

Reference Material and Inter-laboratory Quality Control Materials Product Summary

September 2025

Version: 2

Assigned Values: Values provided have been generated from an Inter-Laboratory Proficiency Programme (ILPP). The reference material values provided in this summary are the mean of the results after the exclusion of statistical outliers. The Assigned Range provided for the Inter-laboratory QC Materials is the range of test values available for purchase. Each Reference and QC Material comes with a Data Summary Sheet.

Missing Values and Available Tests: For Reference Materials where property values do not meet the statistical criteria, the summary values have not been provided. For this reason, not all tests will be available for every Reference Material of the same matrix. However, if there are 3 or more data points available, an Assigned Value will be provided with the corresponding QC material.

Sample Sizes: Available sample sizes are shown for reference materials.

Ordering Reference Materials and/or Quality Control Materials, acknowledges you have read and understood our terms and conditions. These can be found at:
<https://www.global-proficiency.com/terms-conditions>

Reference Materials: Soil Material

Product Type	Soil	Soil	Soil	Soil
Product ID	989-C-1	988-C-1	987-C-1	970-C-1
Expiry Date	31 Mar 27	31 Mar 27	6 Jun 28	6 Jun 28
Sample Size	150g	150g	150g	150g
Acid P (mg/kg)		45.6		21.7
Air-Dry Moist Content (%)	2.46		2.67	
Ammonium Nitrogen (mg/kg)			5.02	5.31
Aqua Regia Aluminium (mg/kg)	21,123	29,380	29,635	728

Aqua Regia Arsenic (mg/kg)	2.46	2.39	4.14	0.691
Aqua Regia Boron (mg/kg)			8.41	0.531
Aqua Regia Cadmium (mg/kg)		0.122		0.0124
Aqua Regia Calcium (mg/kg)	1,030	1,654		417
Aqua Regia Chromium (mg/kg)	15.9	268	44.1	3.00
Aqua Regia Cobalt (mg/kg)	13.4	115	7.59	0.274
Aqua Regia Copper (mg/kg)	8.37	67.6	1.48	1.60
Aqua Regia Iron (mg/kg)	48,628	101,345	32,173	1,283
Aqua Regia Lead (mg/kg)	9.99	11.1	11.3	4.56
Aqua Regia Magnesium (mg/kg)	496	580	2,469	119
Aqua Regia Manganese (mg/kg)	757	6,789	39.9	7.01
Aqua Regia Molybdenum (mg/kg)		1.77	0.553	0.237
Aqua Regia Potassium (mg/kg)	270		4,036	81.6
Aqua Regia Selenium (mg/kg)		1.47		0.122
Aqua Regia Sodium (mg/kg)	60.9	127	1,188	
Aqua Regia Sulphur (mg/kg)				93.5
Aqua Regia Zinc (mg/kg)	56.3	151	7.87	6.73
Bray P (mg/kg)		6.12		14.0
CaCl ₂ Extractable B (mg/kg)	0.699	1.16	1.98	0.316
Colwell P (mg/kg)	53.6	54.3	4.65	17.3
Electrical Cond (dS/m)	0.177		1.30	0.118
Exch Calcium (cmol+/kg)	4.23	6.37	12.8	1.63

Exch Magnesium (cmol+/kg)	1.64	2.62	6.56	0.576
Exch Potassium (cmol+/kg)	0.164	0.403	1.45	0.113
Exch Sodium (cmol+/kg)	0.151	0.0987	4.29	0.259
Ext Copper (mg/kg)	1.29	5.33	0.137	0.346
Ext Iron (mg/kg)	181	23.8		118
Ext Manganese (mg/kg)		216	4.59	2.96
Ext Sulphur (mg/kg)	19.3	20.4	121	21.1
Ext Zinc (mg/kg)	3.06		0.399	3.72
M3-Aluminium (mg/kg)	1,055	781	977	265
M3-Boron (mg/kg)		0.964	2.22	
M3-Calcium (mg/kg)	842	1,271	2,423	
M3-Copper (mg/kg)	1.26	8.38	0.235	0.530
M3-Iron (mg/kg)	364	79.8	46.4	206
M3-Magnesium (mg/kg)		318	805	
M3-Manganese (mg/kg)		548	7.16	3.22
M3-Phosphorus (mg/kg)		8.69	0.966	20.8
M3-Potassium (mg/kg)	59.8	146		
M3-Sodium (mg/kg)	30.4	14.2	961	
M3-Sulphur (mg/kg)		24.5	135	
M3-Zinc (mg/kg)	3.71	10.3	0.559	4.62
Nitrate Nitrogen (mg/kg)	60.7	8.12	9.84	11.7
Olsen P (mg/kg)	13.7	14.8	1.28	11.1

Organic Carbon W&B (%)	2.14	1.51	0.193	0.956
PBI Colwell (L/kg)		226	234	23.8
pH CaCl2 (pH units)		5.67	6.44	4.67
pH Water (pH units)	4.88	6.24	6.71	5.46
Total Carbon (%)	2.42	1.82	0.192	1.06
Total Nitrogen (%)	0.225	0.178	0.0216	0.0476
Total Organic Carbon (%)	2.37	1.76	0.184	1.02
Total Phosphorus (%)	0.102	0.132	0.0047	0.0050
Water Ext Cl (mg/kg)	15.6	5.81	1,753	63.6

QC Material: Soil Material

Matrix: Soil Material	Product ID	12905-QC	10593-QC	13039-QC	13040-QC	13957-QC	13951-QC	13954-QC	14160-QC	13958-QC	13959-QC	13964-QC
	Process Run	PR10728	PR12165	PR12184	PR10730	PR12183	PR12350	PR12350	PR12165	PR12182	PR12182	PR12181
	Expiry Date	31 Jan 27	31 Mar 27	30 Jun 27	30 Sep 27	05 Jun 28	06 Jun 28	06 Jun 28	01 Sep 28	11 Sep 28	11 Sep 28	01 Mar 29
	Sample Size	150g	150g	150g	150g	150g	150g	150g	150g	150g	150g	150g
	Acid P (mg/kg)	42.3	21.0	90.0	301	10.1	3.40	21.6	54.8	53.3	6.20	46.8
	Air-Dry Moist Content (%)	1.65	2.80	1.08	1.49	0.910	2.81	0.340	2.46	1.02	3.61	0.687
	Ammonium Nitrogen (mg/kg)	7.45	24.9	29.0	74.3	14.6	5.40	6.03	20.5	28.9	47.0	25.2
	Aqua Regia Aluminium (mg/kg)	15000	22850	4955	5210	4280	35200	712	51250	6500	24000	6920
	Aqua Regia Arsenic (mg/kg)	6.01	2.46	1.40	2.58	0.718	4.11	0.730	3.04	2.00	4.58	1.62
	Aqua Regia Boron (mg/kg)	4.22	1.64	2.06	3.50	1.30	13.3	0.650	4.40	2.31	14.1	0.925
	Aqua Regia Cadmium (mg/kg)	0.0470	0.0630	0.0640	0.0740	0.0160	0.0090	0.0110	0.0920	0.0840	0.0510	0.0300
	Aqua Regia Calcium (mg/kg)	477	983	2250	4520	380	2585	435	977	3740	6010	1325
	Aqua Regia Chromium (mg/kg)	46.2	15.6	8.01	32.5	7.43	44.5	3.35	90.1	31.0	34.7	29.4
	Aqua Regia Cobalt (mg/kg)	20.6	12.8	1.80	2.32	0.500	7.88	0.295	8.16	3.00	10.3	11.6
	Aqua Regia Copper (mg/kg)	23.7	8.28	9.13	11.9	2.50	1.40	1.48	21.0	7.00	15.3	6.30
	Aqua Regia Iron (mg/kg)	36850	48500	4480	6680	4640	35600	1310	201000	7780	23800	12500
	Aqua Regia Lead (mg/kg)	15.4	9.80	24.0	23.3	8.94	11.6	4.40	16.0	15.0	10.4	8.97
	Aqua Regia Magnesium (mg/kg)	1520	535	752	1255	319	3000	140	400	974	4350	1015
	Aqua Regia Manganese (mg/kg)	679	737	50.0	67.3	22.8	43.2	7.77	520	67.8	275	350
	Aqua Regia Molybdenum (mg/kg)	0.630	0.981	0.286	2.10	0.300	0.497	0.255	2.04	2.20	0.702	0.383
	Aqua Regia Nickel (mg/kg)		6.53				13.9	1.80	9.80			5.06
	Aqua Regia Potassium (mg/kg)	2145	311	597	1555	210	5655	99.2	290	440	4680	1140

Aqua Regia Selenium (mg/kg)	0.956	1.31	0.568	0.324	0.300	0.600	0.120	1.36	0.440	0.435	0.345
Aqua Regia Silicon (mg/kg)	712		500	581	421				280	681	
Aqua Regia Sodium (mg/kg)	77.1	58.2	254	428	42.0	1240	68.4	49.7	185	269	40.1
Aqua Regia Sulphur (mg/kg)	97.4	340	225	729	130	186	99.0	479	257	627	130
Aqua Regia Zinc (mg/kg)	40.4	60.9	29.0	37.3	7.20	11.0	6.79	68.6	21.7	54.8	20.2
Bray P (mg/kg)	20.3	7.00	36.3	97.4	7.82	0.816	14.7	8.93	13.2	1.87	33.4
CaCl ₂ Extractable B (mg/kg)	0.523	0.660	0.810	1.54	0.500	1.94	0.295	2.62	0.521	1.05	0.204
Colwell P (mg/kg)	52.5	54.7	45.9	136	14.8	4.40	18.1	71.8	29.0	16.0	34.5
Electrical Cond (dS/m)	0.0680	0.178	0.340	0.981	0.0940	1.28	0.120	0.122	0.322	0.529	0.264
Exch Aluminium (cmol+/kg)	0.983	0.493	0.0100	0.0140	0.454	0.0120	0.0470	0.0760	0.0120	0.0110	0.0370
Exch Calcium (cmol+/kg)	1.80	4.35	7.81	11.5	1.65	12.9	1.72	3.75	13.6	23.0	4.03
Exch Magnesium (cmol+/kg)	1.14	1.63	1.80	3.22	0.916	6.60	0.581	0.910	2.13	6.99	0.540
Exch Potassium (cmol+/kg)	0.745	0.143	0.744	2.99	0.145	1.48	0.111	0.376	0.277	1.73	0.815
Exch Sodium (cmol+/kg)	0.110	0.132	0.854	1.34	0.152	4.36	0.269	0.0600	0.330	0.704	0.0410
Ext Copper (mg/kg)	2.03	1.22	1.60	2.08	0.408	0.150	0.366	1.74	1.03	3.30	0.530
Ext Iron (mg/kg)	78.3	157	134	145	390	10.9	118	43.8	99.2	84.5	56.1
Ext Manganese (mg/kg)	194	83.8	9.50	24.8	7.22	4.60	2.88	15.0	8.48	22.9	70.3
Ext Potassium (mg/kg)	333	58.0	310	1250	66.2	420	50.0	130	140	641	378
Ext Silicon (mg/kg)	188	283	246	355	33.0	915	37.0	291	459	1170	122
Ext Sulphur (mg/kg)	27.0	52.9	56.6	273	15.9	156	21.7	182	97.0	213	30.3
Ext Zinc (mg/kg)	3.58	5.14	15.1	20.2	2.44	0.425	4.50	7.30	9.32	12.4	2.24
M3-Aluminium (mg/kg)	760	1040	503	440	474	905	253	1200	448	450	482

M3-Boron (mg/kg)	0.209	0.248	0.657	1.26	0.200	2.23	0.200	1.45	0.553	1.13	0.102
M3-Calcium (mg/kg)	336	795	1625	2625	310	2290	352	719	2900	4360	759
M3-Copper (mg/kg)	2.39	1.17	3.00	2.41	0.257	0.226	0.507	2.71	1.50	3.70	0.698
M3-Iron (mg/kg)	231	316	332	422	526	40.8	190	88.2	451	400	116
M3-Magnesium (mg/kg)	137	200	242	412	110	762	70.9	113	309	882	69.8
M3-Manganese (mg/kg)	226	105	13.5	28.4	7.35	6.76	3.03	27.9	19.9	53.3	105
M3-Phosphorus (mg/kg)	32.7	14.9	65.1	192	12.6	0.912	20.8	9.02	26.2	5.82	69.2
M3-Potassium (mg/kg)	275	57.0	297	1100	53.6	506	42.3	139	104	616	315
M3-Sodium (mg/kg)	25.8	28.6	194	297	32.0	915	58.1	13.0	77.3	154	9.34
M3-Sulphur (mg/kg)	24.4	35.0	60.3	270	17.4	131	25.0	82.9	107	213	32.7
M3-Zinc (mg/kg)	3.23	3.51	12.7	17.2	2.02	0.526	4.45	3.81	7.90	10.5	1.84
Nitrate Nitrogen (mg/kg)	9.21	60.6	3.48	0.270	7.63	10.3	11.5	9.34	14.0	12.1	98.9
Olsen P (mg/kg)	17.5	13.6	18.2	51.6	8.40	1.42	11.3	17.9	11.9	5.61	15.8
Organic Carbon W&B (%)	0.768	2.21	1.89	3.38	1.83	0.190	0.963	2.40	1.51	1.23	1.05
PBI Colwell (L/kg)	97.7	283	60.3	74.7	71.0	233	24.0	875	82.0	153	36.0
PBI Olsen (L/kg)	105	282	69.2	91.6	78.7				81.1	147	41.9
PBI Unadjusted (L/kg)	89.0	265	52.0	50.0	69.0	235	20.0	819	76.9	150	30.6
pH CaCl2 (pH units)	4.09	4.41	6.74	7.02	4.39	6.50	4.64	4.91	7.66	7.40	5.20
pH Water (pH units)	4.88	4.85	7.30	7.45	5.06	6.77	5.47	5.43	8.12	7.75	5.70
Total Carbon (%)	0.939	2.43	2.10	3.73	1.97	0.194	1.07	2.82	1.66	1.48	1.20
Total Nitrogen (%)	0.0760	0.220	0.134	0.240	0.115	0.0240	0.0530	0.214	0.110	0.154	0.119
Total Org C IR (%)	0.860		1.90	3.16	1.81	0.190	0.990		1.67	1.46	

	Total Organic Carbon (%)	0.902	2.38	2.06	3.59	1.87	0.182	1.01	2.80	1.57	1.33	1.20
	Total Organic Matter (%)						5.11	2.07				
	Total Phosphorus (%)	0.0420	0.102	0.0220	0.0430	0.0080	0.0050	0.0050	0.244	0.0170	0.0180	0.0230
	Water Ext Cl (mg/kg)	8.16	14.7	183	496	24.5	1710	58.1	15.6	39.8	16.2	15.7