

Table S1. Sensitivity, precision and detection limits (3s, n=10, 3 mg of soil) for Ar ICP and mixed-gas ICP (20 mL min⁻¹ N₂ as sheathing flow and 0.4 L min⁻¹ N₂ added to the plasma gas) in ETV-ICPOES

Analyte	Wavelength (nm)	Sensitivity (counts µg ⁻¹)			Detection limits (mg kg ⁻¹)			RSD (%)
		Mixed-gas ICP (A)	Ar ICP (B)	A/B	Mixed-gas ICP (C)	Ar ICP (D)	D/C	
Al I	176.641	16.30±1.0	1.14±0.20	14.3	50	1500	30	32
As I	193.759	76±3	35.5±1.0	2.15	0.7	3	4	5.1
As I	197.262	51±5	17±1	3.00	0.3	7	23	7.0
As I	228.812	106±6	38±2.0	2.80	0.3	6	20	5.2
Ba II	455.404	890±90	161±17	5.58	8	150	19	10
Cd II	226.502	11.5±1.5	0.90±0.10	12.7	2	20	10	0.50
Cr II	205.618	60±2	14.2±1.0	4.30	1	7	7	1.3
Cr II	267.716	304±12	55.0±5.0	5.40	0.2	1	5	0.5
Cr II	283.563	430±10	55.5±5.0	7.75	0.05	0.7	14	0.4
Cu II	165.532	0.51±0.08	0.88±0.30	0.58	80	40	0.5	1.7
Cu I	327.396	2350±50	547±20	4.30	0.04	0.6	15	3.9
Fe II	238.204	10.5±1.0	3.9±0.3	2.7	200	10000	50	11
Fe II	241.331	8±1	3.4±0.20	2.3	30	2000	67	10
Fe II	244.451	0.95±0.08	0.23±0.05	4.1	40	4000	100	3.4
Mg II	279.079	22±0.5	2.0±0.1	11.0	10	30	3	19
Mn II	259.373	360±23	88±3	4.1	0.3	3	10	16
Mn II	294.921	335±10	80±4	4.2	0.1	0.5	5	17
Mo II	281.615	575±30	186±14	3.10	0.03	0.3	10	4.0
Ni II	174.828	43±5	6.6±1.0	6.5	2	15	7.5	1.0
P I	177.495	9.1±1.5	9.0±1.0	1.0	20	100	5	9.0
Pb II	172.680	8.9±0.7	1.7±0.2	5.3	6	30	5	1.0
Pb II	220.353	520±40	13±3	40	0.03	2	67	1.2
Pb I	261.418	52±2	7.0±0.5	7.5	0.4	1	2.5	0.6
Pb I	405.778	52±7	33±10	1.6	8	10	1.25	0.6
S I	180.731	19±3	10.0±1.0	1.9	8.5	4	0.47	11
Sb I	217.581	1020±100	105±5	9.53	0.02	0.15	7.5	1.0
Sr II	407.771	1060±50	276±10	3.84	6	10	1.7	13
V II	331.071	65±4	78±6	0.83	0.7	20	28.6	0.5
Zn II	202.613	125±7	27±4	4.6	1	40	40	0.6
Zn II	206.200	55±8	11±2	5.0	6	90	15	11