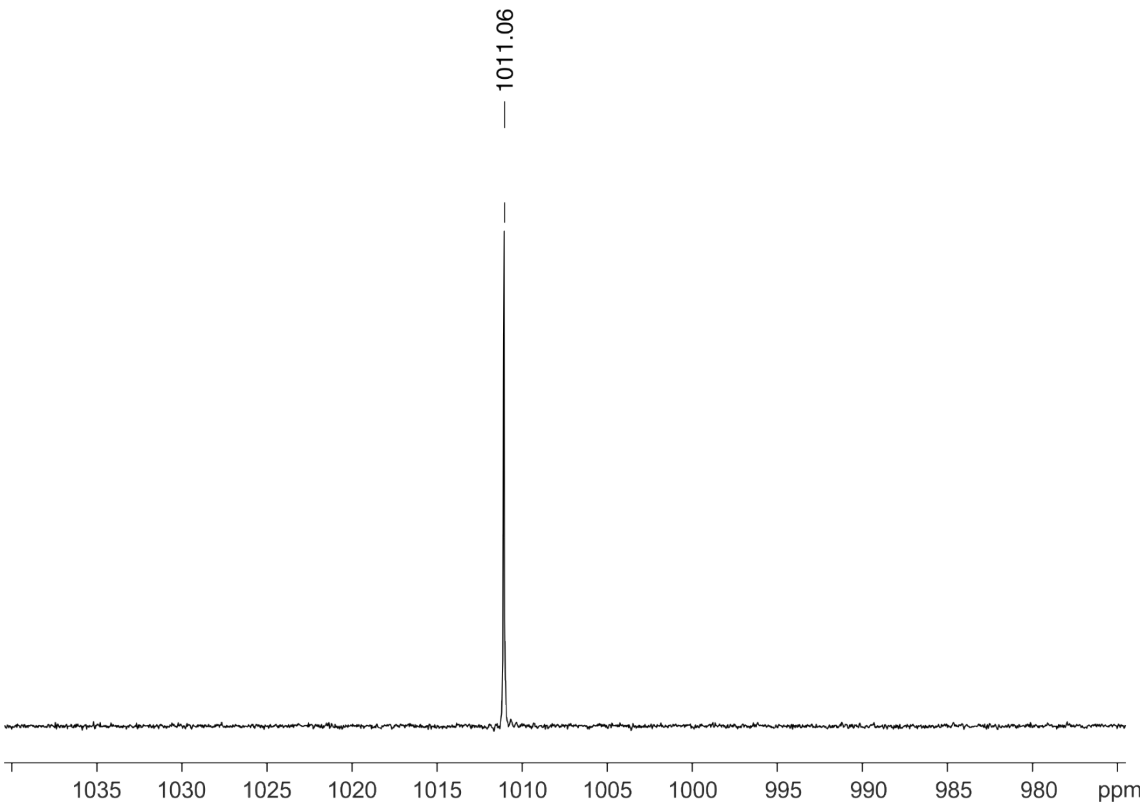
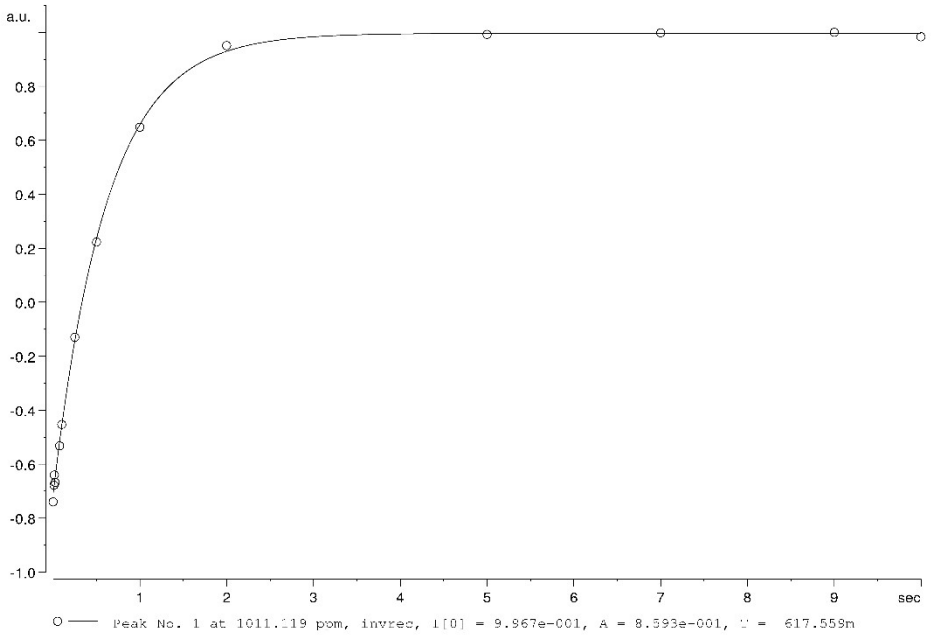


Figure S1. ^{35}Cl NMR spectra (49.0 MHz) of $LiClO_4$ solutions in DMSO-d_6 at 294 K. Experimental time of each spectrum of 2 minute and 9 seconds.

a)



b)

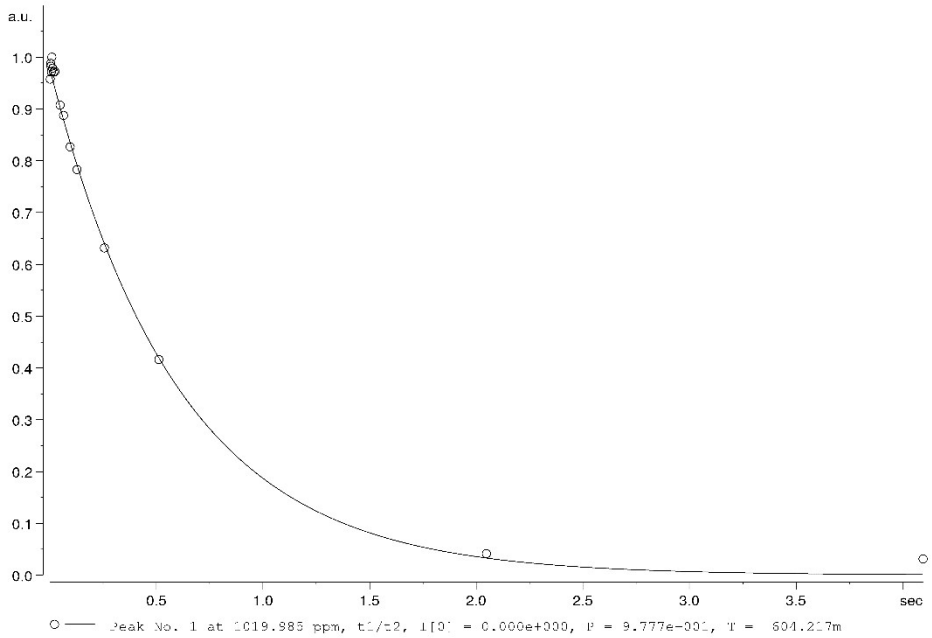
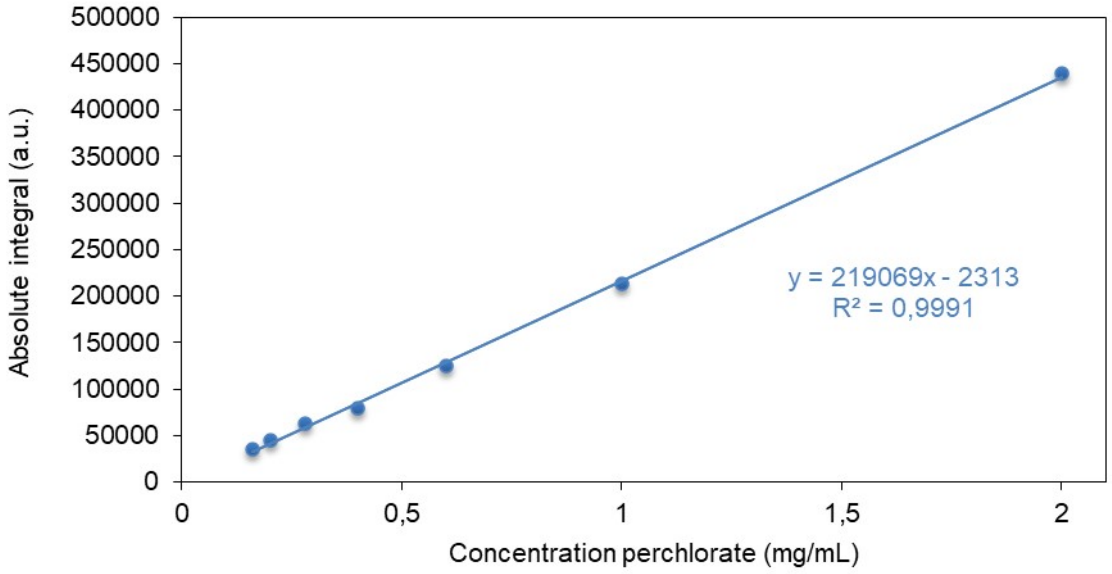


Figure S2. ^{35}Cl NMR (49.0 MHz) T_1 (top) and T_2 (bottom) NMR measurements on a 13.2 mg/mL sample of $LiClO_4$ at 294 K in DMSO-d_6.

a)



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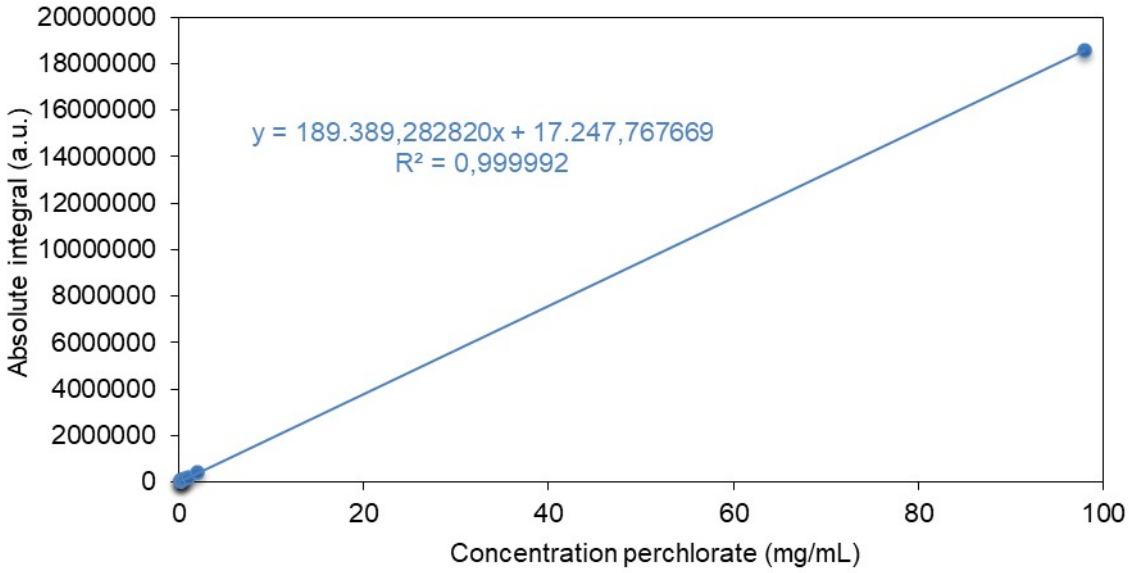

Figure S3. a) Calibration curve stack plot of perchlorate solutions in DMSO-d_6.; b) Same calibration curve but including an extra level of concentration of 98 mg/mL (1M).

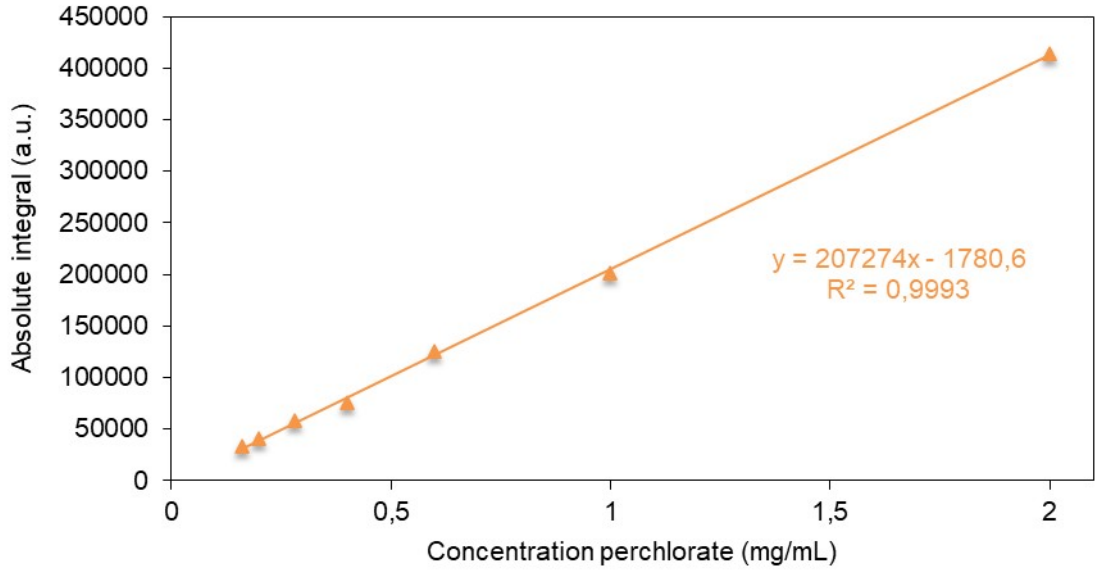

Figure S4. Calibration curves prepared with epoxy resin samples spiked with increasing amounts of perchlorate in DMSO-d_6.

61

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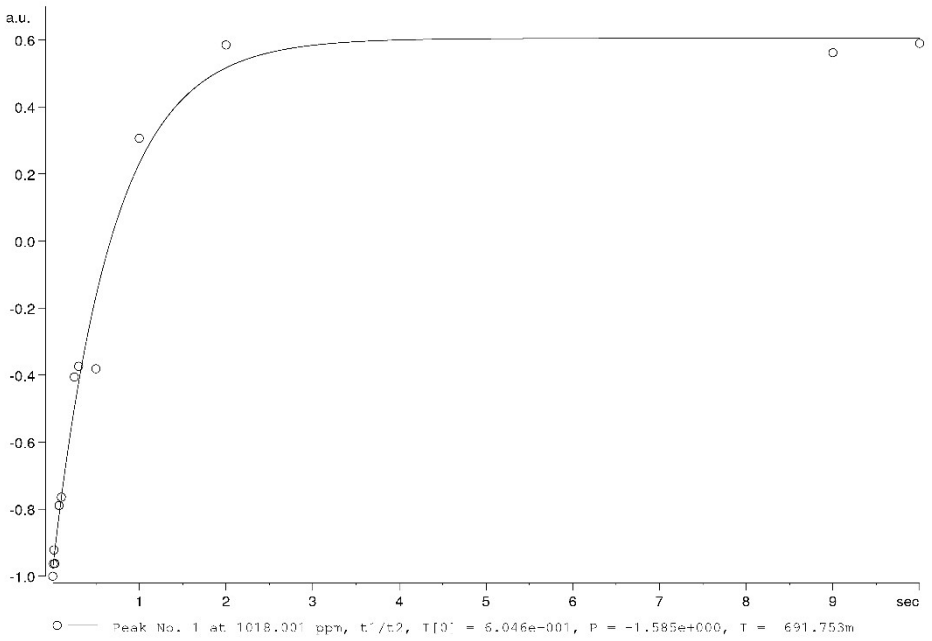
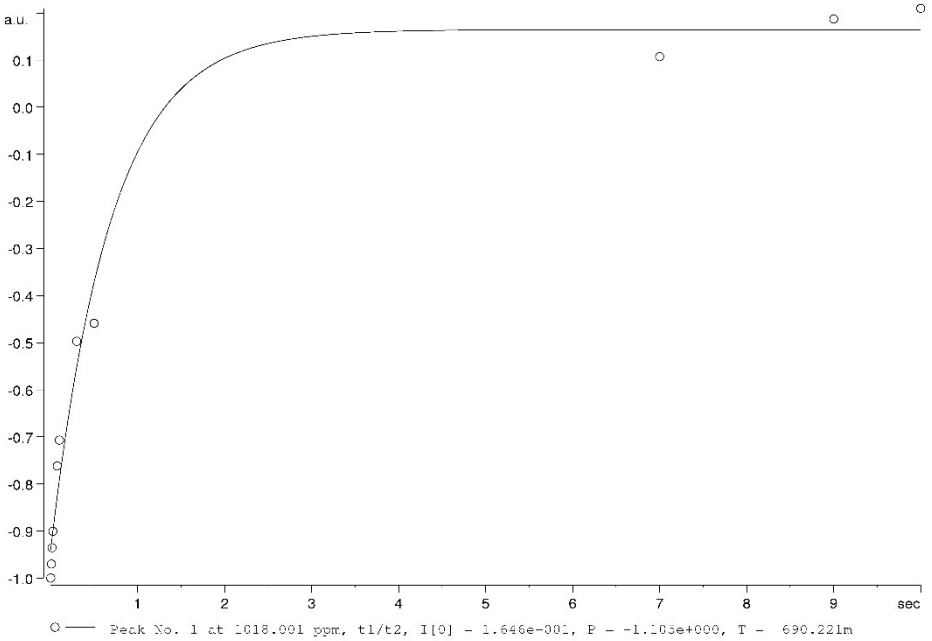
a)


a.u.
0.6
0.4
0.2
0.0
-0.2
-0.4
-0.6
-0.8
-1.0
1
2
3
4
5
6
7
8
9
sec
Peak No. 1 at 1018.001 ppm, t1/t2, I[0] = 6.046e-001, P = -1.585e+000, T = 691.753m

b)


a.u.
0.1
0.0
-0.1
-0.2
-0.3
-0.4
-0.5
-0.6
-0.7
-0.8
-0.9
-1.0
1
2
3
4
5
6
7
8
9
sec
Peak No. 1 at 1018.001 ppm, t1/t2, I[0] = 1.646e-001, P = -1.103e+000, T = 690.221m

c)

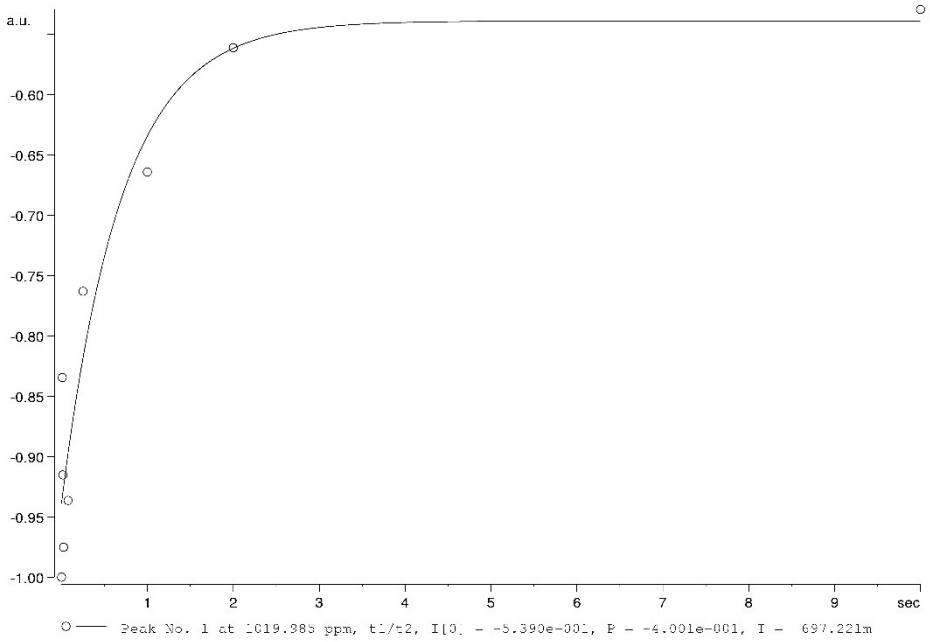


Figure S5. ^{35}Cl NMR (49.0 MHz) T_1 NMR measurements on matrix samples containing a) $LiClO_4$, b) $KClO_4$ and c) NMe_4ClO_4, all of them at 294 K in DMSO-d_6.