

A novel method for quantification of Decabromodiphenyl ether in plastics without sample preparation using Direct Insertion Probe – Magnetic Sector High Resolution Mass Spectrometry.

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Supplementary Information

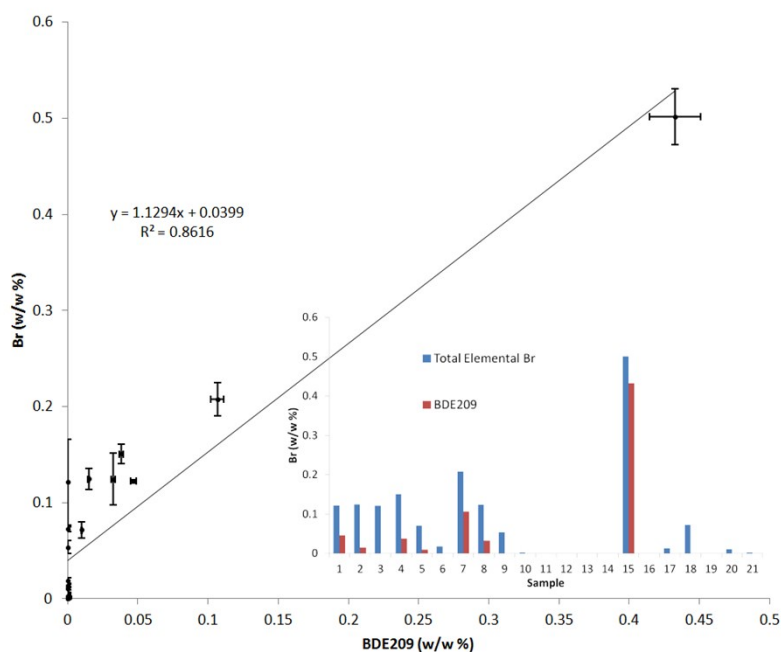


Figure 1 Correlation between BDE209 measured with DIP-MS-HRMS and total elemental Br measured with X-Ray Fluorescence. Considering that these data refer to real samples, and thus contain a suite of different BFRs each contributing to the total elemental Br concentration, the proportionality between the BDE209 concentration and that of Br is clear. In addition, the inset plot shows that on no occasion does the detected BDE209 (which is likely to be a fraction of the total BFR content) exceed the total detected Br. Error bars for X-Ray Fluorescence results are equal to 4 SD, for DIP-MS-HRMS to the relative measurement accuracy.

Table 1 Comparison of DIP-MS-HRMS measurements of BDE-209 and those of Br recorded with X Ray Fluorescence.

Sample	Description	BDE209 (w/w %)	Br (w/w %)
1	Coffee cup lid	0.046772567	0.122153203
2	Coffee cup lid	0.015056533	0.124649681
3	Miniature Car	<LOD	0.121146101
4	Miniature Car Frame	0.038262267	0.150725521
5	Rubik's cube	0.0098847	0.071483044
6	Rubik's cube	<LOD	0.018397253
7	Spring Car	0.106637167	0.20782717
8	Spring Car	0.032492433	0.124255989
9	Spring Car Base	<LOD	0.053600627
10	Thermal coffee mug	<LOD	0.002147532
11	Thermal coffee mug	0.0008831	<LOD
12	Toy Binocular	<LOD	<LOD
13	Toy Bowl	<LOD	<LOD
14	Toy Coin	<LOD	<LOD
15	Toy Gun	0.432703333	0.501407974
16	Toy Gun	<LOD	0
17	Toy Shield	<LOD	0.01346358
18	Toy Spring Gun	<LOD	0.072438773
19	Toy Spring Gun	<LOD	0
20	Toy Sword	<LOD	0.010814214
21	Toy Target	<LOD	0.002427124