



WEPAL-QUASIMEME

Certificate of Analysis



International Soil-Analytical Exchange

REFERENCE MATERIAL

ISE sample 829

2026-Jul-30



General Information

In this report an overview is given of analytical data for this sample collected in our proficiency testing program. The consensus values are calculated using a robust statistical model. With this NDA model, the mean and standard deviation are calculated using all reported data when at least 4 results are left after removal of reported 'lower than' (<) and 0 (= zero) values. No outliers are removed.

This report is divided into two sections: Consensus Values and Indicative Values. The division is made on the reliability of the data. Consensus Values are based on at least 8 results and a maximum relative uncertainty of 6.25%. Indicative Values are based on a maximum relative uncertainty of 35% and a minimum of 4 and maximum of 7 results, or a relative uncertainty greater than 6.25% when there are at least 8 results.

For each measurand the following parameters are given: mean, standard deviation, coefficient of variation, number of results, median, MAD (Median of Absolute Deviation), the uncertainty of the mean (consensus or indicative) value and the relative uncertainty.

Please note: Most WEPAL-QUASIMEME reference materials are found to be stable over the long term (>10 years) for most measurand/matrix combinations. There are a few exceptions known to us as being less stable over the long term. These are organotins in sediment (MS6), ASP in shellfish (BT7), some PAHs and PCBs in sediment (SETOC) and N-NH₄ (as N) & N-NO₃ (as N) in clay soils (ISE).

All values, expressed on a weight basis (kg or %), are reported as oven-dried (105°C) material. Moisture is reported in the material as received.

Sample information

WEPAL reference materials are from natural sources only. There is no spiking, mixing or other alterations of the samples. For sample preparation, the ISE samples are dried at 40°C and milled to pass a 0.5 mm sieve.

This ISE sample 829 of High Calcareous Clay, from Spain, is prepared for the WEPAL proficiency programs. The sample has been used in 1 round. The results on which the values in this report are based were taken from the round given in the following table:

Year	Round	Number
2026	2	2



Consensus Values ISE 829



Method: Real totals

Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	Rel.Uncert. %
Al	g/kg	41.9	1.51	3.6	12	41.7	0.696	0.543	1.30
Ba	mg/kg	244	18.6	7.6	10	240	9.92	7.35	3.01
Ca	g/kg	88.1	3.50	4.0	12	87.5	2.09	1.26	1.43
Co	mg/kg	10.6	1.15	10.8	11	10.6	0.600	0.432	4.09
Cr	mg/kg	57.0	5.31	9.3	12	55.6	3.55	1.92	3.36
Cu	mg/kg	48.8	4.06	8.3	14	48.9	2.10	1.36	2.78
Fe	g/kg	22.4	0.576	2.6	13	22.5	0.220	0.200	0.889
K	mg/kg	10393	827	8.0	14	10250	396	276	2.66
Mg	mg/kg	6407	790	12.3	14	6566	597	264	4.12
Mn	mg/kg	544	25.3	4.7	15	542	8.70	8.18	1.50
Ni	mg/kg	29.5	3.49	11.8	13	30.0	1.96	1.21	4.10
Pb	mg/kg	22.0	3.39	15.4	14	22.1	2.02	1.13	5.14
Si	g/kg	269	17.3	6.4	9	268	12.6	7.20	2.68
Sr	mg/kg	141	6.71	4.8	9	140	3.40	2.80	1.99
Zn	mg/kg	48.2	8.89	18.4	14	47.0	4.05	2.97	6.16
C-elementary	g/kg	32.8	1.39	4.2	23	32.6	0.860	0.362	1.11
V	mg/kg	53.6	6.03	11.2	11	52.6	2.90	2.27	4.23
Ti	mg/kg	2874	148	5.2	9	2925	76.8	61.8	2.15
N - elementary	g/kg	0.776	0.115	14.8	40	0.790	0.070	0.023	2.93

Method: Acid extractable (So-called totals)

Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	Rel.Uncert. %
Al	g/kg	29.4	3.44	11.7	18	29.5	2.41	1.01	3.44
As	mg/kg	2.93	0.256	8.7	21	2.91	0.117	0.070	2.39
Ba	mg/kg	150	15.1	10.0	13	151	11.0	5.23	3.48
Ca	g/kg	85.4	7.38	8.6	17	85.4	4.05	2.24	2.62
Cd	mg/kg	0.130	0.019	15.0	19	0.124	0.011	0.006	4.30
Co	mg/kg	9.61	1.05	11.0	20	9.55	0.870	0.294	3.06
Cr	mg/kg	41.2	5.07	12.3	25	41.3	3.01	1.27	3.08
Cu	mg/kg	46.0	5.09	11.1	28	46.0	2.75	1.20	2.61
Fe	g/kg	20.6	1.57	7.6	18	20.8	1.19	0.461	2.23
K	mg/kg	6432	858	13.3	18	6388	451	253	3.93
Mg	mg/kg	5833	500	8.6	17	5851	266	152	2.60
Mn	mg/kg	512	45.7	8.9	19	502	43.4	13.1	2.56
N	g/kg	0.789	0.116	14.6	27	0.810	0.060	0.028	3.52
Ni	mg/kg	25.6	3.02	11.8	24	25.6	2.33	0.769	3.01
P	mg/kg	264	20.9	7.9	20	265	12.5	5.83	2.20



Consensus Values ISE 829



Method: Acid extractable (So-called totals)

(cont.)

Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	Rel.Uncert. %
Pb	mg/kg	18.8	3.25	17.3	26	19.1	2.16	0.798	4.24
S	mg/kg	157	16.5	10.5	12	159	10.6	5.96	3.79
Zn	mg/kg	40.7	4.97	12.2	28	40.6	3.15	1.17	2.88
Be	mg/kg	1.09	0.156	14.4	10	1.07	0.097	0.062	5.69

Method: Aqua Regia (ISO 54321) (replacing former ISO 11466)

Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	Rel.Uncert. %
Al	g/kg	27.5	4.57	16.6	22	27.4	2.65	1.22	4.43
As	mg/kg	2.82	0.460	16.3	27	2.79	0.291	0.111	3.92
Ba	mg/kg	143	13.1	9.2	15	144	8.00	4.24	2.95
Be	mg/kg	1.10	0.137	12.4	11	1.09	0.087	0.052	4.68
Ca	g/kg	85.3	4.18	4.9	17	85.2	2.50	1.27	1.49
Cd	mg/kg	0.126	0.022	17.2	28	0.129	0.013	0.005	4.06
Co	mg/kg	9.29	0.825	8.9	29	9.28	0.655	0.191	2.06
Cr	mg/kg	39.3	3.97	10.1	36	39.3	2.35	0.827	2.10
Cu	mg/kg	46.4	3.85	8.3	37	46.4	2.20	0.791	1.70
Fe	g/kg	20.2	2.02	10.0	24	20.1	1.05	0.515	2.54
K	mg/kg	5626	829	14.7	20	5769	639	232	4.12
Mg	mg/kg	5526	707	12.8	23	5530	468	184	3.34
Mn	mg/kg	507	49.0	9.7	27	511	24.5	11.8	2.33
Mo	mg/kg	0.217	0.016	7.6	12	0.219	0.011	0.006	2.73
Ni	mg/kg	24.8	2.61	10.5	37	24.6	1.97	0.537	2.16
P	mg/kg	257	24.4	9.5	19	255	13.0	6.99	2.73
Pb	mg/kg	18.6	3.32	17.9	37	18.5	2.60	0.683	3.68
Sn	mg/kg	1.13	0.122	10.8	10	1.13	0.068	0.048	4.29
V	mg/kg	34.1	4.53	13.3	20	34.5	2.20	1.26	3.71
Zn	mg/kg	41.4	4.27	10.3	38	41.5	2.41	0.866	2.09

Method: Extraction with boiling 2M HNO₃

Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	Rel.Uncert. %
Co	mg/kg	8.51	0.964	11.3	9	8.28	0.720	0.402	4.72
Cu	mg/kg	43.3	3.76	8.7	12	42.9	1.81	1.36	3.14
Pb	mg/kg	18.5	1.54	8.4	12	18.5	0.893	0.557	3.02



Consensus Values ISE 829



Method: Soil characteristics

Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	Rel.Uncert. %
pH - H ₂ O	...	8.13	0.292	3.6	91	8.10	0.200	0.038	0.470
pH - KCl	...	7.29	0.225	3.1	37	7.33	0.120	0.046	0.634
pH - CaCl ₂	...	7.58	0.194	2.6	30	7.58	0.120	0.044	0.585
TIC=Tot.Inorg C(as CaCO ₃)	%	20.3	1.40	6.9	33	20.3	0.760	0.304	1.49
EC-SC (ISO 11265)	mS/m	14.5	2.72	18.7	36	14.4	1.63	0.568	3.90
Org.matter (L.O.I.)	%	4.05	0.766	18.9	41	4.02	0.480	0.150	3.69
TC=Total C (org.+inorg.)	g/kg	32.8	1.12	3.4	40	32.6	0.860	0.221	0.672
TOC=Total Org. C	g/kg	8.34	0.932	11.2	48	8.41	0.495	0.168	2.02
C - org others (W&B a.o.)	g/kg	7.64	1.42	18.6	42	7.78	0.940	0.274	3.58

Method: Other determinations

Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	Rel.Uncert. %
Moisture-content	%	3.80	0.588	15.5	46	3.82	0.311	0.108	2.86

Method: Pot. CEC using 1M NH₄-acetate at pH=7

Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	Rel.Uncert. %
CEC	cmol+/kg	23.3	3.47	14.9	31	23.3	2.22	0.780	3.35
K	cmol+/kg	1.04	0.129	12.4	48	1.04	0.079	0.023	2.24
Mg	cmol+/kg	1.93	0.314	16.3	48	1.93	0.220	0.057	2.94
Ca	cmol+/kg	42.6	10.2	23.9	47	42.5	6.68	1.86	4.37

Method: Act. CEC using cobaltihexamine (AFNOR NFX 31 130)

Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	Rel.Uncert. %
CEC	cmol+/kg	29.2	3.17	10.9	9	29.0	1.75	1.32	4.52
Ca	cmol+/kg	26.0	2.54	9.8	8	25.8	1.43	1.12	4.31
Mg	cmol+/kg	1.73	0.167	9.7	8	1.78	0.129	0.074	4.28

Method: Mehlich-3

Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	Rel.Uncert. %
B	mg/kg	1.19	0.198	16.6	14	1.20	0.117	0.066	5.55
Ca	mg/kg	12605	2180	17.3	19	12587	1546	625	4.96
Cu	mg/kg	16.3	1.26	7.7	20	16.2	0.777	0.351	2.15
Fe	mg/kg	42.7	7.13	16.7	20	44.7	5.04	1.99	4.66
K	mg/kg	387	29.3	7.6	19	387	18.8	8.41	2.17
Mg	mg/kg	270	22.3	8.3	19	272	16.4	6.41	2.37
Mn	mg/kg	114	22.8	19.9	20	118	15.0	6.38	5.57
P	mg/kg	19.8	3.87	19.6	26	19.9	2.13	0.949	4.81



Consensus Values ISE 829



Method: Mehlich-3									(cont.)
Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	Rel.Uncert. %
Al	mg/kg	401	40.6	10.1	12	395	23.0	14.6	3.65
Method: Extraction with 0.01M CaCl ₂ - 0.005M DTPA 1:10 (w/v)									
Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	Rel.Uncert. %
Cu	mg/kg	9.41	1.40	14.9	18	9.31	0.978	0.413	4.39
Method: Extraction with 1M KCl 1:10 (w/v)									
Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	Rel.Uncert. %
N - NO ₃ (as N)	mg/kg	14.9	1.31	8.8	18	15.0	0.740	0.387	2.60
Method: Phosphorus and related analysis									
Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	Rel.Uncert. %
P - Olsen (as P)	mg/kg	7.96	1.84	23.1	29	8.00	1.00	0.427	5.36
Method: UK Soil Methods									
Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	Rel.Uncert. %
K - NH ₄ NO ₃ (1/5)	mg/l	436	39.9	9.1	15	431	28.4	12.9	2.95
Mg - NH ₄ NO ₃ (1/5)	mg/l	223	24.4	11.0	15	219	18.0	7.89	3.54
pH - H ₂ O (2/5)	...	8.18	0.240	2.9	12	8.15	0.155	0.086	1.06
Method: PEP-Ammoniumacetate-EDTA extraction									
Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	Rel.Uncert. %
AAE10-Ca	mg/kg	73913	5806	7.9	9	74864	4467	2419	3.27
AAE10-Mg	mg/kg	475	44.0	9.3	9	466	21.2	18.3	3.86
AAE10-K	mg/kg	410	47.0	11.5	9	408	32.2	19.6	4.78
AAE10-P	mg/kg	11.0	1.53	13.9	9	11.2	1.20	0.637	5.78
Method: PEP-Test measurements									
Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	Rel.Uncert. %
pH-H ₂ O	...	8.05	0.150	1.9	9	8.04	0.120	0.062	0.774



Indicative Values ISE 829



Method: Real totals

Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	Rel.Uncert. %
As	mg/kg	3.84	1.25	32.6	9	4.00	0.900	0.522	13.6
Br	mg/kg	5.70	0.714	12.5	5	5.60	0.400	0.399	7.00
Cd	mg/kg	0.143	0.043	29.9	7	0.147	0.019	0.020	14.1
Ga	mg/kg	12.3	2.77	22.5	6	12.7	1.50	1.41	11.5
Na	mg/kg	1210	205	16.9	8	1250	95.8	90.4	7.47
P	mg/kg	326	56.6	17.4	11	330	30.0	21.3	6.55
Rb	mg/kg	55.2	2.79	5.1	6	55.1	1.70	1.42	2.58
S	mg/kg	136	44.7	32.9	9	142	30.0	18.6	13.7
Sn	mg/kg	2.17	0.212	9.8	5	2.12	0.084	0.119	5.48
Y	mg/kg	18.2	2.09	11.5	7	18.9	1.10	0.986	5.42
Zr	mg/kg	249	33.0	13.3	7	250	22.4	15.6	6.26
Tl	mg/kg	0.329	0.023	7.1	5	0.330	0.010	0.013	3.96
Ce	mg/kg	49.8	4.53	9.1	6	50.4	3.23	2.31	4.64
La	mg/kg	24.0	1.92	8.0	6	24.1	1.15	0.977	4.07
Nb	mg/kg	11.6	0.800	6.9	6	11.5	0.300	0.408	3.52
Nd	mg/kg	20.3	3.09	15.2	6	20.3	1.25	1.58	7.78
Th	mg/kg	6.26	1.73	27.7	6	6.32	1.08	0.884	14.1
U	mg/kg	1.37	0.218	15.9	5	1.30	0.077	0.122	8.89
Hg	µg/kg	19.8	4.30	21.8	17	19.5	3.10	1.30	6.60

Method: Acid extractable (So-called totals)

Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	Rel.Uncert. %
B	mg/kg	18.2	5.23	28.8	6	18.9	2.94	2.67	14.7
Li	mg/kg	14.4	0.433	3.0	4	14.3	0.230	0.271	1.88
Mo	mg/kg	0.176	0.067	38.1	8	0.191	0.035	0.030	16.9
Na	mg/kg	138	26.8	19.4	15	144	17.8	8.64	6.27
Se	mg/kg	0.263	0.352	133.8	8	0.250	0.157	0.155	59.1
Sn	mg/kg	1.13	0.272	24.1	9	1.18	0.182	0.113	10.0
Sr	mg/kg	119	6.45	5.4	6	119	2.76	3.29	2.77
V	mg/kg	33.8	6.67	19.8	14	34.1	2.84	2.23	6.60
Tl	mg/kg	0.205	0.044	21.5	5	0.199	0.024	0.025	12.0
Ag	mg/kg	0.045	0.019	41.8	5	0.045	0.012	0.010	23.4
U	mg/kg	0.349	0.042	11.9	4	0.352	0.019	0.026	7.46
Hg	µg/kg	23.9	15.2	63.5	11	20.7	9.81	5.71	23.9

Indicative Values ISE 829

Method: Aqua Regia (ISO 54321) (replacing former ISO 11466)

Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	Rel.Uncert. %
B	mg/kg	19.6	3.54	18.1	8	19.9	1.53	1.57	8.00
Hg	µg/kg	31.5	17.4	55.2	14	33.3	11.2	5.81	18.4
Li	mg/kg	13.5	2.18	16.1	7	13.2	1.01	1.03	7.62
Na	mg/kg	125	33.8	27.1	14	123	21.1	11.3	9.07
S	mg/kg	140	47.2	33.8	12	140	32.4	17.0	12.2
Sb	mg/kg	0.368	0.064	17.3	8	0.370	0.036	0.028	7.66
Se	mg/kg	0.332	0.164	49.6	9	0.410	0.080	0.068	20.7
Sr	mg/kg	110	8.99	8.2	7	111	5.00	4.25	3.86
Ti	mg/kg	250	94.2	37.7	9	270	67.7	39.2	15.7
Tl	mg/kg	0.180	0.026	14.7	8	0.184	0.012	0.012	6.49
U	mg/kg	0.312	0.028	8.8	5	0.320	0.020	0.015	4.95

Method: Extraction with boiling 2M HNO₃

Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	Rel.Uncert. %
Cd	mg/kg	0.129	0.045	34.8	9	0.124	0.034	0.019	14.5
Cr	mg/kg	19.7	5.21	26.5	12	19.5	3.05	1.88	9.56
Hg	µg/kg	13.3	3.75	28.3	8	14.1	2.32	1.66	12.5
Ni	mg/kg	19.4	3.58	18.4	12	19.4	2.00	1.29	6.65
Zn	mg/kg	23.7	6.63	28.0	11	23.3	4.22	2.50	10.5

Method: Extraction with 0.1M NaNO₃

Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	Rel.Uncert. %
Cu	µg/kg	60.1	2.29	3.8	4	60.1	1.24	1.43	2.38

Method: Extraction with 0.01M CaCl₂ 1:10

Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	Rel.Uncert. %
K	mg/kg	72.7	10.4	14.3	6	73.1	8.61	5.29	7.28
Mg	mg/kg	104	6.96	6.7	5	102	4.00	3.89	3.74
N - NH ₄ (as N)	mg/kg	1.47	0.496	33.7	8	1.47	0.335	0.219	14.9
N - NO ₃ (as N)	mg/kg	15.7	1.43	9.1	6	15.8	0.867	0.731	4.64
Na	mg/kg	20.7	4.32	20.8	5	20.6	2.60	2.42	11.7

Method: Soil characteristics

Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	Rel.Uncert. %
Fraction < 2 µm	%	25.6	11.1	43.2	25	27.0	8.35	2.76	10.8
Fraction < 63 µm	%	63.4	14.7	23.1	15	65.6	8.54	4.73	7.47
Fraction > 63 µm	%	31.7	6.66	21.0	11	31.6	2.82	2.51	7.93



Indicative Values ISE 829



Method: Soil characteristics

Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	Rel.Uncert. %
Fraction < 16 µm	%	44.0	11.7	26.6	8	44.1	8.05	5.16	11.7
Active Lime (as CaCO ₃)	%	7.48	2.67	35.8	14	7.89	1.91	0.893	11.9

(cont.)

Method: Other determinations

Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	Rel.Uncert. %
delta 13C	‰ V-PDB	-13.1	0.628	4.8	4	-13.3	0.325	0.392	2.99
delta 15N	‰ Air	4.93	0.133	2.7	4	4.91	0.065	0.083	1.69

Method: Pot. CEC using 1M NH₄-acetate at pH=7

Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	Rel.Uncert. %
Na	cmol+/kg	0.128	0.044	34.3	43	0.132	0.024	0.008	6.54

Method: Pot. CEC using 1M or 0.1M BaCl₂-TEA at pH=8.1 (ISO 13536 OR BZE)

Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	Rel.Uncert. %
CEC	cmol+/kg	27.4	3.90	14.2	4	27.7	1.85	2.44	8.90

Method: Act. CEC using cobaltihexamine (AFNOR NFX 31 130)

Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	Rel.Uncert. %
Na	cmol+/kg	0.103	0.039	37.3	6	0.106	0.018	0.020	19.0
K	cmol+/kg	0.693	0.120	17.3	7	0.680	0.060	0.057	8.19

Method: Mehlich-3

Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	Rel.Uncert. %
Na	mg/kg	27.8	9.73	35.1	13	28.6	5.61	3.37	12.2
Zn	mg/kg	1.09	0.339	31.1	17	1.09	0.193	0.103	9.44

Method: Extraction with 0.01M CaCl₂ - 0.005M DTPA 1:10 (w/v)

Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	Rel.Uncert. %
Fe	mg/kg	9.67	2.72	28.1	16	10.1	1.35	0.850	8.79
Mn	mg/kg	7.50	3.14	41.9	17	7.89	1.89	0.951	12.7
Zn	mg/kg	0.568	0.259	45.6	16	0.530	0.140	0.081	14.3

Method: Extraction with 1M KCl 1:10 (w/v)

Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	Rel.Uncert. %
N - NH ₄ (as N)	mg/kg	3.91	1.15	29.5	15	3.93	0.580	0.373	9.53



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Method: Phosphorus and related analysis

Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	Rel.Uncert. %
P - Bray (as P)	mg/kg	11.8	10.6	89.4	24	14.3	9.98	2.70	22.8
Al - Ox	mg/kg	839	99.7	11.9	4	836	48.4	62.3	7.42
Fe - Ox	mg/kg	395	147	37.2	4	383	70.2	91.9	23.3
P - AL (as P)	mg/kg	36.4	7.07	19.4	7	35.8	3.92	3.34	9.18

Method: UK Soil Methods

Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	Rel.Uncert. %
P – NaHCO ₃ (1/20)	mg/l	7.57	2.70	35.6	15	7.60	1.80	0.870	11.5

Method: PEP-Water extraction

Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	Rel.Uncert. %
H2O10-Mg	mg/kg	8.12	1.56	19.2	7	8.09	0.890	0.737	9.07
H2O10-K	mg/kg	25.0	1.62	6.5	7	24.5	1.30	0.768	3.07
H2O10-P	mg/kg	0.728	0.198	27.2	7	0.704	0.096	0.094	12.9

Method: PEP-Test measurements

Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	Rel.Uncert. %
CO ₂ -K	K-test	3.07	0.201	6.6	7	3.03	0.116	0.095	3.10
CO ₂ -P	P-test	2.07	0.336	16.2	7	1.94	0.110	0.159	7.65
CC-Mg	Mg-test	10.9	0.560	5.1	7	10.7	0.360	0.265	2.42
CaCO ₃	%	20.9	2.34	11.2	7	21.1	1.45	1.10	5.28
pH-CC	...	7.50	0.142	1.9	4	7.49	0.073	0.089	1.19

Method: PEP-Physical parameters

Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	Rel.Uncert. %
Ton (clay)	%	24.2	3.42	14.1	6	24.4	2.30	1.74	7.20
Schluff (silt)	%	36.2	2.84	7.8	6	36.2	2.15	1.45	4.00
Sand	%	36.3	2.72	7.5	5	36.5	1.45	1.52	4.20
C-org	%	0.677	0.100	14.8	8	0.669	0.049	0.044	6.53
Humus	%	1.12	0.176	15.7	8	1.14	0.095	0.078	6.92
TOC_400	%	0.616	0.068	11.1	6	0.630	0.005	0.035	5.65
ROC_600	%	0.280	0.037	13.4	4	0.270	0.020	0.023	8.35

Method: PEP-Cation Exchange Capacity

Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	Rel.Uncert. %
Ca	cmol+/kg	25.2	7.18	28.5	4	24.7	3.85	4.48	17.8
Mg	cmol+/kg	1.80	0.063	3.5	4	1.80	0.029	0.039	2.18



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Method: PEP-Cation Exchange Capacity									(cont.)
Element	Unit	Mean	Std.Dev.	CV %	N	Median	MAD	Uncertainty	Rel.Uncert. %
K	cmol+/kg	0.754	0.022	2.9	4	0.749	0.012	0.013	1.79
KAK	cmol+/kg	28.0	8.26	29.5	4	27.6	4.32	5.16	18.4
S-Wert	cmol+/kg	27.8	7.55	27.2	4	27.2	3.92	4.72	17.0
BAS	%	100.0	0.118	0.1	4	100	0	0.074	0.074