

Supplementary Material to “Quantitative determination of Cd in single hair strands using laser ablation inductively coupled plasma mass spectrometry (LA-ICP-MS)”

Table S4 – Batch re-run records.

Batch No.	Original Run Date	Re-Run Date	Involved Participant IDs	Original Issue Description	Re-Run Reason	Remedial Measures	Key Index After Re-Run (Cadmium Concentration CV%)	Result After Re-Run (Meets Standard/ No)	Remarks
B003	2023-03-12	2023-03-14	P003, P004	Procedural blank cadmium concentration: 0.018 µg/g (exceeds $\pm 3\sigma$)	Nitric acid reagent residue causing blank contamination	Replace with new batch of 65% ultrapure nitric acid; re-prepare blanks and samples	3.2	Meets Standard	Corrected blank concentration: 0.011 µg/g
B014	2023-07-08	2023-07-10	P015, P016	Procedural blank cadmium concentration: 0.019 µg/g (exceeds $\pm 3\sigma$)	Residual contamination from uncleaned polyethylene containers	Soak containers in 10% nitric acid for 24 h; rinse 3 times with ultrapure water before re-preparation	2.8	Meets Standard	Corrected blank concentration: 0.012 µg/g

Batch No.	Original Run Date	Re-Run Date	Involved Participant IDs	Original Issue Description	Re-Run Reason	Remedial Measures	Key Index After Re-Run (Cadmium Concentration CV%)	Result After Re-Run (Meets Standard/ No)	Remarks
B019	2023-05-22	2023-05-24	P007	Cadmium concentration CV of P007 sample: 9.5% (exceeds 8%)	Unstable ICP-MS plasma parameters	Re-optimize RF power (1500 W) and carrier gas flow rate (0.87 L/min)	5.2	Meets Standard	Corrected CV: 5.2%
B025	2023-08-18	2023-08-20	P015	Cross-contamination between P015 blank and sample; blank concentration: 0.017 µg/g	Residue in sample injection system	Rinse injection system with ultrapure water for 30 min; replace nebulizer before re-analysis	4.1	Meets Standard	Corrected blank concentration: 0.013 µg/g
B031	2023-06-30	2023-07-02	P009	Laser ablation efficiency fluctuation for P009; concentration deviation: 12%	Laser energy intensity drift (dropped to 6.2 J/cm²)	Re-calibrate laser energy to 6.89 J/cm²; verify recovery rate of NIST 612	3.9	Meets Standard	Corrected recovery rate: 98.5%