

ISE International Soil-analytical Exchange Programme	
Year: 2024	Participants: 250 laboratories expected
Number of rounds: 4 per year	Start exercise: 1 January, 1 April, 1 July, 1 October
Number of materials: 4 per round	Sample size: 100 g

[Participation form](#)
[Timetable](#)
[PT Scheme](#)
[Costs](#)

This study covers the determination of chemical analysis in soils. Participation is open to all laboratories.

## Determinands

Concentration ranges and constant and proportional errors are available in the determinand list on the participants website.

Determinand group	Determinand*
Real totals	Ag; <b>Al</b> ; <b>As</b> ; B; <b>Ba</b> ; Be; Bi; <b>Br</b> ; <b>C-elementary</b> ; <b>Ca</b> ; <b>Cd</b> ; <b>Ce</b> ; <b>Co</b> ; <b>Cr</b> ; Cs; <b>Cu</b> ; F; <b>Fe</b> ; <b>Ga</b> ; Ge; <b>Hg</b> ; I; <b>K</b> ; <b>La</b> ; Li; <b>Mg</b> ; <b>Mn</b> ; <b>Mo</b> ; <b>N-elementary</b> ; <b>Na</b> ; <b>Nb</b> ; <b>Nd</b> ; <b>Ni</b> ; <b>P</b> ; <b>Pb</b> ; Pd; Pt; <b>Rb</b> ; Rh; <b>S</b> ; <b>Sb</b> ; Sc; Se; <b>Si</b> ; <b>Sn</b> ; <b>Sr</b> ; Te; <b>Th</b> ; <b>Ti</b> ; Tl; U; <b>V</b> ; W; <b>Y</b> ; <b>Zn</b> ; Zr;
Acid extractable (So-called totals)	Ag; <b>Al</b> ; <b>As</b> ; B; <b>Ba</b> ; <b>Be</b> ; Bi; Br; <b>Ca</b> ; <b>Cd</b> ; Ce; <b>Co</b> ; <b>Cr</b> ; <b>Cu</b> ; F; <b>Fe</b> ; Ga; <b>Hg</b> ; I; K; La; Li; <b>Mg</b> ; <b>Mn</b> ; <b>Mo</b> ; <b>N</b> ; Na; Nb; Nd; <b>Ni</b> ; <b>P</b> ; <b>Pb</b> ; Pt; Rb; <b>S</b> ; <b>Sb</b> ; Sc; Se; Si; <b>Sn</b> ; Sr; Te; Th; Ti; Tl; U; <b>V</b> ; Y; <b>Zn</b> ; Zr;
Aqua Regia (ISO 11466)	Ag; <b>Al</b> ; <b>As</b> ; <b>B</b> ; <b>Ba</b> ; <b>Be</b> ; Bi; Br; <b>Ca</b> ; <b>Cd</b> ; Ce; <b>Co</b> ; <b>Cr</b> ; <b>Cu</b> ; F; <b>Fe</b> ; Ga; <b>Hg</b> ; I; <b>K</b> ; La; Li; <b>Mg</b> ; <b>Mn</b> ; <b>Mo</b> ; <b>Na</b> ; Nd; <b>Ni</b> ; <b>P</b> ; <b>Pb</b> ; Pt; Rb; <b>S</b> ; <b>Sb</b> ; Sc; <b>Se</b> ; Si; <b>Sn</b> ; <b>Sr</b> ; Te; Th; <b>Ti</b> ; <b>Tl</b> ; U; <b>V</b> ; Y; <b>Zn</b> ; Zr;
Extraction with boiling 2M HNO <sub>3</sub>	<b>Cd</b> ; <b>Co</b> ; <b>Cr</b> ; <b>Cu</b> ; <b>Hg</b> ; <b>Mo</b> ; <b>Ni</b> ; <b>Pb</b> ; Tl; <b>Zn</b> ;
Extraction with 0.1M NaNO <sub>3</sub>	Cd; Cu; Ni; Pb; Zn;
Extraction with 0.01M CaCl <sub>2</sub> 1:10	Al; B; Cd; CN; Co; Cr; Cu; Fe; <b>K</b> ; Mg; Mn; <b>N-NH<sub>4</sub> (as N)</b> ; <b>N-NO<sub>3</sub> (as N)</b> ; N total soluble; Na; Ni; P; Pb; SO <sub>4</sub> ; Zn;
Soil characteristics	<b>C-org others (W&amp;B a.o.)</b> ; <b>TIC=Total Inorg C(as CaCO<sub>3</sub>)</b> ; <b>TOC=Total Org. C</b> ; <b>TC=Total C (org.+inorg.)</b> ; <b>Org.matter (L.O.I.)</b> ; Active Lime (as CaCO <sub>3</sub> ); <b>EC-SC (ISO 11265)</b> ; <b>pH-CaCl<sub>2</sub></b> ; <b>pH-H<sub>2</sub>O</b> ; <b>pH-KCl</b> ; <b>Fraction &lt; 2 µm</b> ; <b>Fraction &lt; 16 µm</b> ; <b>Fraction &lt; 63 µm</b> ; <b>Fraction &gt; 63 µm</b> ;
Other determinations	B-Hot water; CN-Free; CN-Total; delta 13C; delta 15N; K-HCl (as K); Mg-NaCl (as Mg); <b>Moisture-content</b> ;
Fluoride (Swiss standard procedure)	F-Total;
Digestion with conc. HNO <sub>3</sub> + conc. HCl + H <sub>2</sub> O <sub>2</sub> (UNEP-UN/EC 91075A)	Al; As; B; Ba; Be; Ca; Cd; Co; Cr; Cu; Fe; Hg; K; Li; Mg; Mn; Mo; Na; Ni; Pb; S; Sb; Se; Si; Sn; Sr; Tl; V; Zn;
Pot. CEC using 1M NH <sub>4</sub> -acetate at pH=7	<b>CEC</b> ; Al; <b>Ca</b> ; <b>K</b> ; <b>Mg</b> ; <b>Na</b> ;
Pot. CEC using 1M or 0.1M BaCl <sub>2</sub> -TEA at pH=8.1 (ISO 13536 OR BZE)	CEC; Al; Ca; K; Mg; Na;
Pot. CEC using 1M NH <sub>4</sub> Cl (BZE)	CEC; Al; Ca; Fe; H; K; Mg; Mn; Na;
Act. CEC using 0.01M BaCl <sub>2</sub> (ISO 11260)	CEC; Al; Ca; Fe; H; K; Mg; Mn; Na;
Act. CEC using 0.1M BaCl <sub>2</sub> (UNEP-UN/EC 91065A)	CEC; Al; Ca; Fe; H; K; Mg; Mn; Na;