

Supplementary Information

Drastic Improvement of Detection Limits in Energy Dispersive X-Ray Fluorescence Geometry Utilizing Micro-Focused Bremsstrahlung Excitation in Thin Film Sample Specimen

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Table S1 Validation of the developed μ -XRF based technique for MERCK ICP MES standard solution having elemental concentration in the ultra trace level ranging from 5-100 ng/mL (n=3,

1 σ)

Elements	Expected conc. ng/mL	μ -XRF determined conc. (ng/mL)	Expected conc. ng/mL	μ -XRF determined conc. (ng/mL)	Expected conc. ng/mL	μ -XRF determined conc. (ng/mL)
Cr	5	5.1 \pm 0.1	50	47.5 \pm 0.1	100	101 \pm 2
Mn	5	4.62 \pm 0.04	50	50.2 \pm 0.1	100	116 \pm 4
Fe	5	5.5 \pm 0.3	50	52.2 \pm 0.8	100	101 \pm 2
Co	5	4.9 \pm 0.2	50	48.9 \pm 0.6	100	104 \pm 4
Ni	5	6.1 \pm 0.1	50	50.3 \pm 0.6	100	102 \pm 2
Cu	5	5.2 \pm 0.2	50	53.1 \pm 0.3	100	103 \pm 2
Zn	5	5.6 \pm 0.1	50	64.5 \pm 0.5	100	99 \pm 3
Sr	5	5.4 \pm 0.2	50	48.2 \pm 0.9	100	97 \pm 7
Ba	5	5.3 \pm 0.3	50	67 \pm 2	100	138 \pm 5
Tl	5	-	50	44 \pm 2	100	97 \pm 3
Pb	5	-	50	50 \pm 4	100	116 \pm 5
Bi	5	-	50	39 \pm 1	100	123 \pm 4