	Code	Product	Unit
New	WEPAL-SETOC-755	Sediment - Organic compounds, inorganic composition (please ask for detailed information)	75 g
New	WEPAL-SETOC-756	Sediment - Organic compounds, inorganic composition (please ask for detailed information)	150 g
New	WEPAL-SETOC-757	Sediment - Organic compounds, inorganic composition (please ask for detailed information)	150 g
New	WEPAL-SETOC-760	Sediment - Organic compounds, inorganic composition (please ask for detailed information)	150 g
New	WEPAL-SETOC-766	Sediment - Organic compounds, inorganic composition (please ask for detailed information)	150 g
New	WEPAL-SETOC-769	Sediment - Organic compounds, inorganic composition (please ask for detailed information)	150 g
New	WEPAL-SETOC-770	Sediment - Organic compounds, inorganic composition (please ask for detailed information)	150 g

Soils

Code	Product	Unit
BCR-142R	Light sandy soil - Trace elements	40 g

Certified values

Cd ..... 0.34 mg/kg	Hg..... 0.067 mg/kg	Pb ..... 40.2 mg/kg
Co ..... 12.1 mg/kg	Mn ..... 970 mg/kg	
Cu ..... 69.7 mg/kg	Ni..... 64.5 mg/kg	

Indicative values for Cr, Zn

Aqua regia soluble content

Certified values

Cd ..... 0.25 mg/kg	Pb..... 25.7 mg/kg
Ni ..... 61.1 mg/kg	Zn ..... 93.3 mg/kg

Indicative values for Co, Cr, Cu, Mn

ERM-CC690	Calcareous soil - Trace elements	70 g

Certified values

Ce ..... 49.1 mg/kg	Nd..... 19.1 mg/kg	Th..... 7.64 mg/kg
Dy ..... 2.90 mg/kg	Sc..... 7.81 mg/kg	Tm ..... 0.232 mg/kg
Gd ..... 3.25 mg/kg	Sm..... 3.50 mg/kg	U ..... 1.90 mg/kg
La..... 24.4 mg/kg	Tb ..... 0.503 mg/kg	Yb ..... 1.57 mg/kg

Indicative values for: As, Au, Co, Cr, Cs, Cu, Er, Eu, Fe, Hf, Ho, Lu, Ni, Pb, Pr, Sb, Ta, W, Y and Zn

New	ERM-CC141	Loam soil - Trace elements	24 g

Certified values

Total content

As..... 9.9 ± 1.5 mg/kg	Cr ..... 86 ± 8 mg/kg	Ni ..... 26.4 ± 2.4 mg/kg
Cd ..... 0.35 ± 0.05 mg/kg	Cu..... 14.4 ± 1.4 mg/kg	Pb ..... 41 ± 4 mg/kg
Co ..... 8.5 ± 0.5 mg/kg	Mn ..... 464 ± 18 mg/kg	Zn..... 57 ± 4 mg/kg

Aqua regia extractable content according to ISO 11466

As..... 7.5 ± 1.4 mg/kg	Cr ..... 31 ± 4 mg/kg	Ni ..... 21.9 ± 1.6 mg/kg
Cd ..... 0.25 ± 0.04 mg/kg	Cu..... 12.4 ± 0.9 mg/kg	Pb ..... 32.2 ± 1.4 mg/kg
Co ..... 7.9 ± 0.9 mg/kg	Mn ..... 387 ± 17 mg/kg	Zn..... 50 ± 4 mg/kg

BCR-700	Organic rich soil - Extractable trace elements	40 g

Certified values

EDTA

Cd ..... 65.2 mg/kg	Cu..... 89.4 mg/kg	Pb ..... 103 mg/kg
Cr..... 10.1 mg/kg	Ni..... 53.2 mg/kg	Zn..... 510 mg/kg

Acetic acid

Cd ..... 67.5 mg/kg	Cu..... 36.3 mg/kg	Pb ..... 4.85 mg/kg
Cr..... 19 mg/kg	Ni..... 99 mg/kg	Zn..... 719 mg/kg

EUROSOILS

The environmental fate of a chemical substance that is deliberately or accidentally distributed in the environment can only be understood if one studies its possible interaction with the various environmental compartments. In this context the processes related to soil are of particular importance and as a consequence producers of chemicals are nowadays obliged to access the interaction of a given chemical product with soils (EU Directive 67/548/EEC and amendments). To achieve a better comparability of data the European Commission's IRMM has released the world`s first Certified Reference Materials (IRMM-443) for soil adsorption testing of chemical substances according to the OECD Testguideline 106. Six EU-representative soils have been selected and their adsorption coefficients for three reference substances (Atrazine, 2,4-D and Lindane) have been certified. Furthermore, the soil-pH according to the respective ISO-standards in aqueous solution and in 0.01 M calcium chloride have been certified, too. Additional information on other pedological parameters (CEC, organic carbon content, Total N and C), matrix constituents and background pollution makes IRMM-443 one the best characterised reference soil sets on a global level.

Code	Product	Unit

IRMM-443-1 EUROSOIL 1 — 200 g

Parameter	Value	Parameter	Value
K_f of Atrazine (1)	7.0	1/n of 2,4-D (1)	0.9
1/n of Atrazine (1)	0.91	pH in Water (2)	6.21
K_f of 2,4-D (1)	2.5	pH in 0.01M $CaCl_2$ (2)	5.65

Non-certified indicative values

Parameter	Value	Parameter	Value
K_f of Lindane (1)	68	Organic carbon content	32.7 g/kg
1/n of Lindane (1)	0.9	Total nitrogen content	3.4 g/kg
Total carbon content	33.9 g/kg		

(1) Determination according OECD Test guideline 106

(2) Measurement based on ISO Standard 10390

IRMM-443-2 EUROSOIL 2 — 200 g

Certified values

Parameter	Value	Parameter	Value
K_f of Atrazine (1)	2.7	K_f of Lindane (1)	48
1/n of Atrazine (1)	0.93	1/n of Lindane (1)	0.98
K_f of 2,4-D (1)	0.99	pH in Water (2)	8.1
1/n of 2,4-D (1)	0.96	pH in 0.01M $CaCl_2$ (2)	7.5

Non-certified indicative values

Parameter	Value	Parameter	Value
Total carbon content	108.1 g/kg	Total nitrogen content	2.5 g/kg
Organic carbon content	37.2 g/kg		

(1) Determination according OECD Test guideline 106

(2) Measurement based on ISO 10390

IRMM-443-3 EUROSOIL 3 — 200 g

Certified values

Parameter	Value	Parameter	Value
K_f of Atrazine (1)	2.4	1/n of 2,4-D (1)	0.93
1/n of Atrazine (1)	0.91	pH in Water (2)	6.2
K_f of 2,4-D (1)	1.31	pH in 0.01M $CaCl_2$ (2)	5.5

Non-certified indicative values

Parameter	Value	Parameter	Value
K_f of Lindane (1)	36	Organic carbon content	30.1 g/kg
1/n of Lindane (1)	1.0	Total nitrogen content	3.1 g/kg
Total carbon content	32.5 g/kg		

(1) Determination according OECD Test guideline 106

(2) Measurement based on ISO 10390

IRMM-443-4 EUROSOIL 4 — 200 g

Certified values

Parameter	Value	Parameter	Value
K_f of Atrazine (1)	0.7	K_f of Lindane (1)	8.3
1/n of Atrazine (1)	0.87	1/n of Lindane (1)	0.96
K_f of 2,4-D (1)	0.39	pH in Water (2)	7.5
1/n of 2,4-D (1)	0.86	pH in 0.01M $CaCl_2$ (2)	6.8

Non-certified indicative values

Parameter	Value	Parameter	Value
Total carbon content	14.5 g/kg	Total nitrogen content	1.6 g/kg
Organic carbon content	13.1 g/kg		

(1) Determination according OECD Test guideline 106

(2) Measurement based on ISO 10390

IRMM-443-5 EUROSOIL 5 — 200 g

Certified values

Parameter	Value	Parameter	Value
K_f of Atrazine (1)	13	1/n of 2,4-D (1)	0.9
1/n of Atrazine (1)	0.9	pH in Water (2)	4.1
K_f of 2,4-D (1)	18	pH in 0.01M $CaCl_2$ (2)	3.1

Non-certified indicative values

Parameter	Value	Parameter	Value
K_f of Lindane (1)	99	Organic carbon content	59.6 g/kg
1/n of Lindane (1)	0.9	Total nitrogen content	2.3 g/kg
Total carbon content	64.3 g/kg		

(1) Determination according OECD Test guideline 106

(2) Measurement based on ISO 10390

Code	Product	Unit
IRMM-443-7	EUROSOIL 7 Certified values	200 g

Parameter	Value	Parameter	Value
K_f of Atrazine (1)	4.8	1/n of 2,4-D(1)	0.88
1/n of Atrazine (1)	0.92	pH in Water(2)	5.1
K_f of 2,4-D(1)	8.2	pH in 0.01M $CaCl_2$ (2)	4.3

Non-certified indicative values

Parameter	Value	Parameter	Value
K_f of Lindane (1)	58	Organic carbon content	56.2 g/kg
1/n of Lindane (1)	0.9	Total nitrogen content	4.8 g/kg
Total carbon content	58.7 g/kg		

(1) Determination according OECD Test guideline 106

(2) Measurement based on ISO 10390

AGH S-1	Polish soil Collected from an agricultural region 150 km from Krakow, the soil is typical of a well used, but unpolluted, agricultural soil in central Europe. Certified values	50 g

As	3.4 µg/g	Eu	0.6 µg/g	Sb	0.5 µg/g
Ca	2.6 mg/g	Fe	9.88 mg/g	Sc	4 µg/g
Cd	0.3 µg/g	K	12.05 mg/g	Th	7 µg/g
Ce	44µg/g	Mn	266 µg/g	Zn	35 µg/g
Co	3.9µg/g	Na	4.44 mg/g	Zr	620 µg/g
Cr	38 µg/g	Pb	15 µg/g	Rb	52 µg/g

RTC-CLNSOIL1-5

These five different soil types are not contaminated and contain only what an analyst can expect to find in a “clean soil”. They are well characterised for nearly every parameter of interest. These soils are useful as a base material with known characteristics that can be spiked for in-house method development and validation, method comparison or other uses.

RTC-CLN SOIL-1-100	Clean sandy soil Please ask for details	100 g
RTC-CLN SOIL-1-250	Clean sandy soil Please ask for details	250 g
RTC-CLN SOIL-2-100	Clean clay loam Please ask for details	100 g
RTC-CLN SOIL-2-250	Clean clay loam Please ask for details	250 g
RTC-CLN SOIL-3-100	Clean sandy loam Please ask for details	100 g
RTC-CLN SOIL-3-250	Clean sandy loam Please ask for details	250 g
RTC-CLN SOIL-5-100	Clean clay Please ask for details	100 g
RTC-CLN SOIL-5-250	Clean clay Please ask for details	250 g
New NIST-2701	Contaminated soil - Hexavalent chromium (high level) Certified values	75 g

Hexavalent Cr	551.2 mg/kg ± 34.5 mg/kg	Fe	23.73 % ± 0.19 %
Total Cr	4.26 % ± 0.12 %	Mn	0.2137 % ± 0.0014 %

Indicative values for selected elements.

RTC-CRM041-030	Soil - Hexavalent Chromium VI Certified value	

Chromium VI, Cr(VI) 91.4 mg/Kg

New NIST-2709A	San Joaquin soil - Trace and constituent elements (baseline) Certified values	50 g

Aluminum	7.37 ± 0.16 %	Iron	3.36 ± 0.07 %	Sodium	1.22 ± 0.03 %
Antimony	1.55 ± 0.06 mg/kg	Lead	17.3 ± 0.1 mg/kg	Strontium	239 ± 6 mg/kg
Calcium	1.91 ± 0.09 %	Magnesium	1.46 ± 0.02 %	Titanium	0.336 ± 0.007 %
Barium	979 ± 28 mg/kg	Manganese	529 ± 18 mg/kg	Vanadium	110 ± 11 mg/kg
Cadmium	0.371 ± 0.002	Phosphorus	0.0688 ± 0.0013 %	Zirconium	195 ± 46 mg/kg
Chromium	130 ± 9 mg/kg	Potassium	2.11 ± 0.06 %		
Cobalt	12.8 ± 0.2 mg/kg	Silicon	30.3 ± 0.4 %		

	Code	Product	Unit
New	NIST-2710A	Montana I soil - Trace and constitutent elements (highly elevated)	50 g

Certified values

Aluminum ..... 5.95 ± 0.05 %	Iron ..... 4.32 ± 0.08 %	Silicon ..... 31.1 ± 0.4 %
Antimony ..... 52.5 ± 1.6 mg/kg	Lanthanum ..... 30.6 ± 1.2 mg/kg	Sodium ..... 0.894 ± 0.019 %
Arsenic ..... 0.154 ± 0.010 %	Lead ..... 0.552 ± 0.003 %	Strontium ..... 255 ± 7 mg/kg
Barium ..... 792 ± 36 mg/kg	Magnesium ..... 0.734 ± 0.038 %	Titanium ..... 0.311 ± 0.007 %
Calcium ..... 0.964 ± 0.045 %	Manganese ..... 0.214 ± 0.006 %	Uranium ..... 9.11 ± 0.30 mg/kg
Cadmium ..... 12.3 ± 0.3 mg/kg	Mercury ..... 9.88 ± 0.21 mg/kg	Zinc ..... 0.418 ± 0.015 %
Cobalt ..... 5.99 ± 0.14 mg/kg	Phosphorus ..... 0.105 ± 0.004 %	
Copper ..... 0.342 ± 0.005 %	Potassium ..... 2.17 ± 0.13 %	

New	NIST-2711A	Montana II Soil - Trace and constituent elements (mod. elevated)	50 g

This Standard Reference Material (SRM®) is intended primarily for use in the analysis of soils, sediments, or other materials of a similar matrix. One unit of NIST-2711a consists of 50 g of the dried, powdered soil.

Al ..... 6.72 ± 0.06 %	Hg ..... 7.42 ± 0.18 mg/kg	Sb ..... 23.8 ± 1.4 mg/kg
As ..... 107 ± 5 mg/kg	K ..... 2.53 ± 0.10 %	Si ..... 31.4 ± 0.7 %
Ba ..... 730 ± 15 mg/kg	Mg ..... 1.07 ± 0.06 %	Sr ..... 242 ± 10 mg/kg
Ca ..... 2.42 ± 0.06 %	Mn ..... 675 ± 18 mg/kg	Ti ..... 0.317 ± 0.008 %
Ca ..... 54.1 ± 0.5 mg/kg	Na ..... 1.20 ± 0.01 %	U ..... 3.01 ± 0.12 mg/kg
Co ..... 9.89 ± 0.18 mg/kg	Ni ..... 21.7 ± 0.7 mg/kg	V ..... 80.7 ± 5.7 mg/kg
Cr ..... 52.3 ± 2.9 mg/kg	P ..... 842 ± 11 mg/kg	Zn ..... 414 ± 11 mg/kg
Cu ..... 140 ± 2 mg/kg	Pb ..... 0.140 ± 0.001 %	
Fe ..... 2.82 ± 0.04 %	Sa ..... 5.93 ± 0.28 mg/kg	

NIST-4355	Peruvian soil - Radioactivity	75 g

Certified values

^{241}Am ..... 0.000004 Bq/g	^{238}Pu+^{240}Pu ..... 0.0000076 Bq/g	^{230}Th ..... 0.0397 Bq/g
^{137}Cs ..... 0.00033 Bq/g	^{228}Th ..... 0.0422 Bq/g	^{232}Th ..... 0.0430 Bq/g

IAEA-SOIL-6	Soil - Radioactive isotopes	250 g

The IAEA-SOIL-6 sample was collected near Ebensee in Upper Austria at an altitude of 1100 m above sea level.

Recommended values

^{137}Cs ..... 53.65 Bq/kg	^{226}Ra ..... 79.92 Bq/kg
^{239}Pu + ^{240}Pu ..... 1.04 Bq/kg	^{90}Sr ..... 30.34 Bq/kg

New	NIM-GBW07424	Soil - Composition including trace elements	70 g

Certified values

Ag ..... 0.083 ± 0.010 µg/g	Ho ..... 0.97 ± 0.04 µg/g	Ta ..... 1.3 ± 0.2 µg/g
As ..... 8.9 ± 0.9 µg/g	I ..... 3.2 ± 0.2 µg/g	Tb ..... 0.84 ± 0.05 µg/g
B ..... 35 ± 3 µg/g	In ..... 0.055 ± 0.015 µg/g	Th ..... 11.3 ± 0.4 µg/g
Ba ..... 613 ± 12 µg/g	La ..... 35.5 ± 1.7 µg/g	Ti ..... 0.427 ± 0.006 %
Be ..... 2.4 ± 0.1 µg/g	Li ..... 30.6 ± 1.5 µg/g	Tl ..... 0.58 ± 0.05 µg/g
Bi ..... 0.27 ± 0.02 µg/g	Lu ..... 0.46 ± 0.03 µg/g	Tm ..... 0.42 ± 0.03 µg/g
Br ..... 5.8 ± 0.4 µg/g	Mn ..... 681 ± 13 µg/g	U ..... 2.25 ± 0.12 µg/g
Cd ..... 0.105 ± 0.013 µg/g	Mo ..... 0.52 ± 0.04 µg/g	V ..... 74 ± 3 µg/g
Ce ..... 70 ± 4 µg/g	N ..... 0.126 ± 0.011 %	W ..... 1.66 ± 0.10 µg/g
Cl ..... 216 ± 14 µg/g	Nb ..... 16.5 ± 0.7 µg/g	Y ..... 26.5 ± 0.9 µg/g
Co ..... 11.7 ± 0.5 µg/g	Nd ..... 32 ± 2 µg/g	Yb ..... 2.81 ± 0.14 µg/g
Cr ..... 58 ± 2 µg/g	Ni ..... 26 ± 1 µg/g	Zn ..... 60 ± 4 µg/g
Cs ..... 6.5 ± 0.4 µg/g	P ..... 500 ± 27 µg/g	Zr ..... 350 ± 12 µg/g
Cu ..... 19 ± 1 µg/g	Pb ..... 22 ± 2 µg/g	SiO_2 ..... 65.50 ± 0.12 %
Dy ..... 4.7 ± 0.3 µg/g	Pr ..... 8.5 ± 0.5 µg/g	Al_2O_3 ..... 13.80 ± 0.11 %
Er ..... 2.75 ± 0.17 µg/g	Rb ..... 108 ± 3 µg/g	Fe_2O_3 (T) ..... 4.17 ± 0.03 %
Eu ..... 1.25 ± 0.04 µg/g	S ..... 270 ± 24 µg/g	MgO ..... 1.30 ± 0.03 %
F ..... 452 ± 16 µg/g	Sb(DA) ..... 0.68 ± 0.09 µg/g	CaO ..... 2.62 ± 0.06 %
Ga ..... 18 ± 1 µg/g	Sc ..... 10.2 ± 0.3 µg/g	Na_2O ..... 2.14 ± 0.06 %
Gd ..... 5.2 ± 0.3 µg/g	Se ..... 0.21 ± 0.02 µg/g	K_2O ..... 2.65 ± 0.05 %
Ge ..... 1.31 ± 0.08 µg/g	Sm ..... 6.0 ± 0.2 µg/g	Corg. ..... 1.35 ± 0.07 %
Hf ..... 9.5 ± 0.7 µg/g	Sn ..... 3.4 ± 0.4 µg/g	
Hg ..... 0.033 ± 0.004 µg/g	Sr ..... 226 ± 5 µg/g	

Indicative values for Re, Sb, FeO, H_2O^+, CO_2
Sb(DA) is result with aqua regia digestion

Code	Product	Unit
New NIM-GBW07425	Soil - Composition including trace elements	70 g

Certified values

Ag 0.098 ± 0.007 µg/g	Ho 0.89 ± 0.05 µg/g	Ta 1.05 ± 0.14 µg/g
As 7.4 ± 0.5 µg/g	I 1.6 ± 0.1 µg/g	Tb 0.76 ± 0.05 µg/g
B 36 ± 3 µg/g	In 0.047 ± 0.013 µg/g	Te µg/g
Ba 634 ± 10 µg/g	La 34 ± 2 µg/g	Th 10.8 ± 0.6 µg/g
Be 2.25 ± 0.08 µg/g	Li 30 ± 2 µg/g	Ti 0.392 ± 0.006 %
Bi 0.28 ± 0.01 µg/g	Lu 0.41 ± 0.02 µg/g	Tl 0.62 ± 0.02 µg/g
Br 2.8 ± 0.2 µg/g	Mn 572 ± 14 µg/g	Tm 0.38 ± 0.03 µg/g
Cd 0.125 ± 0.012 µg/g	Mo 0.60 ± 0.04 µg/g	U 2.2 ± 0.1 µg/g
Ce 65 ± 3 µg/g	N 0.095 ± 0.010 %	V 74 ± 2 µg/g
Cl 98 ± 12 µg/g	Nb 13.8 ± 0.6 µg/g	W 1.65 ± 0.12 µg/g
Co 11.6 ± 0.4 µg/g	Nd 30 ± 2 µg/g	Y 23.6 ± 0.7 µg/g
Cr 59 ± 3 µg/g	Ni 25.4 ± 1.3 µg/g	Yb 2.54 ± 0.13 µg/g
Cs 6.0 ± 0.4 µg/g	P 483 ± 24 µg/g	Zn 65 ± 5 µg/g
Cu 21.4 ± 1.2 µg/g	Pb 24.7 ± 1.4 µg/g	Zr 270 ± 9 µg/g
Dy 4.2 ± 0.4 µg/g	Pr 7.9 ± 0.5 µg/g	SiO_2 69.42 ± 0.28 %
Er 2.46 ± 0.07 µg/g	Rb 110 ± 4 µg/g	Al_2O_3 13.14 ± 0.06 %
Eu 1.18 ± 0.04 µg/g	S 217 ± 23 µg/g	Fe_2O_3 (T) 4.21 ± 0.06 %
F 425 ± 17 µg/g	Sb(DA) 0.61 ± 0.06 µg/g	MgO 1.20 ± 0.04 %
Ga 17.2 ± 1.0 µg/g	Sc 10.0 ± 0.3 µg/g	CaO 1.33 ± 0.03 %
Gd 4.7 ± 0.3 µg/g	Se 0.20 ± 0.02 µg/g	Na_2O 1.98 ± 0.07 %
Ge 1.3 ± 0.1 µg/g	Sm 5.5 ± 0.2 µg/g	K_2O 2.70 ± 0.04 %
Hf 7.7 ± 0.5 µg/g	Sn 3.1 ± 0.4 µg/g	Corg. 1.07 ± 0.06 %
Hg 0.060 ± 0.009 µg/g	Sr 182 ± 5 µg/g	

Indicative values for Sb, FeO, H_2O^+, CO_2
Sb(DA) is result with aqua regia digestion

New NIM-GBW07426	Soil - Composition including trace elements	70 g

Certified values

Ag 0.078 ± 0.007 µg/g	I 1.4 ± 0.2 µg/g	Tb 0.84 ± 0.06 µg/g
As 12.2 ± 0.8 µg/g	In 0.058 ± 0.007 µg/g	Th 10 ± 1 µg/g
B 55 ± 5 µg/g	La 29 ± 2 µg/g	Ti 0.392 ± 0.007 %
Ba 492 ± 20 µg/g	Li 36 ± 2 µg/g	Tl 0.51 ± 0.04 µg/g
Be 2.04 ± 0.06 µg/g	Lu 0.46 ± 0.02 µg/g	Tm 0.44 ± 0.05 µg/g
Bi 0.30 ± 0.02 µg/g	Mn 774 ± 19 µg/g	U 2.4 ± 0.2 µg/g
Br 2.1 ± 0.3 µg/g	Mo 0.96 ± 0.06 µg/g	V 86 ± 4 µg/g
Cd 0.15 ± 0.02 µg/g	N 0.055 ± 0.006 %	W 1.64 ± 0.10 µg/g
Ce 57 ± 2 µg/g	Nb 12 ± 1 µg/g	Y 26.4 ± 0.9 µg/g
Co 12.6 ± 0.3 µg/g	Nd 27.9 ± 1.2 µg/g	Yb 2.9 ± 0.2 µg/g
Cr 59 ± 2 µg/g	Ni 32 ± 1 µg/g	Zn 78 ± 5 µg/g
Cs 7.2 ± 0.4 µg/g	P 708 ± 9 µg/g	Zr 195 ± 7 µg/g
Cu 29 ± 1 µg/g	Pb 19 ± 2 µg/g	SiO_2 60.0 ± 0.3 %
Dy 4.9 ± 0.3 µg/g	Pr 7.0 ± 0.4 µg/g	Al_2O_3 13.27 ± 0.11 %
Er 2.9 ± 0.2 µg/g	Rb 94 ± 3 µg/g	Fe_2O_3 (T) 4.71 ± 0.04 %
Eu 1.22 ± 0.04 µg/g	S 154 ± 15 µg/g	FeO 1.39 ± 0.07 %
F 592 ± 45 µg/g	Sb(DA) 1.05 ± 0.07 µg/g	MgO 2.43 ± 0.07 %
Ga 16.8 ± 0.5 µg/g	Sc 12.6 ± 0.4 µg/g	CaO 5.83 ± 0.06 %
Gd 5.1 ± 0.3 µg/g	Se 0.16 ± 0.02 µg/g	Na_2O 2.00 ± 0.06 %
Ge 1.3 ± 0.1 µg/g	Sm 5.6 ± 0.4 µg/g	K_2O 2.62 ± 0.05 %
Hf 5.5 ± 0.4 µg/g	Sn 2.8 ± 0.4 µg/g	CO_2 3.9 ± 0.4 %
Hg 0.021 ± 0.005 µg/g	Sr 240 ± 5 µg/g	
Ho 1.01 ± 0.04 µg/g	Ta 0.85 ± 0.07 µg/g	

Indicative values for Cl, Sb, H_2O^+, Corg.
Sb(DA) is result with aqua regia digestion

NCS ZC73004	Soil - Composition including trace elements	70 g

Certified values

Ag 0.067 ± 0.006 µg/g	Ho 0.92 ± 0.03 µg/g	Tb 0.80 ± 0.03 µg/g
As 10.6 ± 0.8 µg/g	I 2.4 ± 0.2 µg/g	Th 11.0 ± 0.5 µg/g
B 54 ± 3 µg/g	In 0.044 ± 0.009 µg/g	Ti 0.382 ± 0.011 %
Ba 500 ± 15 µg/g	La 34 ± 2 µg/g	Tl 0.52 ± 0.05 µg/g
Be 1.90 ± 0.05 µg/g	Li 31.5 ± 1.5 µg/g	Tm 0.40 ± 0.03 µg/g
Bi 0.29 ± 0.02 µg/g	Lu 0.41 ± 0.02 µg/g	U 2.19 ± 0.12 µg/g
Br 4.0 ± 0.4 µg/g	Mn 580 ± 12 µg/g	V 74 ± 2 µg/g
Cd 0.13 ± 0.01 µg/g	Mo 0.48 ± 0.03 µg/g	W 1.6 ± 0.1 µg/g
Ce 66 ± 3 µg/g	N 0.072 ± 0.009 %	Y 24.5 ± 0.7 µg/g
Cl 80 ± 10 µg/g	Nb 14 ± 1 µg/g	Yb 2.6 ± 0.2 µg/g
Co 11.3 ± 0.5 µg/g	Nd 30 ± 2 µg/g	Zn 65 ± 3 µg/g
Cr 65 ± 2 µg/g	Ni 28.5 ± 1.2 µg/g	Zr 257 ± 9 µg/g
Cs 6.0 ± 0.4 µg/g	P 833 ± 35 µg/g	SiO_2 64.9 ± 0.3 %
Cu 21.6 ± 0.8 µg/g	Pb 21.6 ± 1.2 µg/g	Al_2O_3 11.8 ± 0.1 %
Dy 4.5 ± 0.3 µg/g	Pr 7.9 ± 0.5 µg/g	Fe_2O_3 (T) 4.11 ± 0.4 %
Er 2.57 ± 0.12 µg/g	Rb 91 ± 3 µg/g	FeO 1.25 ± 0.11 %
Eu 1.18 ± 0.05 µg/g	Sb(DA) 0.86 ± 0.06 µg/g	MgO 2.05 ± 0.04 %
F 545 ± 32 µg/g	Sc 10.5 ± 0.3 µg/g	CaO 5.0 ± 0.1 %
Ga 15.0 ± 0.4 µg/g	Se 0.16 ± 0.02 µg/g	Na_2O 1.86 ± 0.07 %
Gd 4.9 ± 0.3 µg/g	Sm 5.6 ± 0.3 µg/g	K_2O 2.27 ± 0.04 %
Ge 1.27 ± 0.07 µg/g	Sn 3.3 ± 0.4 µg/g	CO_2 3.34 ± 0.14 %
Hf 7.0 ± 0.5 µg/g	Sr 195 ± 4 µg/g	Corg. 0.62 ± 0.08 %
Hg 0.052 ± 0.006 µg/g	Ta 1.02 ± 0.09 µg/g	

Indicative values for S, Re, Sb, H_2O
Sb(DA) is result with aqua regia digestion

	Code	Product	Unit
New	NIM-GBW07428	Soil - Composition including trace elements	70 g

Certified values

Ag ..... 0.084 ± 0.007 µg/g	Ho.....0.93 ± 0.04 µg/g	Ta..... 1.08 ± 0.09 µg/g
As..... 6.5 ± 1.3 µg/g	I .....0.9 ± 0.2 µg/g	Tb..... 0.87 ± 0.06 µg/g
B ..... 46 ± 3 µg/g	In .....0.057 ± 0.006 µg/g	Th..... 12.7 ± 0.5 µg/g
Ba ..... 608 ± 13 µg/g	La .....41 ± 2 µg/g	Ti.....0.406 ± 0.013 %
Be ..... 2.44 ± 0.06 µg/g	Li.....39 ± 3 µg/g	Tl..... 0.63 ± 0.03 µg/g
Bi..... 0.35 ± 0.02 µg/g	Lu .....0.42 ± 0.02 µg/g	Tm..... 0.41 ± 0.03 µg/g
Br ..... 1.7 ± 0.3 µg/g	Mn .....688 ± 15 µg/g	U ..... 2.45 ± 0.12 µg/g
Cd ..... 0.20 ± 0.02 µg/g	Mo .....0.65 ± 0.06 µg/g	V ..... 86 ± 2 µg/g
Ce ..... 80 ± 2 µg/g	N..... 0.081 ± 0.012 %	W ..... 1.5 ± 0.1 µg/g
Cl ..... 50 ± 4 µg/g	Nb.....14.4 ± 0.6 µg/g	Y..... 25 ± 1 µg/g
Co ..... 14.6 ± 0.7 µg/g	Nd.....36 ± 3 µg/g	Yb..... 2.54 ± 0.12 µg/g
Cr ..... 70 ± 3 µg/g	Ni .....33 ± 2 µg/g	Zn..... 96 ± 3 µg/g
Cs ..... 7.0 ± 0.3 µg/g	P .....730 ± 28 µg/g	Zr..... 227 ± 8 µg/g
Cu ..... 27.4 ± 1.1 µg/g	Pb .....31 ± 1 µg/g	SiO_2.....64.5 ± 0.4 %
Dy..... 4.8 ± 0.3 µg/g	Pr.....9.2 ± 0.6 µg/g	Al_2O_3 ..... 14.4 ± 0.2 %
Er ..... 2.6 ± 0.3 µg/g	Rb.....108 ± 4 µg/g	Fe_2O_3 (T)..... 5.32 ± 0.06 %
Eu ..... 1.36 ± 0.06 µg/g	S .....173 ± 21 µg/g	MgO ..... 1.90 ± 0.06 %
F..... 619 ± 39 µg/g	Sb(DA).....0.73 ± 0.08 µg/g	CaO ..... 2.45 ± 0.05 %
Ga ..... 18.8 ± 0.8 µg/g	Sc .....11.7 ± 0.3 µg/g	Na_2O ..... 1.59 ± 0.07 %
Gd ..... 5.5 ± 0.5 µg/g	Se.....0.16 ± 0.02 µg/g	K_2O ..... 2.46 ± 0.07 %
Ge ..... 1.42 ± 0.11 µg/g	Sm .....6.4 ± 0.3 µg/g	Corg. ..... 0.79 ± 0.07 %
Hf ..... 6.4 ± 0.3 µg/g	Sn .....3.1 ± 0.3 µg/g	
Hg ..... 0.089 ± 0.004 µg/g	Sr.....152 ± 5 µg/g	

Indicative values for Sb, FeO, H_2O+, CO_2
Sb(DA) is result with aqua regia digestion

	NCS ZC73006	Soil - Composition including trace elements	70 g

Certified values

Ag ..... 0.15 ± 0.02 µg/g	Ho.....1.23 ± 0.07 µg/g	Ta..... 1.52 ± 0.15 µg/g
As..... 21.7 ± 1.2 µg/g	I .....2.3 ± 0.2 µg/g	Tb..... 1.08 ± 0.07 µg/g
B ..... 63 ± 2 µg/g	In .....0.145 ± 0.021 µg/g	Th..... 14.5 ± 0.8 µg/g
Ba ..... 716 ± 16 µg/g	La .....47 ± 2 µg/g	Ti.....0.527 ± 0.020 %
Be ..... 2.7 ± 0.1 µg/g	Li.....44 ± 3 µg/g	Tl..... 0.67 ± 0.04 µg/g
Bi..... 1.16 ± 0.06 µg/g	Lu .....0.54 ± 0.02 µg/g	Tm..... 0.53 ± 0.04 µg/g
Br ..... 2.7 ± 0.3 µg/g	Mn .....963 ± 20 µg/g	U ..... 3.0 ± 0.2 µg/g
Cd ..... 0.21 ± 0.02 µg/g	Mo .....0.92 ± 0.07 µg/g	V ..... 119 ± 3 µg/g
Ce ..... 93 ± 4 µg/g	N..... 0.094 ± 0.010 %	W ..... 2.8 ± 0.2 µg/g
Cl ..... 83 ± 15 µg/g	Nb.....18.6 ± 1.3 µg/g	Y..... 33 ± 2 µg/g
Co ..... 17.6 ± 0.7 µg/g	Nd.....41 ± 2 µg/g	Yb..... 3.5 ± 0.2 µg/g
Cr ..... 87 ± 4 µg/g	Ni .....41 ± 1 µg/g	Zn..... 94 ± 4 µg/g
Cs ..... 8.9 ± 0.4 µg/g	P .....560 ± 18 µg/g	Zr..... 272 ± 8 µg/g
Cu ..... 37 ± 2 µg/g	Pb .....38 ± 2 µg/g	SiO_2.....63.6 ± 0.2 %
Dy..... 6.2 ± 0.4 µg/g	Pr.....10.3 ± 0.8 µg/g	Al_2O_3 ..... 15.3 ± 0.1 %
Er ..... 3.4 ± 0.2 µg/g	Rb.....116 ± 3 µg/g	Fe_2O_3 (T)..... 6.44 ± 0.07 %
Eu ..... 1.56 ± 0.06 µg/g	S .....176 ± 22 µg/g	FeO ..... 1.06 ± 0.15 %
F..... 652 ± 48 µg/g	Sb(DA).....1.9 ± 0.2 µg/g	MgO ..... 1.80 ± 0.06 %
Ga ..... 20.5 ± 1.0 µg/g	Sc .....14.8 ± 0.5 µg/g	CaO ..... 1.53 ± 0.04 %
Gd ..... 6.8 ± 0.5 µg/g	Se.....0.31 ± 0.02 µg/g	Na_2O ..... 1.26 ± 0.05 %
Ge ..... 1.63 ± 0.08 µg/g	Sm .....7.8 ± 03 µg/g	K_2O ..... 2.36 ± 0.04 %
Hf ..... 7.6 ± 0.4 µg/g	Sn .....4.5 ± 0.5 µg/g	Corg. ..... 0.78 ± 0.05 %
Hg ..... 0.094 ± 0.004 µg/g	Sr.....115 ± 4 µg/g	

Indicative values for Re, Sb, Te, H_2O^+, CO_2
Sb(DA) is result with aqua regia digestion

New	NIM-GBW07430	Soil - Composition including trace elements	70 g

Certified values

Ag ..... 0.14 ± 0.02 µg/g	Ho.....1.41 ± 0.08 µg/g	Ta..... 2.8 ± 0.2 µg/g
As..... 18 ± 2 µg/g	I .....1.3 ± 0.1 µg/g	Tb..... 1.3 ± 0.1 µg/g
B ..... 63 ± 4 µg/g	In .....0.095 ± 0.027 µg/g	Th..... 28 ± 2 µg/g
Ba ..... 411 ± 18 µg/g	La .....67 ± 3 µg/g	Ti.....0.578 ± 0.026 %
Be ..... 3.8 ± 0.3 µg/g	Li.....51 ± 3 µg/g	Tl..... 1.12 ± 0.08 µg/g
Bi..... 1.44 ± 0.11 µg/g	Lu .....0.58 ± 0.05 µg/g	Tm..... 0.57 ± 0.05 µg/g
Br ..... 2.6 ± 0.3 µg/g	Mn .....441 ± 20 µg/g	U ..... 5.9 ± 0.3 µg/g
Cd ..... 0.25 ± 0.02 µg/g	Mo .....1.15 ± 0.07 µg/g	V ..... 105 ± 4 µg/g
Ce ..... 133 ± 5 µg/g	N..... 0.102 ± 0.011 %	W ..... 5.8 ± 0.2 µg/g
Cl ..... 78 ± 6 µg/g	Nb.....26 ± 1 µg/g	Y..... 38 ± 3 µg/g
Co ..... 13.6 ± 0.6 µg/g	Nd.....57 ± 4 µg/g	Yb..... 3.8 ± 0.2 µg/g
Cr ..... 67 ± 3 µg/g	Ni .....27.4 ± 0.9 µg/g	Zn..... 100 ± 8 µg/g
Cs ..... 13.9 ± 07 µg/g	P .....972 ± 34 µg/g	Zr..... 275 ± 11 µg/g
Cu ..... 32 ± 2 µg/g	Pb .....61 ± 2 µg/g	SiO_2.....63.8 ± 0.2 %
Dy..... 7.4 ± 0.5 µg/g	Pr.....14.6 ± 1.1 µg/g	Al_2O_3 ..... 17.85 ± 0.12 %
Er ..... 3.8 ± 0.2 µg/g	Rb.....173 ± 5 µg/g	Fe_2O_3 (T)..... 5.44 ± 0.05 %
Eu ..... 1.66 ± 0.07 µg/g	S .....261 ± 26 µg/g	MgO ..... 0.84 ± 0.05 %
F..... 790 ± 44 µg/g	Sb(DA).....1.7 ± 0.2 µg/g	CaO ..... 0.40 ± 0.04 %
Ga ..... 25.1 ± 1.2 µg/g	Sc .....14.0 ± 0.5 µg/g	Na_2O ..... 0.33 ± 0.02 %
Gd ..... 8.5 ± 0.7 µg/g	Se.....0.51 ± 0.05 µg/g	K_2O ..... 2.50 ± 0.04 %
Ge ..... 1.70 ± 0.12 µg/g	Sm .....10.4 ± 0.5 µg/g	Corg. ..... 0.97 ± 0.12 %
Hf ..... 8.2 ± 0.4 µg/g	Sn .....12.4 ± 0.8 µg/g	
Hg ..... 0.46 ± 0.05 µg/g	Sr.....68 ± 4 µg/g	

Indicative values for Re, Sb, FeO, H_2O^+, CO_2
Sb(DA) is result with aqua regia digestion

Code	Product	Unit
	NIM GBW07403 - NCS DC87105	
	Soils collected from a variety of locations around China. Certified and indicative values are given for a large number of elements and oxides	
New NIM-GBW07403	Soil - Composition including trace elements	70 g

Certified values

Ag ..... 0.091 ± 0.007µg/g	I ..... 1.3 ± 0.2µg/g	Te..... 0.039 ± 0.013µg/g
As..... 4.4 ± 0.6µg/g	In ..... 0.031 ± 0.010µg/g	Th..... 6.0 ± 0.5µg/g
B ..... 23 ± 3µg/g	La ..... 21 ± 2µg/g	Ti..... 2240 ± 80µg/g
Ba ..... 1210 ± 65µg/g	Li ..... 18.4 ± 0.8µg/g	Tl..... 0.48 ± 0.05µg/g
Be ..... 1.4 ± 0.2µg/g	Lu ..... 0.29 ± 0.02µg/g	Tm ..... 0.28 ± 0.05µg/g
Bi..... 0.17 ± 0.03µg/g	Mn ..... 304 ± 14µg/g	U ..... 1.3 ± 0.3µg/g
Br ..... 4.3 ± 0.8µg/g	Mo ..... 0.31 ± 0.06µg/g	V ..... 36 ± 3µg/g
Cd ..... 0.060 ± 0.009µg/g	N..... 640 ± 50µg/g	W ..... 0.96 ± 0.12µg/g
Ce ..... 39 ± 4µg/g	Nb..... 9.3 ± 1.5µg/g	Y ..... 15 ± 2µg/g
Cl ..... 57 ± 11µg/g	Nd..... 18.4 ± 1.7µg/g	Yb ..... 1.7 ± 0.2µg/g
Co ..... 5.5 ± 0.7µg/g	Ni..... 12 ± 2µg/g	Zn..... 31 ± 3µg/g
Cr..... 32 ± 4µg/g	P..... 320 ± 18µg/g	Zr ..... 246 ± 14µg/g
Cs ..... 3.2 ± 0.4µg/g	Pb..... 26 ± 3µg/g	SiO_2 ..... 74.72 ± 0.19 %
Cu ..... 11.4 ± 1.1µg/g	Pr..... 4.8 ± 0.4µg/g	Al_2O_3 ..... 12.24 ± 0.09 %
Dy ..... 2.6 ± 0.2µg/g	Rb..... 85 ± 4µg/g	Fe_2O_3 (T)..... 2.00 ± 0.05 %
Er ..... 1.5 ± 0.3µg/g	S..... 123 ± 14µg/g	FeO..... 0.50 ± 0.06 %
Eu ..... 0.72 ± 0.04µg/g	Sb..... 0.44 ± 0.08µg/g	MgO..... 0.58 ± 0.04 %
F..... 246 ± 26µg/g	Sc..... 5.0 ± 0.4µg/g	CaO ..... 1.27 ± 0.05 %
Ga..... 13.7 ± 0.9µg/g	Se..... 0.09 ± 0.02µg/g	Na_2O ..... 2.71 ± 0.06 %
Gd..... 2.9 ± 0.4µg/g	Sm..... 3.3 ± 0.2µg/g	K_2O ..... 3.04 ± 0.05 %
Ge..... 1.16 ± 0.13µg/g	Sn..... 2.5 ± 0.3µg/g	Corg. ..... 0.51 ± 0.03 %
Hf..... 6.8 ± 0.8µg/g	Sr..... 380 ± 16µg/g	TC..... 0.55 ± 0.05 %
Hg ..... 0.060 ± 0.004µg/g	Ta..... 0.76 ± 0.15µg/g	L.O.I. ..... 2.67 ± 0.13 %
Ho ..... 0.53 ± 0.06µg/g	Tb..... 0.49 ± 0.06µg/g	

New NIM-GBW07404	Soil - Composition including trace elements	70 g

Certified values

Ag ..... 0.070 ± 0.011 µg/g	Ho..... 1.46 ± 0.12 µg/g	Tb..... 0.94 ± 0.09 µg/g
As..... 58 ± 6 µg/g	I ..... 9.4 ± 1.1 µg/g	Te..... 0.16 ± 0.06 µg/g
Au ..... (0.0055) µg/g	In ..... 0.12 ± 0.03 µg/g	Th..... 27 ± 2 µg/g
B ..... 97 ± 9 µg/g	La ..... 53 ± 4 µg/g	Ti..... 10800 ± 310 µg/g
Ba ..... 213 ± 20 µg/g	Li ..... 55 ± 2 µg/g	Tl..... 0.94 ± 0.25 µg/g
Be ..... 1.85 ± 0.34 µg/g	Lu ..... 0.75 ± 0.06 µg/g	Tm ..... 0.70 ± 0.10 µg/g
Bi..... 1.04 ± 0.13 µg/g	Mn ..... 1420 ± 75 µg/g	U ..... 6.7 ± 0.8 µg/g
Br ..... 4.0 ± 0.7 µg/g	Mo ..... 2.6 ± 0.3 µg/g	V ..... 247 ± 14 µg/g
Cd ..... 0.35 ± 0.06 µg/g	N..... 1000 ± 62 µg/g	W ..... 6.2 ± 0.5 µg/g
Ce ..... 136 ± 11 µg/g	Nb..... 38 ± 3 µg/g	Y ..... 39 ± 6 µg/g
Cl ..... (39) µg/g	Nd..... 27 ± 2 µg/g	Yb ..... 4.8 ± 0.6 µg/g
Co ..... 22 ± 2 µg/g	Ni..... 64 ± 5 µg/g	Zn..... 210 ± 13 µg/g
Cr..... 370 ± 16 µg/g	P..... 695 ± 28 µg/g	Zr ..... 500 ± 42 µg/g
Cs ..... 21.4 ± 1.0 µg/g	Pb..... 58 ± 5 µg/g	SiO_2 ..... 50.95 ± 0.14 %
Cu ..... 40 ± 3 µg/g	Pr..... 8.4 ± 1.7 µg/g	Al_2O_3 ..... 23.45 ± 0.19 %
Dy ..... 6.6 ± 0.6 µg/g	Rb..... 75 ± 4 µg/g	Fe_2O_3 (T)..... 10.30 ± 0.11 %
Er ..... 4.5 ± 0.7 µg/g	S..... 180 ± 36 µg/g	MgO..... 0.49 ± 0.05 %
Eu ..... 0.85 ± 0.07 µg/g	Sb..... 6.3 ± 1.1 µg/g	CaO ..... 0.26 ± 0.04 %
F..... 540 ± 25 µg/g	Sc..... 20 ± 2 µg/g	Na_2O ..... 0.11 ± 0.02 %
Ga..... 31 ± 3 µg/g	Se..... 0.64 ± 0.14 µg/g	K_2O ..... 1.03 ± 0.06 %
Gd..... 4.7 ± 0.5 µg/g	Sm..... 4.4 ± 0.4 µg/g	C org. ..... 0.62 ± 0.08
Ge..... 1.9 ± 0.3 µg/g	Sn..... 5.7 ± 0.9 µg/g	TC..... 0.65 ± 0.10
Hf..... 14 ± 2 µg/g	Sr..... 77 ± 6 µg/g	
Hg ..... 0.59 ± 0.05 µg/g	Ta..... 3.1 ± 0.3 µg/g	

New NIM-GBW07405	Soil - Composition including trace elements	70 g

Certified values

Ag ..... 4.4 ± 0.4 µg/g	Ho..... 0.77 ± 0.08 µg/g	Sr ..... 42 ± 4 µg/g
As..... 412 ± 16 µg/g	I ..... 3.8 ± 0.5 µg/g	Ta..... 1.8 ± 0.3 µg/g
Au ..... 0.260 ± 0.007 µg/g	In ..... 4.1 ± 0.6 µg/g	Tb..... 0.7 ± 0.1 µg/g
B ..... 53 ± 6 µg/g	La ..... 36 ± 4 µg/g	Te..... (5) µg/g
Ba ..... 296 ± 26 µg/g	Li ..... 56 ± 2 µg/g	Th..... 23 ± 2 µg/g
Be ..... 2.0 ± 0.4 µg/g	Lu ..... 0.42 ± 0.05 µg/g	Ti..... 6290 ± 210 µg/g
Bi..... 41 ± 4 µg/g	Mn ..... 1360 ± 71 µg/g	Tl..... 1.6 ± 0.3 µg/g
Cd ..... 0.45 ± 0.06 µg/g	Mo ..... 4.6 ± 0.4 µg/g	Tm ..... 0.41 ± 0.04 µg/g
Ce ..... 91 ± 10 µg/g	N..... 610 ± 31 µg/g	U ..... 6.5 ± 0.7 µg/g
Co ..... 12 ± 2 µg/g	Nb..... 23 ± 3 µg/g	V ..... 166 ± 9 µg/g
Cr..... 118 ± 7 µg/g	Nd..... 24 ± 2 µg/g	W ..... 34 ± 2 µg/g
Cs ..... 15 ± 1 µg/g	Ni..... 40 ± 4 µg/g	Y ..... 21 ± 3 µg/g
Cu ..... 144 ± 6 µg/g	P..... 390 ± 34 µg/g	Yb ..... 2.8 ± 0.4 µg/g
Dy ..... 3.7 ± 0.5 µg/g	Pb..... 552 ± 29 µg/g	Zn..... 494 ± 25 µg/g
Er ..... 2.4 ± 0.3 µg/g	Pr..... 7.0 ± 1.2 µg/g	Zr ..... 272 ± 16 µg/g
Eu ..... 0.82 ± 0.04 µg/g	Rb..... 117 ± 6 µg/g	SiO_2 ..... 52.57 ± 0.16 %
F..... 603 ± 28 µg/g	S..... 410 ± 54 µg/g	Al_2O_3 ..... 21.58 ± 0.15 %
Ga..... 32 ± 4 µg/g	Sb..... 35 ± 5 µg/g	Fe_2O_3 (T)..... 12.62 ± 0.18 %
Gd..... 3.5 ± 0.3 µg/g	Sc..... 17 ± 1 µg/g	MgO..... 0.61 ± 0.06 %
Ge..... 2.6 ± 0.4 µg/g	Se..... 1.6 ± 0.2 µg/g	Na_2O ..... 0.12 ± 0.02 %
Hf..... 8.1 ± 1.7 µg/g	Sm..... 4.0 ± 0.4 µg/g	K_2O ..... 1.50 ± 0.04 %
Hg ..... 0.29 ± 0.03 µg/g	Sn..... 18 ± 3 µg/g	

	Code	Product	Unit

New NIM-GBW07406 — Soil - Composition including trace elements — 70 g

Certified values

Ag ..... 0.20 ± 0.02 µg/g	Ho ..... 0.69 ± 0.05 µg/g	Ta ..... 5.3 ± 0.6 µg/g
As ..... 220 ± 14 µg/g	I ..... 19.4 ± 0.9 µg/g	Tb ..... 0.61 ± 0.08 µg/g
B ..... 57 ± 5 µg/g	In ..... 0.84 ± 0.18 µg/g	Te ..... 0.4 ± 0.1 µg/g
Ba ..... 118 ± 14 µg/g	La ..... 30 ± 2 µg/g	Th ..... 23 ± 2 µg/g
Be ..... 4.4 ± 0.7 µg/g	Li ..... 36 ± 1 µg/g	Ti ..... 4390 ± 120 µg/g
Bi ..... 49 ± 5 µg/g	Lu ..... 0.42 ± 0.05 µg/g	Tl ..... 2.4 ± 0.5 µg/g
Br ..... 8.0 ± 0.7 µg/g	Mn ..... 1450 ± 82 µg/g	Tm ..... 0.40 ± 0.06 µg/g
Cd ..... 0.13 ± 0.03 µg/g	Mo ..... 18 ± 2 µg/g	U ..... 6.7 ± 0.7 µg/g
Ce ..... 66 ± 6 µg/g	N ..... 740 ± 59 µg/g	V ..... 130 ± 7 µg/g
Cl ..... 95 ± 7 µg/g	Nb ..... 27 ± 2 µg/g	W ..... 90 ± 7 µg/g
Co ..... 7.6 ± 1.1 µg/g	Nd ..... 21 ± 2 µg/g	Y ..... 19 ± 2 µg/g
Cr ..... 75 ± 6 µg/g	Ni ..... 53 ± 4 µg/g	Yb ..... 2.7 ± 0.4 µg/g
Cs ..... 10.8 ± 0.6 µg/g	P ..... 303 ± 30 µg/g	Zn ..... 97 ± 6 µg/g
Cu ..... 390 ± 14 µg/g	Pb ..... 314 ± 13 µg/g	Zr ..... 220 ± 14 µg/g
Dy ..... 3.3 ± 0.3 µg/g	Pr ..... 5.8 ± 0.6 µg/g	SiO_2 ..... 56.93 ± 0.18 %
Er ..... 2.2 ± 0.3 µg/g	Rb ..... 237 ± 8 µg/g	Al_2O_3 ..... 21.23 ± 0.16 %
Eu ..... 0.66 ± 0.04 µg/g	S ..... 260 ± 43 µg/g	Fe_2O_3 (T) ..... 8.09 ± 0.13 %
F ..... 906 ± 45 µg/g	Sb ..... 60 ± 7 µg/g	MgO ..... 0.34 ± 0.05 %
Ga ..... 30 ± 3 µg/g	Sc ..... 15.5 ± 0.9 µg/g	CaO ..... 0.22 ± 0.03 %
Gd ..... 3.4 ± 0.3 µg/g	Se ..... 1.34 ± 0.17 µg/g	Na_2O ..... 0.19 ± 0.02 %
Ge ..... 3.2 ± 0.4 µg/g	Sm ..... 3.8 ± 0.4 µg/g	K_2O ..... 1.70 ± 0.06 %
Hf ..... 7.5 ± 0.8 µg/g	Sn ..... 72 ± 7 µg/g	C org. ..... 0.81 ± 0.09 %
Hg ..... 0.072 ± 0.007 µg/g	Sr ..... 39 ± 4 µg/g	TC ..... 0.83 ± 0.10 %

New NIM-GBW07407 — Soil - Composition including trace elements — 70 g

Certified values

Ag ..... 0.057 ± 0.011 µg/g	I ..... 19 ± 2 µg/g	Tb ..... 1.3 ± 0.2 µg/g
As ..... 4.8 ± 1.3 µg/g	In ..... 0.10 ± 0.03 µg/g	Th ..... 9.1 ± 0.7 µg/g
Ba ..... 180 ± 27 µg/g	La ..... 46 ± 5 µg/g	Ti ..... 20200 ± 500 µg/g
Be ..... 2.8 ± 0.6 µg/g	Li ..... 19.5 ± 0.9 µg/g	Tl ..... 0.21 ± 0.06 µg/g
Bi ..... 0.20 ± 0.04 µg/g	Lu ..... 0.35 ± 0.06 µg/g	Tm ..... 0.42 ± 0.05 µg/g
Br ..... 5.1 ± 0.5 µg/g	Mn ..... 1780 ± 113 µg/g	U ..... 2.2 ± 0.4 µg/g
Cd ..... 0.08 ± 0.02 µg/g	Mo ..... 2.9 ± 0.3 µg/g	V ..... 245 ± 21 µg/g
Ce ..... 98 ± 11 µg/g	N ..... 660 ± 62 µg/g	W ..... 1.2 ± 0.2 µg/g
Cl ..... 100 ± 6 µg/g	Nb ..... 64 ± 7 µg/g	Y ..... 27 ± 4 µg/g
Co ..... 97 ± 6 µg/g	Nd ..... 45 ± 2 µg/g	Yb ..... 2.4 ± 0.4 µg/g
Cr ..... 410 ± 23 µg/g	Ni ..... 276 ± 15 µg/g	Zn ..... 142 ± 11 µg/g
Cs ..... 2.7 ± 0.8 µg/g	P ..... 1150 ± 39 µg/g	Zr ..... 318 ± 37 µg/g
Cu ..... 97 ± 6 µg/g	Pb ..... 14 ± 3 µg/g	SiO_2 ..... 32.69 ± 0.18 %
Dy ..... 6.6 ± 0.6 µg/g	Pr ..... 11 ± 1 µg/g	Al_2O_3 ..... 29.26 ± 0.34 %
Er ..... 2.7 ± 0.5 µg/g	Rb ..... 16 ± 3 µg/g	Fe_2O_3 (T) ..... 18.76 ± 0.33 %
Eu ..... 3.4 ± 0.2 µg/g	S ..... 250 ± 36 µg/g	MgO ..... 0.26 ± 0.03 %
F ..... 321 ± 29 µg/g	Sb ..... 0.42 ± 0.09 µg/g	CaO ..... 0.16 ± 0.02 %
Ga ..... 39 ± 5 µg/g	Sc ..... 28 ± 2 µg/g	Na_2O ..... 0.08 ± 0.02 %
Gd ..... 9.6 ± 0.9 µg/g	Se ..... 0.32 ± 0.05 µg/g	K_2O ..... 0.20 ± 0.02 %
Ge ..... 1.6 ± 0.3 µg/g	Sm ..... 10.3 ± 0.4 µg/g	Corg. ..... 0.64 ± 0.07 %
Hf ..... 7.7 ± 0.5 µg/g	Sn ..... 3.6 ± 0.7 µg/g	TC ..... 0.67 ± 0.09 %
Hg ..... 0.061 ± 0.006 µg/g	Sr ..... 26 ± 4 µg/g	
Ho ..... 1.1 ± 0.2 µg/g	Ta ..... 3.9 ± 0.6 µg/g	

New NIM-GBW07408 — Soil - Composition including trace elements — 70 g

Certified values

Ag ..... 0.060 ± 0.009 µg/g	I ..... 1.7 ± 0.2 µg/g	Th ..... 11.8 ± 0.7 µg/g
As ..... 12.7 ± 1.1 µg/g	In ..... 0.044 ± 0.013 µg/g	Ti ..... 3800 ± 120 µg/g
B ..... 54 ± 4 µg/g	La ..... 36 ± 3 µg/g	Tl ..... 0.58 ± 0.06 µg/g
Ba ..... 480 ± 23 µg/g	Li ..... 35 ± 2 µg/g	Tm ..... 0.46 ± 0.07 µg/g
Be ..... 1.9 ± 0.2 µg/g	Lu ..... 0.43 ± 0.04 µg/g	U ..... 2.7 ± 0.4 µg/g
Bi ..... 0.30 ± 0.04 µg/g	Mn ..... 650 ± 23 µg/g	V ..... 81 ± 5 µg/g
Br ..... 2.5 ± 0.5 µg/g	Mo ..... 1.16 ± 0.10 µg/g	W ..... 1.7 ± 0.2 µg/g
Cd ..... 0.13 ± 0.02 µg/g	N ..... 370 ± 54 µg/g	Y ..... 26 ± 2 µg/g
Ce ..... 66 ± 7 µg/g	Nb ..... 15 ± 2 µg/g	Yb ..... 2.8 ± 0.2 µg/g
Cl ..... 68 ± 12 µg/g	Nd ..... 32 ± 2 µg/g	Zn ..... 68 ± 4 µg/g
Co ..... 12.7 ± 1.1 µg/g	Ni ..... 31.5 ± 1.8 µg/g	Zr ..... 229 ± 12 µg/g
Cr ..... 68 ± 6 µg/g	P ..... 775 ± 25 µg/g	SiO_2 ..... 58.61 ± 0.13 %
Cs ..... 7.5 ± 0.7 µg/g	Pb ..... 21 ± 2 µg/g	Al_2O_3 ..... 11.92 ± 0.15 %
Cu ..... 24.3 ± 1.2 µg/g	Pr ..... 8.3 ± 0.8 µg/g	Fe_2O_3 (T) ..... 4.48 ± 0.05 %
Dy ..... 4.8 ± 0.4 µg/g	Rb ..... 96 ± 4 µg/g	FeO ..... 1.22 ± 0.05 %
Er ..... 2.8 ± 0.2 µg/g	Sb ..... 1.0 ± 0.2 µg/g	MgO ..... 2.38 ± 0.07 %
Eu ..... 1.2 ± 0.1 µg/g	Sc ..... 11.7 ± 0.7 µg/g	CaO ..... 8.27 ± 0.12 %
F ..... 577 ± 24 µg/g	Se ..... 0.10 ± 0.01 µg/g	Na_2O ..... 1.72 ± 0.04 %
Ga ..... 14.8 ± 1.1 µg/g	Sm ..... 5.9 ± 0.4 µg/g	K_2O ..... 2.42 ± 0.04 %
Gd ..... 5.4 ± 0.5 µg/g	Sn ..... 2.8 ± 0.5 µg/g	CO_2 ..... 5.97 ± 0.16 %
Ge ..... 1.27 ± 0.20 µg/g	Sr ..... 236 ± 13 µg/g	TC ..... 1.93 ± 0.13 %
Hf ..... 7.0 ± 0.8 µg/g	Ta ..... 1.05 ± 0.25 µg/g	L.O.I. ..... 9.12 ± 0.17 %
Hg ..... 0.017 ± 0.003 µg/g	Tb ..... 0.89 ± 0.08 µg/g	
Ho ..... 0.97 ± 0.08 µg/g	Te ..... 0.045 ± 0.010 µg/g	

Code	Product	Unit

New NIM-GBW07402 — Soil - Trace elements and oxides — 70 g

Certified values

Ag ..... 0.054 ± 0.010 µg/g	Ho..... 0.93 ± 0.15 µg/g	Ta..... 0.78 ± 0.18 µg/g
As..... 13.7 ± 1.8 µg/g	I ..... 1.8 ± 0.2 µg/g	Tb..... 0.97 ± 0.40 µg/g
B ..... 36 ± 4 µg/g	In ..... 0.09 ± 0.03 µg/g	Th..... 16.6 ± 1.2 µg/g
Ba ..... 930 ± 81 µg/g	La ..... 164 ± 16 µg/g	Ti ..... 2710 ± 120 µg/g
Be ..... 1.8 ± 0.3 µg/g	Li ..... 22 ± 1 µg/g	Tl..... 0.62 ± 0.28 µg/g
Bi..... 0.38 ± 0.06 µg/g	Lu ..... 0.32 ± 0.06 µg/g	Tm ..... 0.42 ± 0.13 µg/g
Br ..... 4.5 ± 0.6 µg/g	Mn ..... 510 ± 25 µg/g	U ..... 1.4 ± 0.4 µg/g
Cd ..... 0.071 ± 0.022 µg/g	Mo ..... 0.98 ± 0.17 µg/g	V ..... 62 ± 6 µg/g
Ce ..... 402 ± 25 µg/g	N..... 630 ± 47 µg/g	W ..... 1.08 ± 0.33 µg/g
Cl ..... -56 µg/g	Nb..... 27 ± 3 µg/g	Y ..... 22 ± 3 µg/g
Co ..... 8.7 ± 1.4 µg/g	Nd..... 210 ± 22 µg/g	Yb ..... 2.0 ± 0.3 µg/g
Cr..... 47 ± 6 µg/g	Ni..... 19.4 ± 1.9 µg/g	Zn..... 42 ± 5 µg/g
Cs ..... 4.9 ± 0.6 µg/g	P..... 446 ± 38 µg/g	Zr ..... 219 ± 23 µg/g
Cu ..... 16.3 ± 1.4 µg/g	Pb..... 20 ± 4 µg/g	SiO_2 ..... 73.35 ± 0.27 %
Dy ..... 4.4 ± 0.3 µg/g	Pr..... 57 ± 6 µg/g	Al_2O_3 ..... 10.31 ± 0.15 %
Er ..... 2.1 ± 0.4 µg/g	Rb..... 88 ± 5 µg/g	Fe_2O_3 (T)..... 3.52 ± 0.10 %
Eu ..... 3.0 ± 0.3 µg/g	S..... 210 ± 50 µg/g	FeO..... 0.57 ± 0.09 %
F..... 2240 ± 175 µg/g	Sb..... 1.3 ± 0.3 µg/g	MgO..... 1.04 ± 0.06 %
Ga..... 12 ± 1 µg/g	Sc..... 10.7 ± 0.8 µg/g	CaO ..... 2.36 ± 0.07 %
Gd..... 7.8 ± 0.6 µg/g	Se..... 0.16 ± 0.04 µg/g	Na_2O ..... 1.62 ± 0.06 %
Ge..... 1.2 ± 0.2 µg/g	Sm..... 18 ± 3 µg/g	K_2O ..... 2.54 ± 0.07 %
Hf..... 5.8 ± 0.9 µg/g	Sn..... 3.0 ± 0.4 µg/g	Org.C ..... 0.49 ± 0.05 %
Hg ..... 0.015 ± 0.004 µg/g	Sr..... 187 ± 14 µg/g	LOI..... 4.4 ± 0.2 %

Indicative values for Au, Te, H_2O^+, CO_2

NCS DC87101 — Soil - Composition including trace elements — 100 g

Certified values

SiO_2 ..... 67.96 %	B ..... 46 µg/g	Pb ..... 28 µg/g
TiO_2..... 0.72 %	Ba..... 677 µg/g	Rb ..... 111 µg/g
Al_2O_3 ..... 14.35 %	Be..... 2.4 µg/g	Sb ..... 0.73 µg/g
Fe_2O_3 ..... 4.69 %	Co..... 15 µg/g	Sr ..... 168 µg/g
MnO ..... 0.093 %	Cr ..... 93 µg/g	Te..... 0.033 µg/g
MgO ..... 1.62 %	Cu..... 23 µg/g	Th..... 12 µg/g
CaO ..... 0.9 %	F ..... 458 µg/g	U ..... 1.9 µg/g
Na_2O ..... 1.78 %	Ga ..... 17 µg/g	V ..... 88 µg/g
K_2O ..... 2.56 %	Hg..... 0.014 µg/g	W ..... 1.8 µg/g
P_2O_5..... 0.1 %	La ..... 43 µg/g	Y ..... 24 µg/g
L.O.I..... 4.64 %	Li ..... 37 µg/g	Zn..... 68 µg/g
N ..... 0.035 %	Nb..... 15 µg/g	Zr ..... 274 µg/g
As..... 10 µg/g	Ni..... 41 µg/g	

NCS DC87102 — Soil - Composition including trace elements — 100 g

Certified values

SiO_2 ..... 67.21 %	S..... 0.034 %	Pb ..... 21 µg/g
TiO_2..... 0.56 %	As..... 9.8 µg/g	Rb ..... 86 µg/g
Al_2O_3 ..... 10.78 %	Ba..... 469 µg/g	Sb ..... 0.83 µg/g
Fe_2O_3 ..... 2.28 %	Be..... 2 µg/g	Se ..... 0.14 µg/g
MnO ..... 0.066 %	Cl..... 600 µg/g	Sn ..... 2.9 µg/g
MgO ..... 1.73 %	Co..... 9.4 µg/g	Sr ..... 197 µg/g
CaO ..... 5.21 %	Cr ..... 61 µg/g	Th..... 9.6 µg/g
Na_2O ..... 1.95 %	Cu..... 12 µg/g	U ..... 1.9 µg/g
K_2O ..... 2.15 %	Ga ..... 17 µg/g	V ..... 63 µg/g
P_2O_5..... 0.15 %	Hg..... 0.031 µg/g	W ..... 1.5 µg/g
H_2O^+..... 2.29 %	La ..... 36 µg/g	Y ..... 21 µg/g
CO_2 ..... 3.48 %	Li ..... 27 µg/g	Zn..... 51 µg/g
L.O.I..... 6.73 %	Nb..... 12 µg/g	Zr ..... 291 µg/g
N ..... 0.064 %	Ni..... 23 µg/g	

NCS DC87103 — Soil - Composition including trace elements — 100 g

Certified values

SiO_2 ..... 72.92 %	Ba..... 524 µg/g	Rb ..... 91 µg/g
TiO_2..... 0.69 %	Be..... 1.9 µg/g	Sb ..... 0.65 µg/g
Al_2O_3 ..... 12.28 %	Co..... 12 µg/g	Se ..... 0.11 µg/g
Fe_2O_3 ..... 3.38 %	Cr ..... 56 µg/g	Sn ..... 3.2 µg/g
MnO ..... 0.072 %	Cu..... 23 µg/g	Sr ..... 227 µg/g
MgO ..... 1.14 %	F ..... 383 µg/g	Th..... 10 µg/g
CaO ..... 1.44 %	Ga ..... 15 µg/g	U ..... 1.9 µg/g
Na_2O ..... 2.2 %	Hg..... 0.017 µg/g	V ..... 74 µg/g
K_2O ..... 2.16 %	La ..... 38 µg/g	W ..... 1.5 µg/g
P_2O_5..... 0.11 %	Li ..... 28 µg/g	Y ..... 22 µg/g
N ..... 0.029 %	Nb..... 14 µg/g	Zn..... 48 µg/g
As..... 6.3 µg/g	Ni..... 22 µg/g	Zr ..... 331 µg/g
B ..... 50 µg/g	Pb..... 19 µg/g	

Code	Product	Unit

NCS DC87104 — Soil - Composition including trace elements — 100 g

Certified values

SiO_2 60.76 %	B 44 µg/g	Pb 19 µg/g
TiO_2 0.55 %	Ba 448 µg/g	Rb 82 µg/g
Al_2O_3 10.78 %	Be 1.8 µg/g	Sb 0.78 µg/g
Fe_2O_3 2.79 %	Bi 0.24 µg/g	Sn 2.4 µg/g
MnO 0.058 %	Cl 222 µg/g	Sr 296 µg/g
MgO 1.83 %	Co 9.2 µg/g	Th 9.4 µg/g
CaO 9.07 %	Cr 62 µg/g	U 1.8 µg/g
Na_2O 1.74 %	Cu 17 µg/g	V 65 µg/g
K_2O 2.01 %	F 559 µg/g	W 1.4 µg/g
P_2O_5 0.087 %	Ga 13 µg/g	Y 19 µg/g
CO_2 6.44 %	La 34 µg/g	Zn 45 µg/g
L.O.I 9.62 %	Li 38 µg/g	Zr 258 µg/g
N 0.02 %	Nb 11 µg/g	
As 9.4 µg/g	Ni 23 µg/g	

NCS DC87105 — Soil - Composition including trace elements — 100 g

Certified values

SiO_2 67.53 %	S 0.0092 %	Ni 22 µg/g
TiO_2 0.54 %	As 8.2 µg/g	Pb 20 µg/g
Al_2O_3 10.84 %	B 33 µg/g	Rb 83 µg/g
Fe_2O_3 (T) 3.26 %	Ba 555 µg/g	Sb 0.7 µg/g
Fe_2O_3 2.64 %	Be 1.8 µg/g	Sn 2.2 µg/g
MnO 0.062 %	Bi 0.21 µg/g	Sr 231 µg/g
MgO 1.68 %	Co 8.9 µg/g	Th 8.9 µg/g
CaO 5.42 %	Cr 54 µg/g	U 2.4 µg/g
Na_2O 1.87 %	Cu 16 µg/g	V 66 µg/g
K_2O 2.18 %	F 657 µg/g	W 1.3 µg/g
P_2O_5 0.074 %	Ga 13 µg/g	Y 19 µg/g
CO_2 3.59 %	La 32 µg/g	Zr 298 µg/g
L.O.I 6.67 %	Li 25 µg/g	
N 0.021 %	Nb 11 µg/g	

New **NIM-GBW08302 — Tibet soil - Trace elements — 15 g**

Collected from the mountains of Tibet, an area practically unaffected by industrial contamination.

Certified values

Al 7,11 ± 0,12 %	K 2,12 ± 0,18 %	Sc 10,8 ± 1,5 µg/g
As 3,8 ± 0,7 µg/g	La 41,9 ± 4,0 µg/g	Si 30,57 ± 0,11 %
Be 2,96 ± 0,08 µg/g	Mg 1,53 ± 0,04 %	Sm 7,1 ± 0,5 µg/g
Ca 2,59 ± 0,04 %	Mn 677 ± 23 µg/g	Sr 163 ± 29 µg/g
Cd 0,081 ± 0,015 µg/g	Na 1,52 ± 0,11 %	Th 17,6 ± 0,7 µg/g
Co 13,1 ± 1,1 µg/g	N 0,128 ± 0,003 %	Ti 0,40 ± 0,03 %
Ce 83,6 ± 3,3 µg/g	Nd 42,3 ± 4,8 µg/g	U 3,84 ± 0,40 µg/g
Cr 60,8 ± 3,6 µg/g	Ni 31,1 ± 1,6 µg/g	V 77,5 ± 8,0 µg/g
Cu 24,6 ± 2,8 µg/g	P 0,86 ± 0,08 %	Zn 58,0 ± 6,6 µg/g
Eu 1,4 ± 0,3 µg/g	Pb 14,2 ± 2,7 µg/g	Yb 3,1 ± 0,6 µg/g
Fe 3,34 ± 0,11 %	Rb 135 ± 14 µg/g	Se 0,16 ± 0,04 µg/g

Code	Product	Unit

NIM-GBW07412A - NIM-GBW07417A and NCS DC85113

These certified reference materials were prepared in accordance with the ISO guides 30-35. The intended use for these CRMs are the quality control in geochemical exploration, soil and eco-environment research analysis, the evaluation of analytical methods and the calibration of analytical instruments

Composition	**Methods**
Organic Matter	H_2SO_4,$K_2Cr_2O_7$ oxidation - Volumetric method
Total nitrogen	Kjeldahl method for Nitrogen (not include NO_2- and NO_3-)
pH	Water extraction - Potential method
Cation exchange capacity	CH_3COONH_4 extraction - Volumetric method
Exchangeable Ca, Mg, Na, K, Mn	EDTA-CH_3COONH_4 extraction - ICP-AES method (neutral, acid soil)
Hydrolyzable nitrogen	Alkali Hydrolysis - Diffuse method
Available phosphorus	$NaHCO_3$ extraction - Colorimetry (neutral, calcareous soil)
photometric	NH_4F,dilute HCl extraction - Molybdenum-antimony-ascorbic acid method (acid soil)
Effective potassium	CH_3COONH_4- extraction - ICP-AES method or AAS
Slowly available potassium	Dilute nitric acid extraction - ICP-AES method or AAS
Available sulfur	(P) Phosphat- CH_3COONH_4-extraction - ICP-AES (neutral, acid soil)
	(Ca) $CaCl_2$ solution extraction - ICP-AES (calcareous soil)
Available silicon	Citric acid extraction - ICP-AES or silicon molybdenum blue colorimetric method
Available Cu, Zn, Fe, Mn, Cd, Pb, Ni, Cr, Co	DTPA* solution extraction - ICP-AES and ICP-MS
Available Cu, Zn, Fe, Mn, Cd, Pb, Ni, Cr, Co	Dilute hydrochloric acid extraction- ICP-AES, ICP-MS or AFS (neutral, acid soil)
Available Cu, Zn, Cd, Pb, Ni, Cr	$NaNO_3$ extraction - ICP-AES and ICP-MS
Available molybdenum or I	Oxalic acid ammonium oxalate (Tamm solution)** - Extraction polarography ICP-AES
Available boron	Boiling water extraction - Curcumin colorimetric method and ICP-AES
Soluble selenium	Boiling water extraction - ICP-AES or AFS
Soluble fluorine	Water extraction - Ion selective electrode method
Soluble salts	
Total	Water extraction - Gravimetric method or conductivity method
Cl^-	Water extraction - Titrimetric method
$SO4^{2-}$	Water extraction - ICP-AES
Ca, Mg, K, Na	Water extraction- ICP-AES or AAS

* DTPA solution 0.005mol/L $C_{14}H_{23}N_3O10$-0.01mol/L $CaCl_2$.0.1mol/L $C_6H_{15}NO_3$, pH 7.3
** Tamm solution 24.9g/L $(NH_4)_2C_2O_4 \cdot H_2O$-12.6g/L $H_2C_2O_4 \cdot 2H_2O$, pH 3.3

	Code	Product	Unit
New	NIM-GBW07412A	Soil (Brown soil) - Available nutrients	500 g

Certified values

pH	6.80
Organic matter	10 g/kg
Total nitrogen	0.63 g/kg
Hydrolysable nitrogen	54 mg/kg
Available phosphorus ($NaHCO_3$ extraction)	100 mg/kg
Effective potassium	0.38 g/kg
Slowly available potassium	1.06 g/kg
Available sulfur (phosphate extraction)	22 mg/kg
Available silicon	0.83 g/kg
Cation exchange capacity	21.6 cmol(+)/kg
Exchangeable calcium	17.8 cmol ($1/2Ca^{2+}$)/kg
Exchangeable magnesium	4.3 cmol ($1/2Mg^{2+}$)/kg
Exchangeable sodium	0.31 cmol (Na^{+})/kg
Exchangeable potassium	0.99 cmol (K^{+})/kg
Exchangeable manganese	47 mg/kg
Available molybdenum	0.24 mg/kg
Available boron	0.42 mg/kg
Soluble fluorine	5.1 mg/kg

Soluble salt

Cl^{-}	0.020 g/kg
SO_4^{2-}	0.064 g/kg
Ca^{2+}	0.040 g/kg
Mg^{2+}	10 mg/kg
K^{+}	17 mg/kg
Na^{+}	27 mg/kg

DTPA extraction

Available copper	3.3 mg/kg
Available zinc	2.4 mg/kg
Available iron	202 mg/kg
Available manganese	31 mg/kg
Available cadmium	0.033 mg/kg
Available lead	1.9 mg/kg
Available nickel	1.1 mg/kg
Available cobalt	0.16 mg/kg

Hydrochlorid acid extraction

Available copper	2.9 mg/kg
Available zinc	5.4 mg/kg
Available iron	111 mg/kg
Available manganese	96 mg/kg
Available cadmium	0.046 mg/kg
Available lead	0.82 mg/kg
Available nickel	2.4 mg/kg
Available chromium	0.42 mg/kg

Sodium nitrate extraction

Available copper	0.025 mg/kg
Available nickel	0.035 mg/kg

	Code	Product	Unit
New	NIM-GBW07413A	Soil (Moist soil) - Available nutrients	500 g

Certified values

pH	8.15
Organic matter	13.2 g/kg
Total nitrogen	0.77 g/kg
Hydrolysable nitrogen	76 mg/kg
Available phosphorus ($NaHCO_3$ extraction)	23.3 mg/kg
Effective potassium	0.29 g/kg
Slowly available potassium	0.95 g/kg
Available sulfur ($CaCl_2$ extraction)	42 mg/kg
Available sulfur (phosphate extraction)	105 mg/kg
Available silicon	0.46 g/kg
Cation exchange capacity	12.8 cmol(+)/kg
Exchangeable magnesium	3.0 cmo(1/2Mg^{2+})/kg
Exchangeable sodium	0.26 cmol (Na^+)/kg
Exchangeable potassium	0.77 cmol (K^+)/kg
Available molybdenum	0.086 mg/kg
Available boron	0.55 mg/kg
Soluble fluorine	14.6 mg/kg

Soluble salt

Cl^-	0.022 g/kg
SO_4^{2-}	0.125 g/kg
Ca^{2+}	0.17 g/kg
Mg^{2+}	22 mg/kg
K^+	31 mg/kg
Na^+	29 mg/kg

DTPA extraction

Available copper	1.17 mg/kg
Available zinc	.1.08 mg/kg
Available iron	55 mg/kg
Available manganese	17.3 mg/kg
Available cadmium	0.040 mg/kg
Available lead	1.7 mg/kg
Available nickel	0.27 mg/kg
Available cobalt	0.13 mg/kg

Sodium nitrate extraction

Available copper	0.047 mg/kg

New	NIM-GBW07414A	Soil (Purple soil) - Available nutrients	500 g

Please ask for details

	Code	Product	Unit
New	NIM-GBW07415A	Soil (Paddy soil) - Available nutrients	500 g

Certified values

pH	6.08
Organic matter	33.3 g/kg
Total nitrogen	1.97 g/kg
Hydrolysable nitrogen	165 mg/kg
Available phosphorus (NH_4F extraction)	1.5 mg/kg
Effective potassium	0.25 g/kg
Slowly available potassium	0.46 g/kg
Available sulfur (phosphate extraction)	76 mg/kg
Available silicon	0.52 g/kg
Cation exchange capacity	19 cmol(+)/kg
Exchangeable calcium	13 cmol ($1/2Ca^{2+}$)/kg
Exchangeable magnesium	3.98 cmol ($1/2Mg^{2+}$)/kg
Exchangeable sodium	0.32 cmol (Na^{+})/kg
Exchangeable potassium	0.63 cmol (K^{+})/kg
Exchangeable manganese	43 mg/kg
Available molybdenum	0.112 mg/kg
Available boron	0.31 mg/kg
Soluble fluorine	4.1 mg/kg

Soluble salt

Cl^{-}	0.058 g/kg
SO_4^{2-}	0.236 g/kg
Ca^{2+}	0.128 g/kg
Mg^{2+}	33 mg/kg
K^{+}	24 mg/kg
Na^{+}	41 mg/kg

DTPA extraction

Available copper	5.8 mg/kg
Available zinc	1.14 mg/kg
Available iron	252 mg/kg
Available manganese	45 mg/kg
Available cadmium	0.137 mg/kg
Available lead	5.6 mg/kg
Available nickel	0.58 mg/kg
Available cobalt	0.34 mg/kg

Hydrochloride acid extraction

Available copper	6.8 mg/kg
Available zinc	3.1 mg/kg
Available iron	428 mg/kg
Available manganese	98 mg/kg
Available cadmium	0.174 mg/kg
Available lead	5.4 mg/kg
Available nickel	1.23 mg/kg
Available chromium	0.60 mg/kg
Available selenium	6.8 mg/kg

Sodium nitrate extraction

Available copper	0.066 mg/kg

New	NIM-GBW07416A	Soil (Red soil) - Available nutrients	500 g

Please ask for details

	Code	Product	Unit
New	NIM-GBW07417A	Soil - Available nutrients	500 g

Certified values

pH	6.80
Organic matter	38.5 g/kg
Total nitrogen	2.11 g/kg
Hydrolysable nitrogen	155 mg/kg
Available phosphorus ($NaHCO_3$ extraction)	90 mg/kg
Effective potassium	0.162 g/kg
Slowly available potassium	0.33 g/kg
Available sulfur (phosphate extraction)	105 mg/kg
Available silicon	0.37 g/kg
Cation exchange capacity	19.7 cmol(+)/kg
Exchangeable calcium	18.9 cmol ($1/2Ca^{2+}$)/kg
Exchangeable magnesium	2.82 cmol ($1/2Mg^{2+}$)/kg
Exchangeable sodium	0.93 cmol (Na^{+})/kg
Exchangeable potassium	0.41 cmol (K^{+})/kg
Exchangeable manganese	128 mg/kg
Available molybdenum	0.14 mg/kg
Available boron	0.31 mg/kg
Soluble fluorine	11.4 mg/kg

Soluble salt

Cl^{-}	0.16 g/kg
SO_4^{2-}	0.335 g/kg
Ca^{2+}	0.166 g/kg
Mg^{2+}	25 mg/kg
K^{+}	18.7 mg/kg
Na^{+}	154 mg/kg

DTPA extraction

Available copper	10.3 mg/kg
Available zinc	2.1 mg/kg
Available iron	258 mg/kg
Available manganese	88 mg/kg
Available cadmium	0.20 mg/kg
Available lead	8.1 mg/kg
Available nickel	0.47 mg/kg
Available cobalt	0.43 mg/kg

Hydrochlorid acid extraction

Available copper	10.6 mg/kg
Available zinc	6.6 mg/kg
Available iron	134 mg/kg
Available manganese	295 mg/kg
Available cadmium	0.30 mg/kg
Available lead	6.7 mg/kg
Available nickel	1.3 mg/kg
Available chromium	0.64 mg/kg
Available arsenic	0.094 mg/kg

Sodium nitrate extraction

Available copper	0.064 mg/kg

	Code	Product	Unit
New	NCS DC85113	Soil - Available nutrients	500 g

Certified values

pH 6.14
Organic matter ..... 34.5 g/kg
Total nitrogen ..... 1.62 g/kg
Hydrolysable nitrogen ..... 157 mg/kg

Available phosphorus (NH_4F extraction) ..... 32 mg/kg
Effective potassium ..... 0.36 g/kg
Slowly available potassium ..... 0.98 g/kg
Available sulfur (phosphate extraction) ..... 33 mg/kg
Available silicon ..... 0.63 g/kg
Cation exchange capacity ..... 31 cmol(+)/kg
Exchangeable calcium ..... 22.5 cmol ($1/2Ca^{2+}$)/kg
Exchangeable magnesium ..... 5.4 cmo($1/2Mg^{2+}$)/kg
Exchangeable sodium ..... 0.24 cmol (Na^{+})/kg
Exchangeable potassium ..... 0.94 cmol (K^{+})/kg
Exchangeable manganese ..... 80 mg/kg
Available molybdenum ..... 0.13 mg/kg
Available boron ..... 0.56 mg/kg
Soluble fluorine ..... 2.9 mg/kg

Soluble salt

Cl^{-} ..... 0.016 g/kg
SO_4^{2-} ..... 0.109 g/kg
Ca^{2+} ..... 0.080 g/kg
Mg^{2+} ..... 19 mg/kg
K^{+} ..... 18 mg/kg
Na^{+} ..... 24 mg/kg

DTPA extraction

Available copper ..... 2.6 mg/kg
Available zinc ..... 2.3 mg/kg
Available iron ..... 142 mg/kg
Available manganese ..... 67 mg/kg
Available cadmium ..... 0.048 mg/kg
Available lead ..... 2.07 mg/kg
Available nickel ..... 2.4 mg/kg
Available cobalt ..... 0.39 mg/kg

Hydrochloric acid extraction

Available copper ..... 1.08 mg/kg
Available zinc ..... 3.6 mg/kg
Available iron ..... 16.3 mg/kg
Available manganese ..... 131 mg/kg
Available cadmium ..... 0.053 mg/kg
Available lead ..... 0.8 mg/kg
Available nickel ..... 3.3 mg/kg
Available chromium ..... 0.25 mg/kg
Available arsenic ..... 0.018 mg/kg

Sodium nitrate extraction

Available copper ..... 0.034 mg/kg
Available zinc ..... .0.068 mg/kg
Available nickel ..... 0.047 mg/kg

Code	Product	Unit
CIL-EDF-5183	Soil - Organic contaminants	10 g

Reference values

Polychlorinated dioxins and furans

2,3,78-TCDD	0.11 ± 0.14 ng/kg
Total TCDD	0.32 ± 0.88 ng/kg
1,2,3,7,8-PeCDD	0.39 ± 0.32 ng/kg
Total PeCDD	2.96 ± 2.40 ng/kg
1,2,3,4,7,8-HxCDD	1.12 ± 0.52 ng/kg
1,2,3,6,7,8-HxCDD	4.39 ± 0.88 ng/kg
1,2,3,7,8,9-HxCDD	2.00 ± 1.20 ng/kg
Total HxCDD	50.9 ± 22.8 ng/kg
1,2,3,4,6,7,8-HpCDD	153 ± 57.2 ng/kg
Total HpCDD	492 ± 246 ng/kg
OCDD	7870 ± 1650 ng/kg
2,3,7,8-TCDF	0.70 ± 0.34 ng/kg
Total TCDF	3.21 ± 2.12 ng/kg
1,2,3,7,8-PeCDF	0.23 ± 0.22 ng/kg
2,3,4,7,8-PeCDF	0.34 ± 0.14 ng/kg
Total PeCDF	3.31 ± 5.74 ng/kg
1,2,3,4,7,8-HxCDF	0.86 ± 0.44 ng/kg
1,2,3,6,7,8-HxCDF	0.58 ± 0.26 ng/kg
1,2,3,7,8,9-HxCDF	0.12 ± 0.16 ng/kg
2,3,4,6,7,8-HxCDF	0.72 ± 0.92 ng/kg
Total HxCDF	15.6 ± 12.7 ng/kg
1,2,3,4,6,7,8-HpCDF	13.9 ± 3.68 ng/kg
1,2,3,4,7,8,9-HpCDF	1.25 ± 0.62 ng/kg
Total HpCDF	54.0 ± 16.0 ng/kg
OCDF	58.2 ± 32.4 ng/kg

Polychlorinated biphenyls

2,2',5-TriCB (#18)	78.9 ± 30.4 ng/kg
2,4,4'-TriCB (#28)	140 ± 127 ng/kg
3,4,4'-TriCB (#37)	1710 ± 440 ng/kg
2,2',3,5'-TetraCB (#44)	1070 ± 552 ng/kg
2,2',4,5'-TetraCB (#49)	638 ± 350 ng/kg
2,2',5,5'-TetraCB (#52)	2020 ± 744 ng/kg
2,4,4',5-TetraCB (#74)	447000 ± 348000 ng/kg
3,3',4,4'-TetraCB (#77)	2,230 ± 988 ng/kg
3,4,4',5-TetraCB (#81)	5.52 ± 7.42 ng/kg
2,2',3,4,5'-PentaCB (#87)	2370 ± 532 ng/kg
2,2',4,4',5-PentaCB (#99)	1110 ± 444 ng/kg
2,2',4,5,5'-PentaCB (#101)	5370 ± 1564 ng/kg
2,3,3',4,4'-PentaCB (#105)	629 ± 158.4 ng/kg
2,3,3',4',6-PentaCB (#110)	5880 ± 2,110 ng/kg
2,3,4,4',5-PentaCB (#114)	34.6 ± 18.0 ng/kg
2,3',4,4',5-PentaCB (#118)	6520 ± 2,300 ng/kg
2',3,4,4',5-PentaCB (#123)	24.1 ± 23.2 ng/kg
3,3',4,4',5-PentaCB (#126)	33.5 ± 10.3 ng/kg
2,2',3,3',4,4'-HexaCB (#128)	342 ± 135 ng/kg
2,2',3,4,4',5-HexaCB (#137)	87.1 ± 32.8 ng/kg
2,2',3,4,4',5'-HexaCB (#138)	2350 ± 764 ng/kg
2,2',3,4,5,5'- HexaCB (#141)	514 ± 112 ng/kg
2,2',3,4',5',6- HexaCB (#149)	2280 ± 424 ng/kg
2,2',3,5,5',6- HexaCB (#151)	910 ± 752 ng/kg
2,2',4,4',5,5'-HexaCB (#153)	2330 ± 842 ng/kg
2,3,3',4,4',5-HexaCB (#156)	189 ± 25.0 ng/kg
2,3,3',4,4',5'-HexaCB (#157)	31.0 ± 15.1 ng/kg
2,3,3',4,4',6-HexaCB (#158)	224 ± 44.8 ng/kg
2,3',4,4',5,5'-HexaCB (#167)	83.2 ± 12.0 ng/kg
3,3',4,4',5,5'-HexaCB (#169)	0.57 ± 0.68 ng/kg
2,2',3,3',4,4',5-HeptaCB (#170)	436 ± 102 ng/kg
2,2',3,3',4',5,6-HeptaCB (#177)	362 ± 79.0 ng/kg
2,2',3,3',5,5',6-HeptaCB (#178)	135 ± 22.6 ng/kg
2,2',3,4,4',5,5'-HeptaCB (#180)	1116 ± 500 ng/kg
2,2',3,4,4',5',6-HeptaCB (#183)	360 ± 25.2 ng/kg
2,2',3,4',5,5',6-HeptaCB (#187)	679 ± 143 ng/kg
2,3,3',4,4',5,5'-HeptaCB (#189)	14.2 ± 5.32 ng/kg
2,2',3,3',4,4',5,5'-OctaCB (#194)	182 ± 44.6 ng/kg
2,2',3,3',4,4',5,6-OctaCB (#195)	90.6 ± 17.2 ng/kg
2,2',3,3',4,5,6,6'-OctaCB (#199)	229 ± 34.2 ng/kg
2,2',3,3',4,4',5,5',6-NonaCB (#206)	74.8 ± 108 ng/kg
2,2',3,3',4,5,5',6,6'-NonaCB (#208)	39.3 ± 61.4 ng/kg
DecaCB (#209)	12.9 ± 23.0 ng/kg

Brominated diphenyl ethers

2,2',4-TriBDE (#17)	4.80 ± 6.10 ng/kg
2,4,4'-TriBDE (#28)	38.0 ± 79.8 ng/kg
2,2',4,4'-TetraBDE (#47)5	192 ± 246 ng/kg
2,2',4,5'-TetraBDE (#49)	24.4 ± 19.7 ng/kg
2,3',4,4'-TetraBDE (#66)	12.6 ± 10.9 ng/kg
2,2',3,4,4'-PentaBDE (#85)	19.5 ± 17.9 ng/kg
2,2',4,4',5-PentaBDE (#99)	213 ± 186 ng/kg
2,2',4,4',6-PentaBDE (#100)	55.4 ± 31.0 ng/kg
2,2',3,4,4',5'-HexaBDE (#138)	25.8 ± 25.8 ng/kg
2,2',4,4',5,5'-HexaBDE (#153)	111 ± 24.0 ng/kg
2,2',4,4',5,6'-HexaBDE (#154)	46.0 ± 26.6 ng/kg
2,2',3,4,4',5',6-HeptaBDE (#183)	286 ± 70.8 ng/kg
DecaBDE (#209)	1930 ± 2300 ng/kg

Polyaromatic hydrocarbons

Anthracene	9650 ± 5980 ng/kg
Benz[a]anthracene	11200 ± 9420 ng/kg
Benzo[b]fluoranthene	18100 ± 19200 ng/kg
Benzo[k]fluoranthene	5870 ± 3320 ng/kg
Benzo[g,h,i]perylene	8280 ± 2600 ng/kg
Benzo[a]pyrene	7620 ± 6160 ng/kg
Chrysene	16000 ± 7500 ng/kg
Fluoranthene	33000 ± 10300 ng/kg
Indeno[1,2,3-cd]pyrene	9550 ± 4140 ng/kg
Phenanthrene	25900 ± 38200 ng/kg
Pyrene	26300 ± 8680 ng/kg

Code	Product	Unit
	LGCQC3004 - 3006 Quality control reference materials from LGC	
LGCQC3004	Clay soil 1 - Metals, inorganics and polynuclear aromatic hydrocarbons	2 x 250 g

Textural Classification[1] - Clay

Sand 2.00-0.063mm	31 % w/w	Clay <0.002mm	36% w/w
Silt 0.063-0.002mm	33 % w/w		

Indicative values

Extractable metals

As	83 mg/kg	Cu	300 mg/kg	Pb	50 mg/kg
Ba	380 mg/kg	Fe	40000 mg/kg	Sb	370 mg/kg
Be	<2 mg/kg	Hg	670 mg/kg	Se	<3 mg/kg
Cd	<1 mg/kg	Mn	830 mg/kg	Tl	<1 mg/kg
Co	36 mg/kg	Mo	2 mg/kg	V	47 mg/kg
Cr	37 mg/kg	Ni	61 mg/kg	Zn	82 mg/kg

Naphthalene	<40 µg/kg	Chrysene	<80 µg/kg
Acenaphthylene	<20 µg/kg	Benzo(b)fluoranthene	<70 µg/kg
Acenaphthene	<30 µg/kg	Benzo(k)fluoranthene	<50 µg/kg
Fluorene	<20 µg/kg	Benzo(e)pyrene	<60 µg/kg
Phenanthrene	<90 µg/kg	Benzo(a)pyrene	<60 µg/kg
Anthracene	<40 µg/kg	Dibenzo(ah)anthracene	<50 µg/kg
Fluoranthene	<130 µg/kg	Indeno(1,2,3,cd)pyrene	<80 µg/kg
Pyrene	<110 µg/kg	Benzo(ghi)perylene	<90 µg/kg
Cyclopenta(cd)pyrene	<10 µg/kg	Anthanthrene	<70 µg/kg
Benz(a)anthracene	<50 µg/kg		

Water Soluble Boron	3 mg/kg	Water Soluble Sulfate	<0.02 g/L
Loss on Ignition	10 % w/w	pH	6.7

[1] According to UK Textural Soil Classification

LGCQC3005	Loamy Sand Soil 1 - Metals, inorganics and polynuclear aromatic hydrocarbons	2 x 250 g

Textural Classification[1] - Loamy sand

Sand 2.00-0.063mm	81 % w/w	Clay <0.002mm	10% w/w
Silt 0.063-0.002mm	9 % w/w		

Indicative values

Extractable metals

As	<5 mg/kg	Hg	<3 mg/kg	Se	<3 mg/kg
Ba	180 mg/kg	Mn	150 mg/kg	Tl	<1 mg/kg
Be	<2 mg/kg	Mo	7 mg/kg	V	13 mg/kg
Cd	<1 mg/kg	Ni	14 mg/kg	Zn	220 mg/kg
Co	3 mg/kg	Pb	520 mg/kg		
Cr	180 mg/kg	Sb	9 mg/kg		

Naphthalene	<110 µg/kg	Chrysene	<300 µg/kg
Acenaphthylene	<140 µg/kg	Benzo(b)fluoranthene	<390 µg/kg
Acenaphthene	<60 µg/kg	Benzo(k)fluoranthene	<160 µg/kg
Fluorene	<140 µg/kg	Benzo(e)pyrene	<230 µg/kg
Phenanthrene	<500 µg/kg	Benzo(a)pyrene	<220 µg/kg
Anthracene	<210 µg/kg	Dibenzo(ah)anthracene	<80 µg/kg
Fluoranthene	<370 µg/kg	Indeno(1,2,3,cd)pyrene	<210 µg/kg
Pyrene	<340 µg/kg	Benzo(ghi)perylene	<310 µg/kg
Cyclopenta(cd)pyrene	<10 µg/kg	Anthanthrene	<140 µg/kg
Benz(a)anthracene	<180 µg/kg		

Water Soluble Chloride	54 mg/kg	Loss on Ignition	2 % w/w
Water Soluble Boron	<2 mg/kg	Water Soluble Sulfate(4)	0.1 g/L
Total Sulfate	850 mg/kg	pH	8.1
Total Sulfur	0.02 % w/w		

[1] According to UK Textural Soil Classification

Code	Product	Unit
LGCQC3006	**Sandy Loam Soil 1 - Metals, inorganics and polynuclear aromatic hydrocarbons** Textural Classification(1) - Sandy loam Sand 2.00-0.063mm ..... 80 % w/w Silt 0.063-0.002mm ..... 9 % w/w Clay <0.002mm ..... 11% w/w Indicative values Extractable metals As ..... <5 mg/kg Ba ..... 180 mg/kg Be ..... <2 mg/kg Cd ..... <1 mg/kg Co ..... 3 mg/kg Cr ..... 180 mg/kg Cu ..... 19 mg/kg Hg ..... <1 mg/kg Mn ..... 170 mg/kg Mo ..... 6 mg/kg Ni ..... 14 mg/kg Pb ..... 600 mg/kg Sb ..... 9 mg/kg Se ..... <3 mg/kg Tl ..... <1 mg/kg V ..... 13 mg/kg Zn ..... 230 mg/kg Naphthalene ..... <100 µg/kg Acenaphthylene ..... <30 µg/kg Acenaphthene ..... <50 µg/kg Fluorene ..... <40 µg/kg Phenanthrene ..... <330 µg/kg Anthracene ..... <180 µg/kg Fluoranthene ..... <500 µg/kg Pyrene ..... <400 µg/kg Cyclopenta(cd)pyrene ..... <10 µg/kg Benz(a)anthracene ..... <280 µg/kg Chrysene ..... <390 µg/kg Benzo(b)fluoranthene ..... <340 µg/kg Benzo(k)fluoranthene ..... <190 µg/kg Benzo(e)pyrene ..... <220 µg/kg Benzo(a)pyrene ..... <230 µg/kg Dibenzo(ah)anthracene ..... <70 µg/kg Indeno(1,2,3,cd)pyrene ..... <150 µg/kg Benzo(ghi)perylene ..... <210 µg/kg Anthanthrene ..... <60 µg/kg Water Soluble Chloride ..... 64 mg/kg Water Soluble Boron ..... <2 mg/kg Total Sulfate ..... 1300 mg/kg Total Sulfur ..... 0.03 % w/w Loss on Ignition ..... 2 % w/w Water Soluble Sulfate ..... 0.3 g/L pH ..... 8.2 (1) According to UK Textural Soil Classification	2 x 250 g
LGC6115	**Soil - PCBs and PAHs** LGC6115 is a contaminated sandy loam soil sourced from the Czech Republic. It has been produced to meet the demands of laboratories seeking to validate methods for accreditation to the UK Environment Agency's MCERTS soil testing scheme or similar schemes worldwide. Certified values PCB 101 ..... 93 µg/kg PCB 118 ..... 116 µg/kg Phenanthrene ..... 178 mg/kg Fluoranthene ..... 312 mg/kg Benzo(a)anthracene ..... 36 mg/kg Benzo(a)pyrene ..... 0.13 mg/kg Benzo(ghi)perylene ..... 0.33 mg/kg Assesed values PCB 138 ..... 16 µg/kg PCB 153 ..... 19 µg/kg PCB 180 ..... 9.6 µg/kg	50 g
New ERM-CC135	**Brick works soil - Extractable metals** Collected from Hackney Brick Works The extractable/leachable metal content refers to metals soluble in Aqua Regia using methods based on ISO11466 (1995). <u>Total metals</u> Certified values Ba ..... 305 mg/kg Ca ..... 23400 mg/kg Cr ..... 455 mg/kg Cu ..... 107 mg/kg Fe ..... 47500 mg/kg K ..... 16300 mg/kg Mg ..... 9400 mg/kg Mn ..... 390 mg/kg Na ..... 1700 mg/kg Ni ..... 291 mg/kg Pb ..... 411 mg/kg V ..... 139 mg/kg Zn ..... 345 mg/kg Indicative values for Al, Be, Co, Li, Mo, Se, Sn, Ti <u>Extractable metals</u> Certified values Al ..... 22700 mg/kg Ba ..... 134 mg/kg Be ..... 1.4 mg/kg Ca ..... 21900 mg/kg Co ..... 20 mg/kg Cr ..... 336 mg/kg Cu ..... 105 mg/kg Fe ..... 40900 mg/kg Hg ..... 3.2 mg/kg K ..... 5100 mg/kg Mg ..... 7000 mg/kg Mn ..... 348 mg/kg Na ..... 362 mg/kg Ni ..... 277 mg/kg Pb ..... 391 mg/kg Se ..... 0.9 mg/kg V ..... 78 mg/kg Zn ..... 316 mg/kg Indicative values for Li, Mo Sn, Ti	50 g

Code	Product	Unit
LGC6145	Contaminated clay loam soil - Extractable metals, PAHs and inorganics	50 g

LGC6145 is a contaminated clay – loam soil sourced from the Czech Republic. It has been produced to meet the demands of laboratories seeking to validate methods for accreditation to the UK Environment Agency's MCERTS soil testing scheme or similar schemes worldwide.

Certified values

As	38.7 mg/kg	Pb	45.1 mg/kg
Cd	0.65 mg/kg	Se	1.81 mg/kg
Cr	47.6 mg/kg	V	53.9 mg/kg
Cu	62.2 mg/kg	Zn	137 mg/kg
Ni	39.0 mg/kg		

Assessed values

Naphthalene	9.3 mg/kg	Benzo(*b*)fluoranthene	12 mg/kg
Acenaphthylene	0.79 mg/kg	Indeno(1,2,3-*cd*)pyrene	0.97 mg/kg
Phenanthrene	325 mg/kg	Water soluble chloride	65 mg/kg
Anthracene	8.4 mg/kg	Water soluble sulfate	5.3 g/L
Chrysene	45 mg/kg		

Indicative value for Acenaphthene, Fluorene, Fluoranthene, Pyrene, Benzo(*a*)anthracene, Benzo(*k*)fluoranthene, Benzo(*a*)pyrene, Dibenzo(*a,h*)anthracene, Benzo(*ghi*)perylene, Easily liberated cyanide and Total cyanide, Total sulfur, Al_2O^3, CaO, Fe_2O_3, K_2O, MgO, SO_3, SiO_2, TiO_2, Soil textural class (UK), Loss on drying, pH, Loss on ignition, Quartz SiO_2, Kaoline clay, Muscovite clay

BCR-481	Industrial soil - PCBs	25 g

Compound (IUPAC Code)	Certified value mg/kg	Uncertainty mg/kg
PCB 101	37	3
PCB 118	9.4	0.7
PCB 128	9.1	0.8
PCB 149	97	7
PCB 153	137	7
PCB 156	7.0	0.5
PCB 170	52	4
PCB 180	124	6

BCR-524	Contaminated industrial soil - PAHs	40 g

Compound	Certified value mg/kg	Uncertainty mg/kg
Pyrene	173	11
Benzo(a)anthracene	22.5	1.8
Benzo(a)pyrene	8.6	0.5
Benzo(e)pyrene	10.6	1.4
Benzo(b)fluoranthene	13.5	1.6
Benzo(k)fluoranthene	6.2	0.7
Benzo(b)naphtho(2,1-d)thiophene	3.8	0.6
Indeno(1,2,3-cd)pyrene	5.1	0.4
Pentachlorophenol	0.034	0.005

BCR-529	Industrial sandy soil - PCDDs and PCDFs	50 g

Compound	Certified value mg/kg	Uncertainty mg/kg
1,2,3-Trichlorobenzene	0.63	0.11
3,4-Dichlorophenol	0.23	0.04
2,4,5-Trichlorophenol	1.51	0.10
Pentachlorophenol	0.23	0.04
	µg/kg	µg/kg
2,3,7,8-TCDD	4.5	0.6
1,2,3,7,8-PeCDD	0.44	0.05
1,2,3,4,7,8-HxCDD	1.2	0.3
1,2,3,6,7,8-HxCDD	5.4	0.9
1,2,3,7,8,9-HxCDD	3.0	0.4
2,3,7,8-TCDF	0.078	0.013
1,2,3,7,8-PeCDF	0.14	0.03
2,3,4,7,8-PeCDF	0.36	0.07
1,2,3,4,7,8-HxCDF	3.4	0.5
1,2,3,6,7,8-HxCDF	1.09	0.15
1,2,3,7,8,9-HxCDF	0.022	0.010
2,3,4,6,7,8-HxCDF	0.37	0.04

BCR-530	Industrial clay soil - Dioxins and furans	50 g

Compound	Certified value mg/kg	Uncertainty mg/kg
1,2,3-Trichlorobenzene	15	4
3,4-Dichlorophenol	6.0	0.5
2,4,5-Trichlorophenol	40	7
Pentachlorophenol	0.47	0.08
	µg/kg	µg/kg
1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin	0.061	0.011
1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin	0.022	0.003
1,2,3,7,8-Pentachlorodibenzofuran	0.24	0.04
2,3,4,7,8-Pentachlorodibenzofuran	0.62	0.07
1,2,3,4,7,8-Hexachlorodibenzofuran	0.321	0.015
1,2,3,6,7,8-Hexachlorodibenzofuran	0.19	0.03
2,3,4,6,7,8-Hexachlorodibenzofuran	0.126	0.012

Code	Product	Unit
ERM-CC008	Soil - Pentachlorophenol Certified value Pentachlorophenol... 2.04 mg/kg	30 g
ERM-CC009	Soil - Pentachlorophenol Certified value Pentachlorophenol... 2.91 mg/kg	30 g
ERM-CC010	Soil - AOX (DIN 38414 Part 18) Certified value AOX ..... 1349.4 mg/kg AOX - Absorbed Organically Bound Halogens	5.7 g
ERM-CC011	Soil - AOX (DIN 38414 Part 18) Certified value AOX ..... 80.4 mg/kg AOX - Absorbed Organically Bound Halogens	4.2 g
ERM-CC013A	Soil - PAHs Certified values Napthalene .....2.4 mg/kg Fluorene.....1.14 mg/kg Phenanthrene .....12.0 mg/kg Anthracene .....1.14 mg/kg Fluoranthene.....12.9 mg/kg Pyrene .....9.6 mg/kg Benz(a)anthracene .....5.6 mg/kg Chrysene..... 5.3 mg/kg Benzo(b)fluoranthene ..... 7.1 mg/kg Benzo(k)fluoranthene..... 3.4 mg/kg Benzo(a)pyrene..... 4.9 mg/kg Benzo(g,h,i)perylene ..... 4.6 mg/kg Indeno(1,2,3-c,d)pyrene..... 5.2 mg/kg	81 g
ERM-CC012	Soil - AOX (DIN 38414 Part 18) Certified value AOX ..... 102.3 mg/kg AOX - Absorbed Organically Bound Halogens	6.5 g

Code	Product	Unit
CIL-EDF-5184	Contaminated sediment - Organic contaminants	10 g

Reference values

Polychlorinated dioxins and furans

2,3,7,8-TCDD	1.96 ± 1.10 ng/kg
Total TCDD	25.0 ± 13.6 ng/kg
1,2,3,7,8-PeCDD	5.79 ± 2.12 ng/kg
Total PeCDD	45.8 ± 49.2 ng/kg
1,2,3,4,7,8-HxCDD	5.61 ± 2.72 ng/kg
1,2,3,6,7,8-HxCDD	10.9 ± 3.50 ng/kg
1,2,3,7,8,9-HxCDD	6.88 ± 1.94 ng/kg
Total HxCDD	193 ± 134 ng/kg
1,2,3,4,6,7,8-HpCDD	231 ± 77.6 ng/kg
Total HpCDD	497 ± 304 ng/kg
OCDD	2,050 ± 580 ng/kg
2,3,7,8-TCDF	219 ± 47.8 ng/kg
Total TCDF	1,680 ± 486 ng/kg
1,2,3,7,8-PeCDF	122 ± 24.0 ng/kg
2,3,4,7,8-PeCDF	164 ± 50.4 ng/kg
Total PeCDF	1,490 ± 800 ng/kg
1,2,3,4,7,8-HxCDF	277 ± 42.8 ng/kg
1,2,3,6,7,8-HxCDF	159 ± 23.6 ng/kg
1,2,3,7,8,9-HxCDF	7.44 ± 7.38 ng/kg
2,3,4,6,7,8-HxCDF	48.4 ± 18.7 ng/kg
Total HxCDF	1,240 ± 398 ng/kg
1,2,3,4,6,7,8-HpCDF	346 ± 45.6 ng/kg
1,2,3,4,7,8,9-HpCDF	80.2 ± 30.4 ng/kg
Total HpCDF	659 ± 462 ng/kg
OCDF	301 ± 50.6 ng/kg

Polychlorinated biphenyls

2,2',5-TriCB (#18)	27,600 ± 11,200 ng/kg
2,4,4'-TriCB (#28)	54,200 ± 15,500 ng/kg
3,4,4'-TriCB (#37)	16,800 ± 12,700 ng/kg
2,2',3,5'-TetraCB (#44)	657,000 ± 159,000 ng/kg
2,2',4,5'-TetraCB (#49)	476,000 ± 155,000 ng/kg
2,2',5,5'-TetraCB (#52)	1,340,000 ± 260,000 ng/kg
2,3',4,4'-TetraCB (#66)	403,000 ± 40,800 ng/kg
2,4,4',5-TetraCB (#74)	819,000 ± 1,660,000 ng/kg
3,3',4,4'-TetraCB (#77)	11,700 ± 2,600 ng/kg
3,4,4',5-TetraCB (#81)	341 ± 402 ng/kg
2,2',3,4,5'-PentaCB (#87)	1,810,000 ± 1,110,000 ng/kg
2,2',3',4,5-PentaCB (#97)	990,000 ± 1,870,000 ng/kg
2,2',4,4',5-PentaCB (#99)	1,160,000 ± 496,000 ng/kg
2,2',4,5,5'-PentaCB (#101)	3,140,000 ± 552,000 ng/kg
2,3,3',4,4'-PentaCB (#105)	1,050,000 ± 314,000 ng/kg
2,3,3',4',6-PentaCB (#110)	3,340,000 ± 768,000 ng/kg
2,3,4,4',5-PentaCB (#114)	70,000 ± 47,400 ng/kg
2,3',4,4',5-PentaCB (#118)	2,520,000 ± 904,000 ng/kg
2',3,4,4',5-PentaCB (#123)	46,200 ± 29,200 ng/kg
3,3',4,4',5-PentaCB (#126)	2,540 ± 1,080 ng/kg
2,2',3,3',4,4'-HexaCB (#128)	694,000 ± 181,000 ng/kg
2,2',3,4,4',5-HexaCB (#137)	164,000 ± 106,000 ng/kg
2,2',3,4,4',5'-HexaCB (#138)	3,970,000 ± 2,820,000 ng/kg
2,2',3,4,5,5'-HexaCB (#141)	1,010,000 ± 346,000 ng/kg
2,2',3,4',5,5'-HexaCB (#146)	623,000 ± 87,400 ng/kg
2,2',3,4',5',6-HexaCB (#149)	3,390,000 ± 838,000 ng/kg
2,2',3,5,5',6-HexaCB (#151)	1,410,000 ± 788,000 ng/kg
2,2',4,4',5,5'-HexaCB (#153)	3,880,000 ± 902,000 ng/kg
2,3,3',4,4',5-HexaCB (#156)	457,000 ± 189,000 ng/kg
2,3,3',4,4',5'-HexaCB (#157)	88,900 ± 28,000 ng/kg
2,3,3',4,4',6-HexaCB (#158)	512,000 ± 195,000 ng/kg
2,3',4,4',5,5'-HexaCB (#167)	162,000 ± 18,800 ng/kg
3,3',4,4',5,5'-HexaCB (#169)	139 ± 92.4 ng/kg
2,2',3,3',4,4',5-HeptaCB (#170)	1,250,000 ± 334,000 ng/kg
2,2',3,3',4,5,5'-HeptaCB (#172)	207,000 ± 85,600 ng/kg
2,2',3,3',4',5,6-HeptaCB (#177)	743,000 ± 238,000 ng/kg
2,2',3,3',5,5',6-HeptaCB (#178)	290,000 ± 113,000 ng/kg
2,2',3,4,4',5,5'-HeptaCB (#180)	2,940,000 ± 774,000 ng/kg
2,2',3,4,4',5',6-HeptaCB (#183)	810,000 ± 394,000 ng/kg
2,2',3,4',5,5',6-HeptaCB (#187)	1,520,000 ± 232,000 ng/kg
2,3,3',4,4',5,5'-HeptaCB (#189)	50,200 ± 18,200 ng/kg
2,2',3,3',4,4',5,5'-OctaCB (#194)	622,000 ± 146,000 ng/kg
2,2',3,3',4,4',5,6-OctaCB (#195)	268,000 ± 73,800 ng/kg
2,2',3,3',4,5,5',6'-OctaCB (#199)	691,000 ± 226,000 ng/kg
2,2',3,4,4',5,5',6-OctaCB (#203)	442,000 ± 108,000 ng/kg
2,2',3,3',4,4',5,5',6-NonaCB (#206)	152,000 ± 35,400 ng/kg
2,2',3,3',4,5,5',6,6'-NonaCB (#208)	31,800 ± 11,100 ng/kg
DecaCB (#209)	6,030 ± 3,100 ng/kg

Polybrominated diphenyl ethers

2,4,4'-TriBDE (#28) 6	25.8 ± 31.2 ng/kg
2,2',4,4'-TetraBDE (#47)	94.7 ± 218 ng/kg
2,2',4,5'-TetraBDE (#49)	14.5 ± 34.8 ng/kg
2,3',4,4'-TetraBDE (#66)	32.0 ± 112 ng/kg
3,3',4,4'-TetraBDE (#77)	106 ± 66.6 ng/kg
2,2',3,4,4'-PentaBDE (#85)	14.4 ± 45.0 ng/kg
2,2',4,4',5-PentaBDE (#99)	95.1 ± 206 ng/kg
2,2',4,4',6-PentaBDE (#100)	17.6 ± 38.0 ng/kg
2,2',3,4,4',5'-HexaBDE (#138)	12.2 ± 40.6 ng/kg
2,2',4,4',5,5'-HexaBDE (#153)	22.4 ± 59.4 ng/kg
2,2',4,4',5,6'-HexaBDE (#154)	25.3 ± 73.8 ng/kg
2,2',3,4,4',5',6-HeptaBDE (#183)	43.3 ± 82.8 ng/kg
DecaBDE (#209)	9,900 ± 14,300 ng/kg

Polyaromatic hydrocarbons

Acenaphthene	39,300 ± 14,800 ng/kg
Acenaphthylene	419,000 ± 308,000 ng/kg
Anthracene	551,000 ± 258,000 ng/kg
Benz[a]anthracene	2,620,000 ± 1,010,000 ng/kg
Benzo[b]fluoranthene	1,550,000 ± 574,000 ng/kg
Benzo[k]fluoranthene	856,000 ± 290,000 ng/kg
Benzo[g,h,i]perylene	1,130,000 ± 428,000 ng/kg
Benzo[a]pyrene	2,390,000 ± 1,010,000 ng/kg
Benzo[e]pyrene	1,740,000 ± 271,000 ng/kg
Chrysene	2,490,000 ± 442,000 ng/kg
Dibenz[a,h]anthracene	243,000 ± 159,000 ng/kg
Fluoranthene	3,690,000 ± 636,000 ng/kg
Fluorene	69,400 ± 76,800 ng/kg
Indeno[1,2,3-cd]pyrene	1,320,000 ± 780,000 ng/kg
Naphthalene	82,900 ± 33,800 ng/kg
Phenanthrene	622,000 ± 424,000 ng/kg
Perylene	428,000 ± 470,000 ng/kg
Pyrene	5,710,000 ± 445,000 ng/kg

	Code	Product	Unit
New	RTC-CRM090-100	Clay soil - Nutritients Lot 014687 Certified values Ammonia as N .....743 ± 35.2 mg/kg Kjeldahl nitrogen, total (TKN) .....2530 ± 104 mg/kg Phosphorus, total.....809 ± 79.5 mg/kg Total organic carbon (TOC).....5280 ± 592 mg/kg	100 g
	RTC-CRM401-225	Superfund soil (Sludge) - TCLP organics Organic contaminated soil from a superfund site in the Western United States. Certified using methods USEPA, SW846, 3rd edition, Extraction Method 1311 and analytical methods 8031, 8150 and 8270. Lot D5401 Certified values o-Cresol .....888 mg/kg Total cresol .....2660 mg/kg Lindane .....1.05 mg/kg Pentachlorophenol ..... 117 mg/kg 2,4,6-Trichlorophenol ..... 58.7 mg/kg Indicative values for m+p Cresol, 2,4-D TCLP: Total Characteristic Leaching Procedure. Superfund: US Government funding for the cleaning up of sites in the United States where dumping of hazardous waste has occurred.	225 g
	RTC-CRM402-225	Superfund soil (Sandy loam) - TCLP organics The reference values were determined by USEPA SW846 (3rd edition) Extraction Method 1311 and Analytical Methods 8081, 8150, and 8270. The sample is suitable for these and other similar methods. Certified values CD402 Nitrobenzene .....12.2 mg/L 2,4-Dinitrotoluene (2,4-DNT) .....0.619 mg/L BHC (Lindane) ..... 1.28 mg/L 2,4-D ..... 67.1 mg/L	225 g
	RTC-CRM910-050	Soil (Loam) - PCBs Real-world waste produced from a contaminated site in the Eastern United States. The sample was certified by USEPA SW846, 3rd edition Method 3540A/8081 and is suitable for use by these and other similar methods. Certified value D910 Aroclor 1242 ..... 39.4 mg/kg	50 g
	RTC-CRM911-050	Soil (Loam) - PCBs Real-world waste collected from a percolation pond at an electric generating facility in the Southeastern United States. The sample was certified by USEPA SW846 (3rd edition) Methods 3540A/3545/3550 and 8082. The sample is suitable for use by these and other similar methods. Certified value BC911 Aroclor 1254 ..... 1.28 mg/kg	50 g
	RTC-CRM913-050	Soil (Sandy loam) - PCBs Real-world waste collected from electric utility storage site Western United States. The PCB value was certified using extraction method 3540A and analysis method 8081 (PCBs by GC) and is suitable for use by these and other similar methods. Certified value Lot DG913 Aroclor 1254 ..... 5.93 mg/kg	50 g
	RTC-CRM915-050	Soil (Sandy loam) - PCBs Real-world waste collected from a site in the Western United States. The sample was certified by USEPA SW846, 3rd edition Method 3540A/8081 and is suitable for use by these and other similar methods. Certified values Lot JG915 Aroclor 1260 ..... 1.50 mg/kg	50 g
	RTC-CRM916-050	Soil (Loamy sand) - PCBs Real-world waste collected from a site in the Western United States. The sample was certified by USEPA SW846, 3rd edition Method 3540A/8081 and is suitable for use by these and other similar methods. Certified value Lot IH916 Aroclor 1248 ..... 10.7 mg/kg	50 g
	RTC-CRM917-050	Soil (Loamy sand) - PCBs Real-world waste collected from a site in the Western United States. The sample was certified by USEPA SW846, 3rd edition Method 3540A/8081 and is suitable for use by these and other similar methods. Certified value Lot II917 Aroclor 1242 ..... 5.05 mg/kg	50 g

Soils

Code	Product	Unit
RTC-CRM918-050	Soil (Sandy loam) - PCBs Real-world waste collected from a site in the Western United States. The sample was certified by USEPA SW846, 3rd edition Method 3540A/8081 and is suitable for use by these and other similar methods. Certified value Lot JI918 Aroclor 1252 ..... 274 mg/kg	50 g
RTC-CRM921-050	Soil (Sandy loam) - PCBs Real-world waste collected from a site in the Western United States. The sample was certified by USEPA SW846, 3rd edition Method 3540A/8081 and is suitable for use by these and other similar methods. Certified value Lot AL921 Aroclor 1242 ..... 29.8 mg/kg	50 g
RTC-CRM922-050	Soil (Loam) - PCBs Real-world waste collected from a site in the Western United States. The sample was certified by USEPA SW846, 3rd edition Method 3540A/8081 and is suitable for use by these and other similar methods. Certified value Aroclor 1016 ..... 8.30 mg/kg	50 g
RTC-CRM923-050	Soil (Sandy loam) - PCBs Real-world waste collected from a site in the Western United States. The sample was certified by USEPA SW846, 3rd edition Method 3540A/8081 and is suitable for use by these and other similar methods. Certified value BL923 Aroclor 1254 ..... 5.47 mg/kg	50 g
RTC-CRM924-050	Soil (Silt loam) - PCBs Certified value Lot P76 Aroclor 1242 ..... 8.27 mg/kg	50 g
New RTC-CRM927-050	Soil (Clay loam) - PCBs The certified value was determined by USEPA SW846 (3rd edition) Methods 8081A and 8082. The sample is suitable for use by these and other similar methods. Certified value Lot 002392 Aroclor 1242 ..... 7.03 mg/kg	50 g
New RTC-CRM961-050	Clay soil - PCBs Certified values Lot 013366 PCBs, total ..... 3,100 ± 516 µg/kg 2,4,4'-Trichlorobiphenyl (PCB 28) ..... 135 ± 19.8 µg/kg 2,2',5,5'-Tetrachlorobiphenyl (PCB 52) ..... 85.9 ± 18.2 µg/kg 3,3',4,4'-Tetrachlorobiphenyl (PCB 77) ..... 223 ± 31.5 µg/kg 3,4,4',5-Tetrachlorobiphenyl (PCB 81) ..... 205 ± 35.8 µg/kg 2,2',4,5,5'-Pentachlorobiphenyl (PCB 101) ..... 106 ± 11.0 µg/kg 2,3,3',4,4'-Pentachlorobiphenyl (PCB 105) ..... 147 ± 18.5 µg/kg 2,3',4,4',5-Pentachlorobiphenyl (PCB 118) ..... 173 ± 19.9 µg/kg 2,3',4,4',5'-Pentachlorobiphenyl (PCB 123) ..... 170 ± 24.0 µg/kg 2,3,4,4',5-Pentachlorobiphenyl (PCB 114) ..... 183 ± 28.9 µg/kg 3,3',4,4',5-Pentachlorobiphenyl (PCB 126) ..... 213 ± 26.6 µg/kg 2,2',3,4,4',5'-Hexachlorobiphenyl (PCB 138) ..... 130 ± 22.8 µg/kg 2,2',4,4',5,5'-Hexachlorobiphenyl (PCB 153) ..... 137 ± 18.5 µg/kg 2,3',4,4',5,5'-Hexachlorobiphenyl (PCB 167) ..... 236 ± 43.7 µg/kg 3,3',4,4',5,5'-Hexachlorobiphenyl (PCB 169) ..... 124 ± 15.5 µg/kg 2,2',3,4,4',5,5'-Heptachlorobiphenyl (PCB 180) ..... 116 ± 11.6 µg/kg 2,3,3',4,4',5,5'-Heptachlorobiphenyl (PCB 189) ..... 247 ± 60.2 µg/kg PCB (156)+(157) ..... 370 ± 4.59 µg/kg	50 g

	Code	Product	Unit
New	RTC-CRM962-050	Loamy sand - PCBs	50 g

Certified values

Lot 012222

2,4,4'-Trichlorobiphenyl (PCB 28)	180 ± 53.6 µg/kg
2,2',5,5'-Tetrachlorobiphenyl (PCB 52)	179 ± 40.7 µg/kg
3,3',4,4'-Tetrachlorobiphenyl (PCB 77)	221 ± 32.1 µg/kg
3,4,4',5-Tetrachlorobiphenyl (PCB 81)	165 ± 2.73 µg/kg
2,2',4,5,5'-Pentachlorobiphenyl (PCB 101)	119 ± 39.5 µg/kg
2,3,3',4,4'-Pentachlorobiphenyl (PCB 105)	108 ± 19.6 2 µg/kg
2,3',4,4',5-Pentachlorobiphenyl (PCB 118)	154 ± 11.8 2 µg/kg
2,3',4,4',5'-Pentachlorobiphenyl (PCB 123)	187 ± 28.0 µg/kg
2,3,4,4',5-Pentachlorobiphenyl (PCB 114)	128 ± 3.69 µg/kg
3,3',4,4',5-Pentachlorobiphenyl (PCB 126)	124 ± 23.3 µg/kg
2,2',3,4,4',5'-Hexachlorobiphenyl (PCB 138)	265 ± 84.9 µg/kg
2,2',4,4',5,5'-Hexachlorobiphenyl (PCB 153)	204 ± 74.9 µg/kg
2,3,3',4,4',5'-Hexachlorobiphenyl (PCB 157)	241 ± 101 µg/kg
2,3,3',4,4',5-Hexachlorobiphenyl (PCB 156)	211 ± 60.3 µg/kg
2,3',4,4',5,5'-Hexachlorobiphenyl (PCB 167)	225 ± 35.0 µg/kg
3,3',4,4',5,5'-Hexachlorobiphenyl (PCB 169)	178 ± 32.9 µg/kg
2,2',3,4,4',5,5'-Heptachlorobiphenyl (PCB 180)	287 ± 66.5 µg/kg
2,3,3',4,4',5,5'-Heptachlorobiphenyl (PCB 189)	204 ± 35.7 µg/kg
PCB (156)+(157)	450 ± 29.7 µg/kg

New	RTC-CRM304-030	Soil - BETX	30 g

This soil is typical of that found in the backfill surrounding a leaking underground diesel storage tank (LUST). The sample has been analyzed by a minimum of 20 laboratories to meet the requirements specified by the IPA/AALA RM-03, ISO Guides 34 and 35. The soil was certified by USEPA SW846, 3rd edition Method 5030A and 8020A or 8040B and is suitable for use by these and other similar methods.

Certified values

Lot 002520

Benzene	3.57 mg/kg	o-Xylene	2.40 mg/kg
Ethylbenzene	8.73 mg/kg	Xylene, total	7.02 mg/kg
Toluene	3.84 mg/kg	Gasoline range organics (C6-C12)	65.5 mg/kg
m+p-Xylene	2.43 mg/kg		

New	RTC-CRM305-030	Silt loam - BETX	30 g

The sample was certified by USEPA SW846, 3rd edition Method 5030A and 8020A or 8240B and is suitable for use by these and other similar methods.

Certified values

Lot 010406

Benzene	57.5 mg/kg	m+p-Xylene	42.7 mg/kg
Ethylbenzene	3.49 mg/kg	o-Xylene	23.2 mg/kg
Methyl tert-butyl ether (MTBE)	31.6 mg/kg	Xylene, total	66.7 mg/kg
Toluene	15.5 mg/kg	Gasoline range organics (C6-C12)	235 mg/kg

New	RTC-CRM306-030	Soil - BETX	30 g

This soil is typical of that found in the backfill surrounding a leaking underground diesel storage tank (LUST). The soil was certified by USEPA SW846, 3rd edition Method 5030A and 8021B or 8260B and is suitable for use by these and other similar methods.

Certified values

Lot 010590

Benzene	20.2 mg/kg	o-Xylene	33.6 mg/kg
Ethylbenzene	40.1 mg/kg	m+p Xylene	30.4 mg/kg
Methyl tert-butyl ether (MTBE)	9.45 mg/kg	Total Xylene	69.5 mg/kg
Toluene	51.4 mg/kg		

	RTC-CRM307-030	Soil - BTEX	30 g

This soil is typical of that found in the backfill surrounding a leaking underground diesel storage tank (LUST). The soil was certified by USEPA SW846, 3rd edition Method 5030A and 8021B or 8260B and is suitable for use by these and other similar methods. The value for GRO was determined by GC method 8015M.

Certified values

Lot 015190

Benzene	4240 µg/kg	1,3,5 – Trimethylbenzene	1750 µg/kg
Ethylbenzene	6540 µg/kg	m+p-Xylene	6300 µg/kg
MTBE	5430 µg/kg	o-Xylene	3190 µg/kg
Napthalene	3560 µg/kg	Total Xylene	9820 µg/kg
Toluene	2790 µg/kg	Total purgeable hydrocarbons	65500 µg/kg
1,2,4 –Trimethylbenzene	2190 µg/kg		

	RTC-CRM308-030	Soil - BTEX	30 g

Certified values

Lot 014714

Benzene	4150 µg/kg	Toluene	4940 µg/kg
1,2- Dichlorobenzene	6400 µg/kg	1,2,4-Trimethylbenzene	5100 µg/kg
1,3-Dichlorobenzene	1500 µg/kg	1,3,5-Trimethylbenzene	2690 µg/kg
1,4-Dichlorobenzene	5670 µg/kg	m+p-Xylene	5170 µg/kg
Ethylbenzene	1550 µg/kg	o-Xylene	2320 µg/kg
Methyl tert-butyl ether (MTBE)	4720 µg/kg	Xylene, total	7390 µg/kg
Napthalene	3200 µg/kg	Total purgeable Hydrocarbons	67300 µg/kg

Soils

	Code	Product	Unit
New	RTC-CRM309-030	Soil - BETX Certified values Lot 013253 Benzene....2300 µg/kg Ethylbenzene....6130 µg/kg Methyl tert-butyl ether (MTBE)....5070 µg/kg Toluene....5190 µg/kg m+p-Xylene....7240 µg/kg o-Xylene....6440 µg/kg Xylenes, total....12100 µg/kg	30 g
New	ERM-CC017	Mineral oil contaminated soil - Total petrol hydrocarbons (TPH) To be used for verification of analytical procedures for the determination of TPH in soils and sediments according to ISO 16703:2004 by GC/FID and for quality control in analytical laboratories. Certified values Total petrol hydrocarbons (TPH) ....6.6 ± 0.5 g/kg	81 g
New	ERM-CC016	Waste - Total petrol hydrocarbons (TPH) The intended purpose of reference material ERM®-CC016 is the verification of analytical procedures for the determination of mineral oil hydrocarbons in waste and soils according to EN 14039 and ISO 16703 by GC-FID and for quality control in analytical laboratories. Certified value Total petrol hydrocarbons (TPH) ....3010 ± 220 mg/kg	83 g
New	LGCQC3013	Loamy sand soil 2 - Total Petroleum Hydrocarbons Quality control reference material The method used for the determination of TPH was based on the ISO 16703:2004(E) Standard Soil Quality-Determination of content of hydrocarbons in the range of C10 to C40 by gas chromatography. Indicative values Textural classification Sand: 2.00-0.063 mm ....87 % Silt: 0.063 – 0.002....6 % Clay: < 0.002 mm....7 % Constituent Total Petroleum Hydrocarbons (C10-C40) ....4100 mg/kg	100 g
	RTC-CRM352-100	Soil (Loamy sand) - Total petroleum hydrocarbons (TPH) This soil is typical of that found in the backfill surrounding a leaking underground diesel storage tank (LUST). The soil was certified by USEPA 418.1. Certified value TPH.... 1130 mg/kg	100 g
	RTC-CRM350-100	Soil (Sandy loam) - Total petroleum hydrocarbons (TPH) This soil is typical of that found in the backfill surrounding a leaking underground diesel storage tank (LUST). The soil was certified by USEPA 418.1. Certified value Lot 013246 TPH.... 8300 mg/kg	100 g
	RTC-CRM353-100	Soil (Sandy loam) - Total petroleum hydrocarbons (TPH) This soil is typical of that found in the backfill surrounding a leaking underground diesel storage tank (LUST). The soil was certified by USEPA 418.1. Certified value Lot 012182 TPH.... 2200 mg/kg	100 g
	RTC-CRM355-100	Soil (Sandy loam) - Total petroleum hydrocarbons (TPH) This soil is typical of that found in the backfill surrounding a leaking underground diesel storage tank (LUST). The soil was certified by USEPA 418.1. Certified value Lot JC355 TPH.... 7040 mg/kg	100 g
	RTC-CRM356-100	Soil (Sandy loam) - Total petroleum hydrocarbons (TPH) This soil is typical of that found in the backfill surrounding a leaking underground diesel storage tank (LUST). The soil was certified by USEPA 418.1. Certified value Lot GK356 TPH....3810 mg/kg Diesel Range Organics (C10-C20) .... 611 mg/kg	100 g
	RTC-CRM358-100	Soil (Sandy loam) - Total petroleum hydrocarbons (TPH) The value was determined by USEPA Method 8015M, 418.1, Total Recoverable Petroleum Hydrocarbons. Certified value TPH.... 3650 mg/kg	100 g

Code	Product	Unit
RTC-CRM359-100	Soil (Sandy loam) - Total petroleum hydrocarbons (TPH) (as diesel) Certified value Lot 015649 Diesel range organics, C10-C28 .....982 mg/kg Diesel Range Organics (DRO) .....1030 mg/kg Total EPH ..... 1110 mg/kg	100 g
RTC-CRM360-100	Soil (Sandy loam) - Total petroleum hydrocarbons (TPH) as (30/40WT motor) oil The reference value for TPH was determined by USEPA SW846 (3rd edition) Method 8015B and 8015M. TPH source is 30/40WT motor oil. Certified values Lot 013220 Residual Range Organics (RRO) C28-C35.....414 mg/kg	100 g
RTC-CRM357-100	Soil (Sandy loam) - Total petroleum hydrocarbons (TPH) This soil is typical of that found in the backfill surrounding a leaking underground diesel storage tank (LUST). The soil was certified by USEPA 418.1. Certified value Lot JF357 TPH ..... 3220 mg/kg	100 g
New RTC-CRM372-100	Sandy soil - Total petroleum hydrocarbons (TPH) Certified values Lot 014092 Total Petroleum Hydrocarbon.....2020 mg/kg C10 to C12 Aliphatics.....70.9 mg/kg C12 to C16 Aliphatics.....314 mg/kg C16 to C21 Aliphatics.....209 mg/kg C21 to C35 Aliphatics.....460 mg/kg C10 to C12 Aromatics..... 17.1 mg/kg C12 to C16 Aromatics..... 112 mg/kg C16 to C21 Aromatics..... 96.2 mg/kg C21 to C35 Aromatics..... 39.4 mg/kg	100 g
New RTC-CRM373-100	Loamy Soil - TPH Banded The soil is to be extracted and analyzed using an appropriate extraction and analytical method for TPH, assuming a high concentration sample. The values given are based on GC-FID/PID and column separation methods for aliphatics and aromatics. Certified values Lot 014476 C10 to C12 Aliphatics .....93.6 ± 10.5 mg/kg C12 to C16 Aliphatics .....302 ± 23.2 mg/kg C16 to C21 Aliphatics .....205 ± 10.3 mg/kg C21 to C35 Aliphatics .....539 ± 30.9 mg/kg C10 to C12 Aromatics .....36.8 ± 8.15 mg/kg C12 to C16 Aromatics .....151 ± 24.0 mg/kg C16 to C21 Aromatics .....86.8 ± 11.1 mg/kg C21 to C35 Aromatics .....26.7 ± 6.50 mg/kg Total Petroleum Hydrocarbons.....1050 ± 101 mg/kg (TPH), (C6-C35)	100 g
New RTC-CRM371-100	Loamy Soil - TPH Banded The soil is to be extracted and analyzed using an appropriate extraction and analytical method for TPH, assuming a high concentration sample. Certified values Lot 013042 C10 to C12 Aliphatics ..... 280 ± 14.8 mg/kg C12 to C16 Aliphatics ..... 764 ± 42.1 mg/kg C16 to C21 Aliphatics ..... 574 ± 30.4 mg/kg C21 to C35 Aliphatics ..... 63.4 ± 6.89 mg/kg C10 to C12 Aromatics ..... 60.0 ± 6.70 mg/kg C12 to C16 Aromatics ..... 210 ± 35.9 mg/kg C16 to C21 Aromatics ..... 168 ± 12.4 mg/kg C21 to C35 Aromatics ..... 23.6 ± 4.78 mg/kg Total Petroleum Hydrocarbons(C6-C35) (TPH) ..... 1,570 ± 286 mg/kg	100 g
RTC-CRM500-030	Soil (Sandy loam) - Gasoline The sample was certified by USEPA Method 8015B, and is suitable for use by this and other similar methods. Certified value Benzene.....9.03 mg/kg Ethylbenzene .....6.16 mg/kg Napthalene .....1.51 mg/kg Toluene.....30.1 mg/kg m+p-Xylene..... 25.3 mg/kg o-Xylene ..... 9.23 mg/kg Xylene, total ..... 46.3 mg/kg Gasoline range organics (C5-C10) ..... 334 mg/kg	30 g
New RTC-CRM501-030	Soil (Loamy clay) - BTEX/GRO The sample was certified by USEPA Method 8015B, and is suitable for use by this and other similar methods. Certified values Lot 010589 Benzene.....10.5 mg/kg Ethylbenzene .....9.63 mg/kg Toluene.....42.6 mg/kg m+p-Xylene.....34.2 mg/kg o-Xylene ..... 12.6 mg/kg Xylene, total ..... 46.3 mg/kg Gasoline range organics (C6-C12) ..... 480 mg/kg	30 g

	Code	Product	Unit

New RTC-CRM502-030 — Soil (clay) - BTEX/GRO — 30 g

The sample was certified by USEPA Method 8015B, and is suitable for use by this and other similar methods.

Certified values

Lot 013606

Benzene	8.79 mg/kg	o-Xylene	8.66 mg/kg
Ethylbenzene	5.77 mg/kg	Xylene, total	33.0 mg/kg
Toluene	27.4 mg/kg	Gasoline range organics (C5-C10)	357 mg/kg
m+p-Xylene	23.4 mg/kg		

RTC-CRM504-030 — Soil (Sandy loam) - Gasoline — 30 g

The certified values were determined by USEPA SW846 (3rd edition) Method 8015B.

Certified values

Lot 016116

GRO (Gasoline Range Organics)	886 mg/kg	o-Xylene	26.1 mg/kg
Benzene	22.5 mg/kg	Total Xylene	92.9 mg/kg
Ethylbenzene	16.5 mg/kg	Naphthalene	3.94 mg/kg
Toluene	76.9 mg/kg	GRO (C5-C10)	685 mg/kg
m+p-Xylene	70.7 mg/kg		

New RTC-CRM513-030 — Soil - BTEX/GRO — 30 g

Certified values

Lot 011783

Benzene	5.11 mg/kg	o-Xylene	5.70 mg/kg
Ethylbenzene	3.86 mg/kg	Xylene, total	18.7 mg/kg
Toluene	18.6 mg/kg	Gasoline range organic (GRO), C5-C10	242 mg/kg
m+p-Xylene	14.5 mg/kg		

RTC-CRM550-100 — Soil (Sandy loam) - Diesel — 100 g

This soil is typical of that found in the backfill surrounding a leaking underground diesel storage tank (LUST).
The soil was certified by USEPA SW846 (3rd edition) Method 8015B.

Certified value

Lot 015644

Diesel Range Organics 963mg/kg

New RTC-CRM555-100 — Soil (Silty loam) - Diesel — 100 g

The reference value for DRO was determined by USEPA SW846 (3rd edition) Method 8015B and 8015M.
The reference value for TPH was determined by USEPA SW846 (3rd edition) Method 413.1 and 418.1.

New RTC-CRM558-100 — Soil (Clay loam)- Diesel — 100 g

The sample was certified by USEPA Method 8015B, and is suitable for use by this and other similar methods.

Certified values

EPH	591 mg/kg
Diesel range organics (DRO)	544 mg/kg

New RTC-CRM608-025 — Sandy loam 1 - Volatile organic analytes (VOAs) — 25 g

Certified values

Acetone	8620 µg/Kg	Hexachloroethane	2030 µg/Kg
Benzene	7750 µg/Kg	2-Hexanone	16800 µg/Kg
Bromobenzene	7660 µg/Kg	Isopropylbenzene	5800 µg/Kg
Bromodichloromethane	2490 µg/Kg	Methyl bromide	5010 µg/Kg
Bromoform	8840 µg/Kg	Methyl chloride	2480 µg/Kg
2-Butanone (Methyl ethyl ketone,MEK)	20900 µg/Kg	Methylene chloride (Dichloromethane)	6220 µg/Kg
4-Methyl-2-pentanone	5690 µg/Kg		
Carbon tetrachloride	3050 µg/Kg	Methyl tert-butyl ether	3340 µg/Kg
Chlorobenzene	5730 µg/Kg	Naphthalene	4830 µg/Kg
1,2-Dibromo-3-chloropropane (DBCP)	5200 µg/Kg	Styrene	4780 µg/Kg
1,2-Dibromoethane (EDB, Ethylene dibromide)	7190 µg/Kg	1,1,2,2-Tetrachloroethane	4060 µg/Kg
Tetrachloroethylene (Perchloroethylene)	4460 µg/Kg		
Dibromomethane	8620 µg/Kg		
1,2-Dichlorobenzene	2460 µg/Kg	Toluene	8180 µg/Kg
1,3-Dichlorobenzene	7150 µg/Kg	1,2,4-Trichlorobenzene	6160 µg/Kg
1,4-Dichlorobenzene	5850 µg/Kg	1,1,1-Trichloroethane	5830 µg/Kg
1,1-Dichloroethane	2270 µg/Kg	1,1,2-Trichloroethane	2050 µg/Kg
1,2-Dichloroethane	8210 µg/Kg	Trichlorofluoromethane	5140 µg/Kg
1,1-Dichloroethylene	9860 µg/Kg	1,2,3-Trichloropropane	2820 µg/Kg
cis-1,2-Dichloroethylene	7810 µg/Kg	1,2,4-Trimethylbenzene	4670 µg/Kg
1,2-Dichloropropane	8690 µg/Kg	1,3,5-Trimethylbenzene	6140 µg/Kg
cis-1,3-Dichloropropene	7960 µg/Kg	Vinyl chloride	1560 µg/Kg
trans-1,3-Dichloropropene	4300 µg/Kg	m+p-Xylene	9940 µg/Kg
trans-1,2-Dichloroethylene	9050 µg/Kg	o-Xylene	8350 µg/Kg
Ethylbenzene	7770 µg/Kg	Xylene, total	18200 µg/Kg

Code	Product	Unit

RTC-CRM627-030 Soil (Sandy loam) - Volatile organic analytes (low level) — 30 g

The following sample was certified using USEPA SW846, 3rd edition, method 8260, and is ideal for methanol extraction

Certified values

Benzene	56.5 µg/kg	Styrene	39 µg/kg
Carbon tetrachloride	44.8 µg/kg	1,1,1,2-Tetrachloroethane	99.8 µg/kg
Chlorobenzene	52.6 µg/kg	1,1,2,2-Tetrachloroethane	87.8 µg/kg
1,2-Dichlorobenzene	40.9 µg/kg	Toluene	75.7 µg/kg
1,3-Dichlorobenzene	70.4 µg/kg	1,2,4-Trichlorobenzene	48.9 µg/kg
1,4-Dichlorobenzene	74.9 µg/kg	1,1,2-Trichloroethane	71.3 µg/kg
1,2-Dichloroethane	60.7 µg/kg	1,2,3-Trichloropropane	53 µg/kg
Ethylbenzene	88.4 µg/kg	1,2,4-Trimethylbenzene	90.5 µg/kg
Hexachloroethane	147 µg/kg	m+p-Xylene	67.3 µg/kg
Methyl chloride (Chloromethane)	23.3 µg/kg	o-Xylene	49.9 µg/kg
Methyl tert-butyl ether (MTBE)	121 µg/kg	Xylene, total	117 µg/kg

RTC-CRM633-030 Soil (Loamy sandy) - Volatile organic analytes (low level) — 30 g

Analytical data for certification was obtained using USEPA SW846, 3rd edition method 8260 (VOCs by GC/MS). The sample is intended for use in analytical systems using this and related methods.

Certified values

Lot 015216

Acetone	411 µg/kg	2-Hexanone	422 µg/kg
Benzene	52.2 µg/kg	Isopropylbenzene	106 µg/kg
Bromobenzene	153 µg/kg	Methyl bromide (Bromomethane)	79.3 µg/kg
Bromodichloromethane	65.1 µg/kg	Methyl chloride (Chloromethane)	60.2 µg/kg
2-Butanone (Methyl ethyl ketone, MEK)	330 µg/kg	Methyl tert-butyl ether (MTBE)	82.3 µg/kg
Carbon tetrachloride	145 µg/kg	Naphthalene	94.8 µg/kg
Chlorobenzene	158 µg/kg	Styrene	81.9 µg/kg
Chloroethane	92.2 µg/kg	1,1,1,2-Tetrachloroethane	120 µg/kg
Chloroform	120 µg/kg	Tetrachloroethylene	131 µg/kg
1,2-Dibromo-3-chloropropane (DBCP)	98.4 µg/kg	Toluene	86.2 µg/kg
Dibromochloromethane	183 µg/kg	1,2,4-Trichlorobenzene	83.8 µg/kg
1,2-Dibromoethane (EDB)	158 µg/kg	1,1,1-Trichloroethane	38.8 µg/kg
Dibromomethane	27.0 µg/kg	1,1,2-Trichloroethane	127 µg/kg
1,2-Dichlorobenzene	49.9 µg/kg	Trichloroethene (Trichloroethylene)	188 µg/kg
1,3-Dichlorobenzene	68.3 µg/kg	Trichlorofluoromethane	102 µg/kg
1,4-Dichlorobenzene	40.0 µg/kg	1,2,3-Trichloropropane	134 µg/kg
1,2-Dichloroethane	31.6 µg/kg	1,2,4-Trimethylbenzene	132 µg/kg
1,1-Dichloroethylene	132 µg/kg	1,3,5-Trimethylbenzene	190 µg/kg
cis-1,2-Dichloroethylene	81.3 µg/kg	Vinyl chloride	63.2 µg/kg
1,2-Dichloropropane	37.2 µg/kg	m+p-Xylene	110 µg/kg
cis-1,3-Dichloropropene	183µg/kg	o-Xylene	47.7 µg/kg
trans-1,2-Dichloroethylene	49.6µg/kg	Xylene, total	158 µg/kg
Ethylbenzene	56.6 µg/kg		

New RTC-CRM636-025 Loamy sand 4 - Volatile organic analytes — 25 g

Certified values

Lot 016530

Acrolein	1080 µg/kg	Ethylbenzene	6150 µg/kg
Acetone	27900 µg/kg	2-Hexanone	11700 µg/kg
Benzene	5110 µg/kg	Isopropylbenzene	5440 µg/kg
Bromobenzene	3810 µg/kg	Methyl bromide	1980 µg/kg
Bromodichloromethane	3500 µg/kg	Methyl chloride	3620 µg/kg
2-Butanone (Methyl ethyl ketone, MEK)	15800 µg/kg	4-Methyl-2-pentanone (MIBK)	10700 µg/kg
Carbon tetrachloride	3110 µg/kg	Methyl tert-butyl ether (MTBE)	6600 µg/kg
Chlorobenzene	4740 µg/kg	Naphthalene	6780 µg/kg
Chloroethane	4010 µg/kg	Styrene	7070 µg/kg
2-Chloroethyl vinyl ether	923 µg/kg	1,1,1,2-Tetrachloroethane	5580 µg/kg
Chloroform	8260 µg/kg	1,1,2,2-Tetrachloroethane	7070 µg/kg
1,2-Dibromo-3-chloropropane	5280 µg/kg	Tetrachloroethylene	8430 µg/kg
Dibromochloromethane	8680 µg/kg	Toluene	4840 µg/kg
Dibromomethane	7950 µg/kg	1,2,4-Trimethylbenzene	8400 µg/kg
1,2-Dichlorobenzene	5330 µg/kg	1,1,2-Trichloroethane	2260 µg/kg
1,3-Dichlorobenzene	6440 µg/kg	Trichloroethene	7630 µg/kg
1,4-Dichlorobenzene	5680 µg/kg	Trichlorofluoromethane	8280 µg/kg
1,1-Dichloroethane	5770 µg/kg	1,2,3-Trichloropropane	8550µg/kg
1,2-Dichloroethane	8540 µg/kg	1,2,4-Trimethylbenzene	7650 µg/kg
1,1-Dichloroethylene	5310 µg/kg	1,3,5-Trimethylbenzene	12000 µg/kg
cis-1,2-Dichloroethylene	9050 µg/kg	Vinyl chloride	5360 µg/kg
1,2-Dichloropropane	7800 µg/kg	m+p-Xylene	8920 µg/kg
trans-1,3-Dichloropropene	6690 µg/kg	o-Xylene	2680 µg/kg
trans-1,2-Dichloroethylene	6720 µg/kg	Xylene	11300 µg/kg

	Code	Product	Unit
New	RTC-CRM638-025	Clay 2- Volatile organic analytes	25 g

Certified values

Lot 015215

Acetone	27900 µg/kg	2-Hexanone	15800 µg/kg
Benzene	5390 µg/kg	Isopropylbenzene	8520 µg/kg
Bromobenzene	3660 µg/kg	Methyl bromide	5020 µg/kg
Bromodichloromethane	3870 µg/kg	Methyl chloride	1970 µg/kg
2-Butanone (Methyl ethyl ketone, MEK)	11100 µg/kg	4-Methyl-2-pentanone (MIBK)	10600 µg/kg
Carbon tetrachloride	6910 µg/kg	Methyl tert-butyl ether (MTBE)	3060 µg/kg
Chlorobenzene	9080 µg/kg	Naphthalene	6250 µg/kg
Chloroethane	4060 µg/kg	Styrene	5650 µg/kg
Chloroform	5800 µg/kg	1,1,1,2-Tetrachloroethane	5280 µg/kg
1,2-Dibromo-3-chloropropane	5730 µg/kg	Tetrachloroethylene	7200 µg/kg
Dibromochloromethane	3320 µg/kg	Toluene	8060 µg/kg
1,2-Dibromomethane	6300 µg/kg	1,2,4-Trichlorobenzene	2960 µg/kg
Dibromomethane	6240 µg/kg	1,1,1-Trichloroethane	9380 µg/kg
1,2-Dichlorobenzene	9130 µg/kg	1,1,2-Trichloroethane	2940 µg/kg
1,3-Dichlorobenzene	3600 µg/kg	Trichloroethene	7470µg/kg
1,4-Dichlorobenzene	3320 µg/kg	Trichlorofluoromethane	8400 µg/kg
1,2-Dichloroethane	7970 µg/kg	1,2,3-Trichloropropane	3490 µg/kg
1,1-Dichloroethylene	5780 µg/kg	1,2,4-Trimethylbenzene	11400 µg/kg
cis-1,2-Dichloroethylene	5050 µg/kg	1,3,5-Trimethylbenzene	18800 µg/kg
1,2-Dichloropropane	6900 µg/kg	Vinyl chloride	8370 µg/kg
cis-1,3-Dichloropropene	6640 µg/kg	m+p-Xylene	11500 µg/kg
trans-1,2-Dichloroethylene	9380 µg/kg	o-Xylene	2790 µg/kg
Ethylbenzene	6480 µg/kg	Xylene	14500 µg/kg

	RTC-CRM106-100	Soil (Sandy loam) - Semi-volatile organic analytes (Semi-VOAs)	100 g

Soil contaminated with semi-volatile organic compounds, from the Western region of the United States. The sample was certified by USEPA SW846, 3rd edition extraction methods 3540A (Soxhlet), 3550 (sonication), and analysis method 8270A (Semivolatile organics by GC/MS). The sample is suitable for use by these and other similar methods.

Certified values

Lot CF106

Phenol	19.54 mg/kg	2,4-Dintrotoluene	29.31 mg/kg
Chlorophenol	17.76 mg/kg	2,6-Dinitrotoluene	16.64 mg/kg
4-Methylphenol	1.71 mg/kg	Pentachlorophenol	29.89 mg/kg
3-Nitroaniline	11.64 mg/kg	Phenanthrene	0.63 mg/kg
2,4-Dinitrophenol	3.90 mg/kg	Bis(2-ethylhexyl)phthalate	24.14 mg/kg
4-Nitrophenol	15.15 mg/kg		

	RTC-CRM114-100	Soil (Loam) - Semi-volatile organic analytes (Semi-VOAs)	100 g

Soil contaminated with Semi-Volatile Organic compounds, from a site in the Western region of the United States. The Semi-VOA values in the sample were certified by USEPA SW846, 3rd edition Extraction Methods 3540C (Soxhlet extraction), 3550 (Sonication) and analysis method 8270C (Semivolatile organics by GC/MS). The sample is suitable for use by these and other similar methods.

Certified values

Lot II114

Benzo(a)anthracene	11.5 mg/kg	Hexachlorobenzene	77.1 mg/kg
Benzo(a)pyrene	33.8 mg/kg	Hexachloroethane	11.0 mg/kg
Benzo(ghi)perylene	6.68 mg/kg	1- and 2-Methylnaphthalene	61.3 mg/kg
2-Chlorophenol	30.7 mg/kg	3-Nitroaniline	29.2 mg/kg
2,4-Dichlorophenol	24.6 mg/kg	Nitrobenzene	29.9 mg/kg
2,4-Dinitrotoluene	30.2 mg/kg	4-Nitrophenol	45.4 mg/kg
Fluoranthene	54.4 mg/kg	Pentachlorophenol	30.9 mg/kg
Fluorene	25.4 mg/kg	Pyrene	9.2 mg/kg

	RTC-CRM109-100	Soil (Sandy loam) - Organic contaminants	100 g

BNA contaminated soil, from a site in the Western United States and is not "spiked or fortified" in any manner. The BNA values in the sample were certified by USEPA SW846, 3rd edition Extraction Methods 3540A/3541 (Soxhlet), 3550 (sonication), and analysis method 8270A (Semivolatile organics by GC/MS). The sample is suitable for use by these and other similar methods.

	RTC-CRM110-100	Soil (Sandy loam) - Organic contaminants	100 g

BNA contaminated soil from a site in the Western United States. The BNA values in the sample were certified by USEPA SW846, 3rd edition Extraction Methods 3540A/3541 (Soxhlet), 3550 (sonication), and analysis method 8270B (Semivolatile organics by GC/MS). The sample is suitable for use by these and other similar methods.

Certified values

Lot LG110

Acenaphthene	55.6 mg/kg	Hexachlorobenzene	71.3 mg/kg
Bis(2-ethylhexyl)phthalate	13.1 mg/kg	Hexachloroethane	8.79 mg/kg
2-Chlorophenol	21.4 mg/kg	Naphthalene	30.3 mg/kg
Dibenzofuran	47.8 mg/kg	2-Nitroaniline	46.3 mg/kg
2,4-Dinitrophenol	9.98 mg/kg	4-Nitrophenol	26.2 mg/kg
2,4-Dinitrotoluene	44.6 mg/kg	Nitrobenzene	15.1 mg/kg
2,6-Dinitrotoluene	19.4 mg/kg	Pentachlorophenol	27.1 mg/kg
Fluoranthene	11.8 mg/kg	Phenol	13.9 mg/kg
Fluorene	14.2 mg/kg		

Indicative value for 3-Nitroaniline

Code	Product	Unit

RTC-CRM111-100 Soil (Loamy sand) - Organic contaminants 100 g

BNA contaminated soil from a site in the Rocky Mountain region of the United States. The BNA values in the sample were certified by USEPA SW846, 3rd edition Extraction Methods 3540A/3541 (Soxhlet), 3550 (sonication), and analysis method 8270A (Semivolatile organics by GC/MS). The sample is suitable for use by these and other similar methods.

Certified values

Lot IH111

Acenaphthene	21.3 mg/kg	Hexachloroethane	7.51 mg/kg
Bis(2-ethylhexyl)phthalate	36.0 mg/kg	Naphthalene	10.8 mg/kg
Dibenzofuran	6.91 mg/kg	2-Nitroaniline	30 mg/kg
2,4-Dinitrotoluene	33.7 mg/kg	3-Nitroaniline	5.85 mg/kg
2,6-Dinitrotoluene	15.4 mg/kg	Nitrobenzene	30.7 mg/kg
Fluoranthene	56.1 mg/kg	4-Dinitrophenol	8.70 mg/kg
Fluorene	21.4 mg/kg	Pentachlorophenol	22.0 mg/kg
Hexachlorobenzene	23.1 mg/kg		

RTC-CRM113-100 Soil (Loamy sand) - Organic contaminants 100 g

BNA contaminated soil from a site in the Western region of the United States. The BNA values in the sample were certified by USEPA SW846, 3rd edition Extraction Methods 3540A/3541 (Soxhlet), 3550 (Sonication), and analysis method 8270C (Semivolatile Organics by GC/MS). The sample is suitable for use by these and other similar methods.

Certified values

Lot FI113

Bis(2-ethylhexyl)phthalate	0.97 mg/kg	Hexachlorobenzene	14.3 mg/kg
Benzo(b)fluoranthene	3.53 mg/kg	Hexachloroethane	1.65 mg/kg
Benzo(a)pyrene	3.17 mg/kg	4-Methylphenol	7.55 mg/kg
Chrysene	7.21 mg/kg	2-Nitroaniline	14.5 mg/kg
2,4-Dinitrophenol	1.64 mg/kg	3-Nitroaniline	0.98 mg/kg
2,4-Dinitrotoluene	16.0 mg/kg	Nitrobenzene	5.88 mg/kg
Fluoranthene	6.51 mg/kg	4-Nitrophenol	4.56 mg/kg
Fluorene	8.41 mg/kg	Pyrene	37.0 mg/kg

RTC-CRM115-100 Soil (Loamy sand) - Organic contaminants 100 g

PAH contaminated soil from a site in the Western Region of the United States.

Certified values

Lot JC115

Acenaphthene	4.60 mg/kg	Fluoranthene	22.1 mg/kg
Benzo(a)anthracene	12.1 mg/kg	Fluorene	13.0 mg/kg
Benzo(b)Fluoranthene	0.930 mg/kg	Naphthalene	1.34 mg/kg
Chrysene	16.8 mg/kg	Phenanthrene	0.080 mg/kg
Dibenzofuran	10.6 mg/kg	Pyrene	7.66 mg/kg

Indicative values for Anthracene and Bis(2-ethylhexyl)phthalate

New RTC-CRM116-100 Soil (Loam) - Organic contaminants 100 g

BNA contaminated soil from a site in the Western United States. The certified values were determined by USEPA SW846 (3rd edition) Extraction Method 3540C (soxhlet) and 3550 (sonicaton), and Analysis Method 8270C (semivolatile organics by GC/MS).The sample is suitable for these and other similar methods.

Certified values

Lot JL116

Naphthalene	2.81 mg/Kg	2,6-Dinitrotoluene (2,6-DNT)	7.54 mg/Kg
Nitrobenzene	3.89 mg/Kg	bis(2-Ethylhexyl) phthalate (DEHP)	9.51 mg/Kg
Acenaphthene	6.04 mg/Kg	Fluoranthene	7.08 mg/Kg
Acenaphthylene	7.8 mg/Kg	Fluorene	5.72 mg/Kg
Anthracene	6.15 mg/Kg	Hexachlorobenzene	7.12 mg/Kg
Benzo(a)anthracene	5.25 mg/Kg	Isophorone	6.63 mg/Kg
4-Bromophenyl phenyl ether	9.92 mg/Kg	2-Methyl-4,6-dinitrophenol	5.96 mg/Kg
4-Chloro-3-methylphenol	5.88 mg/Kg	2-Nitrophenol	4.9 mg/Kg
2-Chlorophenol	5.51 mg/Kg	4-Nitrophenol	6.79 mg/Kg
Chrysene	1.38 mg/Kg	Pentachlorophenol	6.55 mg/Kg
Dibenzofuran	5.91 mg/Kg	Phenanthrene	6.96 mg/Kg
Di-n-butyl phthalate	10.8 mg/Kg	Phenol	9.28 mg/Kg
2,4-Dichlorophenol	6.84 mg/Kg	Pyrene	3.92 mg/Kg
2,4-Dinitrophenol	4.02 mg/Kg	2,4,6-Trichlorophenol	5.35 mg/Kg
2,4-Dinitrotoluene (2,4-DNT)	8.5 mg/Kg		

	Code	Product	Unit
New	RTC-CRM118-100	Soil (Sandy loam) - Organic contaminants	100 g

The certified values were determined by USEPA SW846 (3rd edition) Extraction Method 3540C (soxhlet) and 3550 (sonicaton), and Analysis Method 8270C (semivolatile organics by GC/MS). The sample is suitable for these and other similar methods.

Certified values

Lot AI118

1,2,4-Trichlorobenzene	6.43 mg/kg	Benzo(k)fluoranthene	6.05 mg/kg
2,4,5-Trichlorophenol	8.75 mg/kg	Dibenzofuran	7.99 mg/kg
2,4,6-Trichlorophenol	6.60 mg/kg	Diethylphthalate	7.00 mg/kg
2,4-Dichlorophenol	7.05 mg/kg	Di-n-butylphthalate	7.30 mg/kg
2,4-Dimethylphenol	6.42 mg/kg	Fluoranthene	4.64 mg/kg
2,4-Dinitrotoluene	2.64 mg/kg	Fluorene	4.75 mg/kg
2,6-Dinitrotoluene	3.42 mg/kg	Hexachlorobenzene	5.48 mg/kg
2-Chlorophenol	5.99 mg/kg	Hexachlorobutadiene	4.61 mg/kg
2-Nitrophenol	7.08 mg/kg	Hexachloroethane	4.99 mg/kg
4-Bromophenyl-phenylether	11.80 mg/kg	Isophorone	5.83 mg/kg
4-Chloro-3-methylphenol	5,80 mg/kg	Naphthalene	7.79 mg/kg
4-Nitrophenol	8.25 mg/kg	Nitrobenzene	7.95 mg/kg
Acenaphthene	7.92 mg/kg	Pentachlorophenol	5.07 mg/kg
Acenaphthylene	7.91 mg/kg	Phenanthrene	5.69 mg/kg
Anthracene	8.35 mg/kg	Phenol	9.23 mg/kg
Benzo(a)pyrene	7.83 mg/kg	Pyrene	5.00 mg/kg

Indicative value for 2,4-Dinitrophenol

New	RTC-CRM119-100	Soil (Sandy loam) - Organic contaminants	100 g

The certified values were determined by USEPA SW846 (3rd edition) Extraction Method 3540C (soxhlet) and 3550 (sonicaton), and Analysis Method 8270C (semivolatile organics by GC/MS). The sample is suitable for these and other similar methods.

Certified values

Lot BC119

Acenaphthene	4.77 mg/kg	2,4-Dimethylphenol	4.68 mg/kg
Acenaphthylene	4.52 mg/kg	Dimethylphthalate	9.73 mg/kg
Anthracene	3.90 mg/kg	Dioctylphthalate	5.73 mg/kg
Benzo(a)pyrene	6.43 mg/kg	Fluoranthene	5.70 mg/kg
Bis(2-ethylhexyl)	8.80 mg/kg	Fluorene	4.09 mg/kg
4-Bromophenyl-phenylether	10.3 mg/kg	Isophorone	4.46 mg/kg
Butylbenzylphthalate	14.2 mg/kg	2-Methyl-4,6-dinitrophenol	2.41 mg/kg
4-Chloro-3-methylphenol	7.65 mg/kg	2-Methylnaphthalene	11.6 mg/kg
2-Chloronaphthalene	7.26 mg/kg	2-Methylphenol	7.79 mg/kg
2-Chlorophenol	4.40 mg/kg	4-Methylphenol	8.47 mg/kg
4-Chlorophenyl-phenylether	9.87 mg/kg	Naphthalene	8.61 mg/kg
Chrysene	11.7 mg/kg	2-Nitroaniline	10.0 mg/kg
Dibenzofuran	4.12 mg/kg	2-Nitrophenol	7.09 mg/kg
1,3-Dichlorobenzene	3.79 mg/kg	4-Nitrophenol	3.47 mg/kg
1,4-Dichlorobenzene	2.35 mg/kg	Pentachlorophenol	7.50 mg/kg
2,4-Dichlorophenol	6.93 mg/kg	Phenanthrene	6.62 mg/kg
Diethylphthalate	4.73 mg/kg		

Indicative values for Carbazole, 2,6-Dichlorophenol, Di-n-butylphthalate and Phenol

	RTC-CRM131-100	Soil (Sandy loam) - Organic contaminants	100 g

The values were determined by USEPA SW846 (3rd edition) Extraction Method 3540C (soxhlet) and 3550 (sonicaton), and Analysis Method 8270C (semivolatile organics by GC/MS). The sample is suitable for these and other similar methods.

Certified values

Lot 013243

1,2-Dichlorobenzene	1580 µg/kg	2,6-Dichlorophenol	959 µg/kg
1,3-Dichlorobenzene	1400 µg/kg	Diethyl phthalate	3950 µg/kg
1,4-Dichlorobenzene	502 µg/kg	Dimethyl phthalate	2970 µg/kg
Hexachloroethane	1180 µg/kg	2,4-Dichlorophenol	1550 µg/kg
Naphthalene	1200 µg/kg	2,4-Dinitrotoluene	1530 µg/kg
Nitrobenzene	1810 µg/kg	2,6-Dinitrotoluene	2340 µg/kg
Acenaphthene	260 µg/kg	Di-n-octyl phthalate	1990 µg/kg
Anthracene	389 µg/kg	Fluoranthene	3870 µg/kg
Benzo(a)anthracene	4060 µg/kg	Fluorene	5670 µg/kg
Benzo(a)pyrene	406 µg/kg	Hexachlorobenzene	1240 µg/kg
Benzo(b)fluoranthene	1560 µg/kg	Indeno(1,2,3-cd) pyrene	1840 µg/kg
Benzo(g,h,i)perylene	4720 µg/kg	2-Methyl-4,6-dinitrophenol	4250 µg/kg
Benzo(k)fluoranthene	3820 µg/kg	2-Methylnapthalene	1350 µg/kg
4-Bromophenyl phenyl ether	8732 µg/kg	2-Methylphenol (o-Cresol)	280 µg/kg
Butyl benzyl phthalate	2780 µg/kg	4-Nitrophenol	3550 µg/kg
bis(2-Chloroethoxy)methane	878 µg/kg	n-Nitroso-di-n-propylamine	2000 µg/kg
bis(2-Chlorophenyl)ether	1230 µg/kg	Pentachlorophenol	3190 µg/kg
2-Chlorophenol	3525 µg/kg	Phenanthrene	1900 µg/kg
4-Chlorophenyl phenyether	1180 µg/kg	Phenol	899 µg/kg
Chrysene	6790 µg/kg	Pyrene	1110 µg/kg
Dibenz(a,h) anthracene	4800 µg/kg	2,4,6-Trichlorophenol	5950 µg/kg
Dibenzofuran	4400 µg/kg		

Code	Product	Unit

New RTC-CRM143-040 — Sandy loam - Organic contaminants — 40 g

Certified values

Lot 016496

1,3-Dichlorobenzene	5470 µg/kg	2,4-Dichlorophenol	6810 µg/kg
1,4-Dichlorobenzene	7770 µg/kg	Diethyl phthalate	7340 µg/kg
Hexachlorobutadiene	4300 µg/kg	2,4-Dimethylphenol	3640 µg/kg
Hexachloroethane	6100 µg/kg	2,4-Dinitrophenol	1630 µg/kg
Naphthalene	4460 µg/kg	2,4-Dinitrotoluene (2,4-DNT)	5880 µg/kg
Nitrobenzene	5510 µg/kg	2,6-Dinitrotoluene (2,6-DNT)	8710 µg/kg
1,2,4-Trichlorobenzene	1240 µg/kg	bis(2-Ethylhexyl) phthalate	4840 µg/kg
Acenaphthene	2050 µg/kg	Di-n-octyl phthalate	9910 µg/kg
Acenapthyllene	4040 µg/kg	Fluoranthene	6520 µg/kg
Anthracene	2810 µg/kg	Fluorene	5370 µg/kg
Benzo(a)anthracene	4000µg/kg	Indeno(1,2,3-cd) pyrene	1000 µg/kg
Benzo(a)pyrene	3860µg/kg	Isophorone	4580 µg/kg
Benzo(b)fluoranthene	3670µg/kg	2-Methylnapthalene	2880 µg/kg
Benzo(g,h,i)perylene	5050 µg/kg	2-Methylphenol (o-Cresol)	4040 µg/kg
Benzo(k)fluoranthene	3870 µg/kg	4-Methylphenol (p-Cresol)	4090 µg/kg
4-Bromophenyl phenyl ether	11200 µg/kg	2-Nitroaniline	2510 µg/kg
Butyl benzyl phthalate	6480 µg/kg	2-Nitrophenol	5780 µg/kg
Carbazole	1730 µg/kg	4-Nitrophenol	4680 µg/kg
bis(2-Chloroethoxy) methane	6830µg/kg	n-Nitrosodiphenylamine	4480 µg/kg
bis (2-Chloroethyl) ether	9680µg/kg	Pentachlorophenol	2890 µg/kg
4-Chlorophenyl phenylether	4810 µg/kg	Phenanthrene	8080 µg/kg
Chrysene	3630 µg/kg	Phenol	7250 µg/kg
Dibenz(a,h) anthracene	2280 µg/kg	Pyrene	1450 µg/kg
Dibenzofuran	3820 µg/kg	2,4,6-Trichlorophenol	7570 µg/kg

RTC-CRM121-100 — Soil (Loam) - Organic contaminants — 100 g

BNA contaminated soil from a site in the Western United States. The certified values were determined by USEPA SW846 (3rd edition) Extraction Method 3540C (soxhlet) and 3550 (sonicaton), and Analysis Method 8270C (semivolatile organics by GC/MS). The sample is suitable for these and other similar methods.

Certified values

Lot BL121

Benzo(a)pyrene	5.34 mg/kg	Dimethylphthalate	7.38 mg/kg
Bis(2-ethylhexyl)phthalate	1.49 mg/kg	Di-n-butylphthalate	10.2 mg/kg
4-Bromophenyl phenylether	11.8 mg/kg	2,4-Dinitrotoluene	19.7 mg/kg
Butylbenzylphthalate	5.66 mg/kg	Fluoranthene	5.65 mg/kg
4-Chloro-3-methylphenol	8.80 mg/kg	Fluorene	5.42 mg/kg
2-Chloronaphthalene	8.17 mg/kg	Hexachlorobenzene	6.26 mg/kg
2-Chlorophenol	8.30 mg/kg	Isophorone	9.53 mg/kg
4-Chlorophenyl phenylether	9.37 mg/kg	2-Methyl-4,6-dinitrophenol	11.4 mg/kg
Chrysene	4.94 mg/kg	2-Methylphenol (o-Cresol)	9.65 mg/kg
Dibenzofuran	6.10 mg/kg	Naphthalene	8.63 mg/kg
1,2-Dichlorobenzene	4.19 mg/kg	Nitrobenzene	9.42 mg/kg
1,3-Dichlorobenzene	4.24 mg/kg	Phenanthrene	5.87 mg/kg
1,4-Dichlorobenzene	3.15 mg/kg	Phenol	9.60 mg/kg
2,4-Dichlorophenol	6.66 mg/kg	Pyrene	8.20 mg/kg
2,6-Dichlorophenol	12.9 mg/kg	1,2,4-Trichlorobenzene	6.79 mg/kg
Diethylphthalate	6.74 mg/kg	2,4,5-Trichlorophenol	6.98 mg/kg

Indicative values for Carbazole, 3-Methylphenol (m-Cresol) , 4-Methylphenol (p-Cresol)

RTC-CRM123-100 — Soil (Silty loam) - Organic contaminants — 100 g

BNA contaminated soil from a site in the Western United States. The certified values were determined by USEPA SW846 (3rd edition) Extraction Method 3540C (soxhlet) and 3550 (sonicaton), and Analysis Method 8270C (semivolatile organics by GC/MS).The sample is suitable for these and other similar methods.

Certified values

Lot CD123

Acenaphthene	7.52 mg/kg	Dimethylphthalate	9.56 mg/kg
Acenaphthylene	7.24 mg/kg	2,4-Dinitrotoluene	17.5 mg/kg
Anthracene	6.94 mg/kg	Di-n-oxtylphthalate	11.4 mg/kg
Benzo(a)anthracene	8.38 mg/kg	Fluoranthene	9.31 mg/kg
Benzo(a)pyrene	7.77 mg/kg	Fluorene	6.88 mg/kg
Bis(2-ethylhexyl)phthalate	8.90 mg/kg	Hexachlorobenzene	6.81 mg/kg
4-Bromophenyl-phenylether	13.0 mg/kg	Hexachlorobutadiene	5.46 mg/kg
4-Chloro-3-methylphenol	7.60 mg/kg	Hexachloroethane	10.6 mg/kg
2-Chloronaphthalene	7.42 mg/kg	Isophorone	8.07 mg/kg
2-Chlorophenol	8.45 mg/kg	2-Methylphenol (o-Cresol)	7.70 mg/kg
4-Chlorophenyl-phenylether	9.39 mg/kg	3-Methylphenol (m-Cresol)	9.80 mg/kg
Chrysene	11.3 mg/kg	4-Methylphenol (p-Cresol)	7.04 mg/kg
Dibenzofuran	8.19 mg/kg	Naphthalene	9.73 mg/kg
Di-n-butylphthalate	16.8 mg/kg	Nitrobenzene	10.6 mg/kg
1,2-Dichlorobenzene	5.15 mg/kg	2-Nitrophenol	6.30 mg/kg
1,3-Dichlorobenzene	4.25 mg/kg	Phenanthrene	7.94 mg/kg
1,4-Dichlorobenzene	3.98 mg/kg	Pyrene	6.75 mg/kg
2,4-Dichlorophenol	10.6 mg/kg	2,4,5-Trichlorophenol	5.29 mg/kg
2,4-Dimethylphenol	9.25 mg/kg		

	Code	Product	Unit
New	RTC-CRM125-100	Soil - Organic contaminants	100 g

The values were determined by USEPA SW846 (3rd edition) Extraction Method 3540C (soxhlet) and 3550 (sonicaton), and Analysis Method 8270C (semivolatile organics by GC/MS). The sample is suitable for these and other similar methods.

Certified values (on a dry basis)

Lot 012218

1,2-Dichlorobenzene	1082.52 µg/kg	2,4-Dichlorophenol	4700.09 µg/kg
1,3-Dichlorobenzene	495.07 µg/kg	Diethylphthalate	8064.98 µg/kg
Hexachlorobutadiene	1168.02 µg/kg	2,4-Dinitrophenol	1969.88 µg/kg
Hexachloroethane	201.29 µg/kg	2,4-Dinitrotoluene(2,4-DNT)	7840.28 µg/kg
Nitrobenzene	5588.60 µg/kg	bis(2-Ethylhexyl)phthalate	3096.73 µg/kg
1,2,4-Trichlorobenzene	2380.01 µg/kg	Fluoranthene	5098.72 µg/kg
Acenaphthene	2116.63 µg/kg	Hexachlorocyclopentadiene	429.03 µg/kg
Anthracene	1194.84 µg/kg	Indeno(1,2,3-cd)pyrene	1309.09 µg/kg
Benzo(a)pyrene	1563.19 µg/kg	Isophorone	3311.47 µg/kg
Benzo(b)fluoranthene	3925.10 µg/kg	2-Methyl-4,6-dinitrophenol	5064.86 µg/kg
Benzo(g,h,i)perylene	2831.44 µg/kg	2-Methylphenol(o-Cresol)	1900.24 µg/kg
Benzo(k)fluoranthene	1782.84 µg/kg	3-Methylphenol(m-Cresol)	233.21 µg/kg
Benzylalcohol	3325.86 µg/kg	4-Methylphenol(p-Cresol)	2507.76 µg/kg
4-Bromophenylphenylether	8043.07 µg/kg	3+4-Methylphenol(m+p-Cresol)	2296.70 µg/kg
Butylbenzylphthalate	7286.12 µg/kg	4-Nitroaniline	1841.66 µg/kg
4-Chloro-3-methylphenol	3359.15 µg/kg	2-Nitrophenol	4882.89 µg/kg
bis(2-Chloroethoxy)methane	5348.24 µg/kg	n-Nitrosodimethylamine	777.05 µg/kg
bis(2-Chloroethyl)ether	966.61 µg/kg	n-Nitrosodiphenylamine	348.50 µg/kg
4-Chlorophenylphenylether	6402.37 µg/kg	n-Nitrosodi-n-propylamine	6481.25 µg/kg
Chrysene	1213.74 µg/kg	Phenanthrene	57.99 µg/kg
Dibenz(a,h)anthracene	1231.21 µg/kg	Phenol	5906.13 µg/kg
Dibenzofuran	1745.31 µg/kg	2,4,5-Trichlorophenol	5305.96 µg/kg
Di-n-butylphthalate	7326.39 µg/kg	2,4,6-Trichlorophenol	3165.24 µg/kg

New	RTC-CRM126-100	Soil (Clay loam) - Organic contaminants	100 g

Certified values

Lot 010572

1,2-Dichlorobenzene	2.86 mg/kg	4-Chlorophenyl phenylether	8.33 mg/kg
1,3-Dichlorobenzene	2.57 mg/kg	Chrysene	2.37 mg/kg
Hexachlorobutadiene	1.66 mg/kg	Dibenzofuran	1.91 mg/kg
Hexachloroethane	0.450 mg/kg	Di-n-butyl phthalate	1.34 mg/kg
Naphthalene	0.610 mg/kg	2,4-Dichlorophenol	0.500 mg/kg
Nitrobenzene	6.03 mg/kg	Dimethyl phthalate	4.08 mg/kg
1,2,4-Trichlorobenzene	1.57 mg/kg	2,4-Dinitrotoluene (2,4-DNT)	0.880 mg/kg
Acenaphthene	4.25 mg/kg	Di-n-octyl phthalate	1.34 mg/kg
Anthracene	0.280 mg/kg	bis(2-Ethylhexyl) phthalate (DEHP)	4.88 mg/kg
Benzo(a)pyrene	0.630 mg/kg	Fluoranthene	0.120 mg/kg
Benzo(b)fluoranthene	0.610 mg/kg	Fluorene	1.45 mg/kg
Benzo(g,h,i)perylene	0.570 mg/kg	Hexachlorobenzene	0.620 mg/kg
Benzo(k)fluoranthene	0.720 mg/kg	Isophorone	6.12 mg/kg
Benzo(b+k)fluoranthene	1.29 mg/kg	2-Methyl-4,6-dinitrophenol	3.93 mg/kg
Benzyl alcohol	7.10 mg/kg	2-Methylphenol (o-Cresol)	2.57 mg/kg
4-Bromophenyl phenyl ether	10.6 mg/kg	3+4-Methylphenol (m+p-Cresol)	3.58 mg/kg
4-Chloro-3-methylphenol	0.650 mg/kg	4-Nitrophenol	5.83 mg/kg
4-Chloroaniline	0.580 mg/kg	Pentachlorophenol	0.380 mg/kg
2-Chloronaphthalene	3.89 mg/kg	Phenol	0.740 mg/kg
2-Chlorophenol	1.99 mg/kg	2,4,5-Trichlorophenol	2.26 mg/kg

	RTC-CRM135-100	Soil (Silty clay) - Semi-volatile organic analytes	100 g

Certified values

Lot 010382

1,2-Dichlorobenzene	673 µg/kg	2-Chlorophenol	1670 µg/kg
1,3-Dichlorobenzene	329 µg/kg	4-Chlorophenyl phenylether	7620 µg/kg
1,4-Dichlorobenzene	163 µg/kg	Dibenzofuran	5100 µg/kg
Hexachlorobutadiene	155 µg/kg	Di-n-butyl phthalate	4600 µg/kg
Hexachloroethane	156 µg/kg	2,4-Dichlorophenol	1550 µg/kg
Naphthalene	640 µg/kg	2,4-Dimethylphenol	3270 µg/kg
Nitrobenzene	4370 µg/kg	Dimethyl phthalate	3780 µg/kg
1,2,4-Trichlorobenzene	1710 µg/kg	2,4-Dinitrophenol	2220 µg/kg
Acenaphthene	1390 µg/kg	Di-n-octyl phthalate	5140 µg/kg
Acenaphthylene	1210 µg/kg	Fluoranthene	328 µg/kg
Aniline	2310 µg/kg	Fluorene	3410 µg/kg
Anthracene	848 µg/kg	Isophorone	742 µg/kg
Benzo(a)anthracene	3520 µg/kg	2-Methyl-4,6-dinitrophenol	4280 µg/kg
Benzo(a)pyrene	347 µg/kg	2-Methylphenol (o-Cresol)	3500 µg/kg
Benzoic acid	1900 µg/kg	4-Methylpheno (p-Cresol)	5900 µg/kg
Benzyl alcohol	1560 µg/kg	3+4-Methylphenol (m+p-Cresol)	6830 µg/kg
4-Bromophenyl phenyl ether	5260 µg/kg	2-Nitroaniline	5090 µg/kg
Butyl benzyl phthalate	3130 µg/kg	3-Nitroaniline	4930 µg/kg
Carbazole	5400 µg/kg	4-Nitroaniline	1730 µg/kg
4-Chloro-3-methylphenol	602 µg/kg	2-Nitrophenol	3820 µg/kg
4-Chloroaniline	749 µg/kg	4-Nitrophenol	3680 µg/kg
bis(2-Chloroethyl) ether	694 µg/kg	Pentachlorophenol	3420 µg/kg
2-Chloronaphthalene	2030 µg/kg	Phenanthrene	2010 µg/kg

Code	Product	Unit

RTC-CRM136-100 Soil (Clay) - Organic contaminants — 100 g

Certified values

Lot 010772

1,4-Dichlorobenzene	350 µg/kg	Dimethyl phthalate	3130 µg/kg
Hexachlorobutadiene	2010 µg/kg	2,4-Dinitrophenol	1600 µg/kg
Nitrobenzene	4670 µg/kg	2,6-Dinitrotoluene (2,6-DNT)	2510 µg/kg
1,2,4-Trichlorobenzene	698 µg/kg	Di-n-octyl phthalate	5250 µg/kg
Acenaphthene	173 µg/kg	bis(2-Ethylhexyl) phthalate (DEHP)	891 µg/kg
Anthracene	431 µg/kg	Fluoranthene	5350 µg/kg
Benzo(a)anthracene	838 µg/kg	Hexachlorobenzene	551 µg/kg
Benzo(b)fluoranthene	442 µg/kg	Hexachlorocyclopentadiene	3930 µg/kg
Benzo(k)fluoranthene	661 µg/kg	Indeno(1,2,3-cd) pyrene	425 µg/kg
Benzo(b+k)fluoranthene	1100 µg/kg	Isophorone	6070 µg/kg
4-Bromophenyl phenyl ether	6460 µg/kg	2-Methylnaphthalene	6190 µg/kg
Butyl benzyl phthalate	7470 µg/kg	4-Methylphenol (p-Cresol)	2940 µg/kg
Carbazole	1370 µg/kg	3+4-Methylphenol (m+p-Cresol)	3270 µg/kg
bis(2-Chloroethoxy)methane	6970 µg/kg	2-Nitrophenol	668 µg/kg
2-Chloronaphthalene	2640 µg/kg	4-Nitrophenol	2630 µg/kg
2-Chlorophenol	1200 µg/kg	n-Nitrosodi-n-propylamine	2630 µg/kg
Chrysene	927 µg/kg	Pentachlorophenol	2560 µg/kg
Dibenz(a,h) anthracene	458 µg/kg	Phenanthrene	973 µg/kg
Dibenzofuran	5160 µg/kg	Phenol	1200 µg/kg
Di-n-butyl phthalate	720 µg/kg	Pyrene	6620 µg/kg
2,4-Dichlorophenol	605 µg/kg	2,4,6-Trichlorophenol	3480 µg/kg
Diethyl phthalate	1470 µg/kg		

New **RTC-CRM142-100 Soil (Silty loam) - PAHs** — 100 g

The organic sample is a soil containing extractable PAHs for analysis by 8100, 8270, 8310 or equivalent methods.

Certified values

Lot 014105

Acenaphthene	118 ± 19.0 µg/kg	Chrysene	295 ± 33.1 µg/kg
Acenaphthylene	53.4 ± 19.3 µg/kg	Dibenz(a,h) anthracene	320 ± 27.6 µg/kg
Anthracene	109 ± 27.6 µg/kg	Fluoranthene	507 ± 63.7 µg/kg
Benzo(a)anthracene	356 ± 39.4 µg/kg	Fluorene	126 ± 21.2 µg/kg
Benzo(a)pyrene	126 ± 20.9 µg/kg	Indeno(1,2,3-cd) pyrene	316 ± 38.0 µg/kg
Benzo(b)fluoranthene	257 ± 27.1 µg/kg	Phenanthrene	532 ± 79.0 µg/kg
Benzo(g,h,i)perylene	569 ± 58.2 µg/kg	Pyrene	272 ± 36.2 µg/kg
Benzo(k)fluoranthene	327 ± 40.0 µg/kg		

RTC-CRM112-100 Soil (Sandy loam) - Phenols — 100 g

Soil contaminated with phenols from a wood treatment site in the Rocky Mountain Region of the United States.The phenol values in the sample were certified by USEPA SW846,3rd edition Analysis Method 8041 which describes open-tubular, capillary column gas chromatography procedures for the analysis of phenols, using both single-column and dual column/dual-detector approches. The sample is suitable for these and other similar methods.

Certified values

Lot LH112

2-Chlorophenol	2.38 mg/kg	m & p Cresol	4.00 mg/kg
4-Chloro-3-methylphenol	4.94 mg/kg	2-Methyl-4,6-dinitrophenol	4.75 mg/kg
2,4-Dichlorophenol	2.53 mg/kg	Pentachlorophenol	5.05 mg/kg
2-Nitrophenol	4.33 mg/kg	Phenol	2.45 mg/kg
4-Nitrophenol	5.66 mg/kg		

Indicative value for 2,4-Dinitrophenol

RTC-CRM107-100 Soil (Sandy loam) - PAH/Pesticides — 100 g

PAH contaminated soil from a superfund site in the Western United States. The BNA values in the sample were certified by USEPA SW846, 3rd edition Extraction Methods 3540A/3541 (Soxhlet), 3550 (sonication), and analysis method 8270A (Semivolatile organics by GC/MS). The Organochlorine Pesticides and PCB values were certified using the same extraction methods and analysis method 8081 (pesticides by GC). The sample is suitable for these and other similar methods.

Certified values

Lot KG107

Acenaphthene	61.9 mg/kg	2,4-Dinitrotoluene	43.1 mg/kg
Bis(2-ethylhexyl)phthalate	38.5 mg/kg	Fluoranthene	19.2 mg/kg
2-Chlorophenol	37.5 mg/kg	Fluorene	30.8 mg/kg
2,4-D Acid	22.9 mg/kg	Hexachlorobenzene	42.9 mg/kg
4,4-DDD	11.1 mg/kg	Hexachloroethane	2.31 mg/kg
4,4-DDT	38.5 mg/kg	Lindane	34.3 mg/kg
2,4-DP	15.4 mg/kg	Naphthalene	36.8 mg/kg
Dalapon	8.09 mg/kg	2-Nitroaniline	15.1 mg/kg
Dibenzofuran	40.1 mg/kg	3-Nitroaniline	4,27 mg/kg
Dicamba	28.4 mg/kg	Nitrobenzene	35,0 mg/kg
2,4-Dichlorophenol	0.23 mg/kg	4-Nitrophenol	70.8 mg/kg
Dieldrin	10.8 mg/kg	2,4,5-T-Acid	15.0 mg/kg
2,4-Dinitrophenol	9.03 mg/kg	Pentachlorophenol	25.0 mg/kg

Indicative value for Aroclor 1248

Code	Product	Unit
RTC-CRM803-050	Soil (Sandy loam) - Herbicides	50 g

Soil contaminated with herbicide compounds from an agricultural region in the Western region of the United States. The sample was certified by USEPA SW846, 3rd edition Methods 8151 (herbicides by GC). The sample is suitable for these and other similar methods.

Certified values

Lot GF803

2,4-D ..... 44600 µg/kg	2,4,5-T .....25746 µg/kg	2,4,5-TP ..... 41334 µg/kg

Code	Product	Unit
RTC-CRM804-050	Soil (Sandy loam) - Pesticides	50 g

Soil contaminated with pesticide compounds from an agricultural region in the Western region of the United States. The sample was certified by USEPA SW846, 3rd edition Methods 3540A/3541 (Soxhlet extraction), 3550 (Sonication), and 8081 (Pesticides by GC). The sample is suitable for these and other similar methods.

Certified values

Lot DG804

Aldrin..... 18 µg/kg	4,4'-DDT .....1060 µg/kg	EndosulfanII..... 1128 µg/kg
4,4'-DDD..... 1531 µg/kg	Dieldrin .....1863 µg/kg	Endrin ..... 62.2 µg/kg
4,4'-DDE ..... 1520 µg/kg	Endosulfan I .....1464 µg/kg	Lindane ..... 491 µg/kg

Code	Product	Unit
RTC-CRM805-050	Soil (Sandy loam) - Pesticides	50 g

Soil contaminated with pesticide compounds from an agricultural region in the Western region of the United States. The sample was certified by USEPA SW846, 3rd edition Methods 3540A/3541 (Soxhlet extraction), 3550 (Sonication), and 8081 (Pesticides by GC). The sample is suitable for use by these and other similar methods.

Certified values

Lot FH805

DDD ..... 19500 µg/kg	Endosulfan I .....6900 µg/kg	Endrine aldehyde..... 95.5 µg/kg
DDE ..... 18613 µg/kg	Endosulfan II .....5940 µg/kg	Lindane ..... 10618 µg/kg
DDT ..... 786 µg/kg	Endrin.....12967 µg/kg	Methoxychlor..... 15800 µg/kg

Code	Product	Unit
RTC-CRM808-050	Soil (Loam) - Herbicides	50 g

Soil fortified with herbicides to meet the requirements of NELAC Fields of Testing. The sample was certified by USEPA SW846 (3rd edition) method 8151 (herbicides by GC). The sample is suitable for these and other similar methods.

Certified values

Lot AC808

2,4-D ..... 314 µg/kg	Dicamba .....307 µg/kg	2,4,5-TP ..... 302 µg/kg
2,4-DB..... 252 µg/kg	2,4,5-T acid .....222 µg/kg	

Indicative value for Pentachlorophenol

Code	Product	Unit
RTC-CRM810-050	Soil (Loamy sand) - Herbicides	50 g

Soil fortified with herbicides to meet the requirements of NELAC Fields of Testing. The sample was certified by USEPA SW846 (3rd edition) method 8151A (herbicides by GC). The sample is suitable for these and other similar methods.

Certified values

Lot BC810

2,4,5-T ..... 171 µg/kg	2,4-D.....311 µg/kg	Dicamba..... 369 µg/kg
2,4,5-TP (Silvex)..... 249 µg/kg	Dalapon .....156 µg/kg	

Code	Product	Unit
RTC-CRM817-050	Soil (Loam) - Herbicides	50 g

Soil fortified with herbicides to meet the requirements of NELAC Fields of Testing. The sample was certified by USEPA SW846 (3rd edition) method 8151A (herbicides by GC). The sample is suitable for these and other similar methods.

Certified values
Lot BE817

Dalapon ..... 112 µg/kg	Dicamba .....247 µg/kg	2,4,5-T acid..... 84.5 µg/kg
2,4-D acid ..... 250 µg/kg	MCPP.....4800 µg/kg	2,4,5-TP ..... 188 µg/kg
2,4-DB..... 188 µg/kg	Pentachlorophenol .....267 µg/kg	

Code	Product	Unit
RTC-CRM831-050	Soil (Loam) - Herbicides	50 g

Fortified to meet the requirements of NELAC Fields of Testing, RCRA Solid. The Reference Values were determined by USEPA SW846 (3rd edition) Analysis Method 8151 (herbicides by GC).

Certified values

Lot 001679

Pentachlorophenol..... 161 µg/kg	2,4-DB .....361 µg/kg	2,4,5-T ..... 172 µg/kg
2,4-D ..... 415 µg/kg	Dicamba .....374 µg/kg	
Dalapon ..... 158 µg/kg	Silvex (2,4,5-TP).....297 µg/kg	

	Code	Product	Unit
New	RTC-CRM814-050	Soil (Sandy loam) - Pesticides	50 g

The sample was certified by USEPA SW846 (3rd edition) method 8081A (Pesticides by GC). The sample is suitable for these and other similar methods.

Certified values

Lot 014692

Aldrin	80.1 µg/kg	Endrin ketone	125 µg/kg
4,4'-DDD	189 µg/kg	Heptachlor	99.4 µg/kg
4,4'-DDE	410 µg/kg	Hexachlorobenzene	255 µg/kg
4,4'-DDT	322 µg/kg	alpha-HCH	258 µg/kg
Dieldrin	182 µg/kg	beta-HCH	140 µg/kg
Endosulfan I	425 µg/kg	gamma-HCH (Lindane)	276 µg/kg
Endosulfan II	58.3 µg/kg	alpha- Chlordane	92.5 µg/kg
Endosulfan sulfate	62.0 µg/kg	gamma – Chlordane	63.9 µg/kg
Endrin	393 µg/kg	Methoxychlor	327 µg/kg
Endrin aldehyde	149 µg/kg	Propachlor	98.0 µg/kg

	RTC-CRM824-050	Soil (Sandy loam) - Pesticides	50 g

Soil fortified with pesticide compounds to meet the requirements of NELAC Fields of Testing. The sample was certified by USEPA SW846 (3rd edition) method 8081A (Pesticides by GC). The sample is suitable for these and other similar methods.

Certified values

Lot BL824

4,4'-DDD	367 µg/kg	Endrin aldehyde	398 µg/kg
4,4'-DDE	396 µg/kg	Heptachlor	338 µg/kg
4,4'-DDT	363 µg/kg	Heptachlor epoxide (beta)	317 µg/kg
Endosulfan I	361 µg/kg	alpha-HCH	361 µg/kg
Endosulfan II	340 µg/kg	beta-HCH	382 µg/kg
Endosulfan sulfate	327 µg/kg	gamma-HCH (Lindane)	371 µg/kg
Endrin	358 µg/kg	Methoxychlor	365 µg/kg

Indicative value for Endrin ketone

New	RTC-CRM821-050	Soil (Sandy loam) - Organophoshorus pesticides	50 g

Certified values

Lot 014702

Azinphos-methyl (Guthion)	0.792 mg/kg	Malathion	0.277 mg/kg
Chlorfenvinphos	0.186 mg/kg	Parathion, methyl	0.629 mg/kg
Chlorpyrifos	0.150 mg/kg	Parathion, ethyl	0.432 mg/kg
Diazinon	0.509 mg/kg	Phorate	0.0903 mg/kg
EPN	0.508 mg/kg	Ronnel	0.250 mg/kg
Ethoprop	0.328 mg/kg	Sulfotepp	0.026 mg/kg
Famphur	0.526 mg/kg	Tetrachlorvinphos	0.642 mg/kg
Fenthion	0.311 mg/kg	Disulfoton	0.117 mg/kg

	RTC-CRM827-050	Soil (Sandy loam) - Organophosphorus pesticides	50 g

Soil fortified with pesticide compounds to meet the requirements of NELAC Fields of Testing. The sample was certified by USEPA SW846 (3rd edition) method 8141A. The sample is suitable for these and other similar methods.

Certified values

Lot BL827

Azinophos methyl (guthion)	1.52 mg/kg	Demeton-O	0.710 mg/kg
Dichlorvos (DDVP)	0.887 mg/kg	Diazinon	3.76 mg/kg
Demeton-S	0.525 mg/kg	Malathion	8.02 mg/kg
Ronnel	0.830 mg/kg	Parathion, ethyl	4.88 mg/kg
Phorate	0.48 mg/kg	Stirophos (tetrachlorovinphos)	4.24 mg/kg

	RTC-CRM837-050	Soil (Silty loam) - Organophosphorous pesticides	50 g

The reference values were determined by USEPA SW846 (3rd edition) Analysis Method 8141A.

Certified values

Lot 015621

Azinphos-methyl (Guthion)	299 µg/kg	Malathion	706 µg/kg
Chlorpyrifos	292 µg/kg	Methyl parathion (Parathion, methyl)	227 µg/kg
Diazinon	624 µg/kg	Parathion, ethyl	782 µg/kg
EPN	553 µg/kg	Ronnel	180 µg/kg
Ethoprop	300 µg/kg	Tetrachlorvinphos	254 µg/kg

New	RTC-CRM851-050	Soil (Silty loam) - Organophosphorous pesticides	50 g

Certified values

Lot 002536

Azinphos-methyl (Guthion)	1.76 mg/kg	Parathion, ethyl	3.23 mg/kg
Chlorfenvinphos	1.76 mg/kg	Ronnel	2.14 mg/kg
Diazinon	0.217 mg/kg	Tetrachlorvinphos	0.673 mg/kg
Malathion	4.14 mg/kg	Disulfoton	5.18 mg/kg
Parathion, methyl	5.80 mg/kg		

	Code	Product	Unit
New	RTC-CRM806-100	**Soil (Loamy sand) - Chlordane** The certified value was determined by USEPA SW846 (3rd edition) Extraction Methods 3540B/3541 (soxhlet), 3550A (sonication) and Analysis Method 8081 (pesticides by GC). The sample is suitable for these and other similar methods. Certified value Lot FH806 Chlordane ..... 7.19 mg/kg	100 g
	RTC-CRM812-050	**Soil (Sandy loam) - Chlordane** The certified value was determined by USEPA SW846 (3rd edition) Extraction Methods 3540B/3541 (soxhlet), 3550A (sonication) and Analysis Method 8081 (pesticides by GC). The sample is suitable for these and other similar methods. Certified value Lot AL812 Chlordane ..... 205 µg/kg	50 g
	RTC-CRM825-050	**Soil (Sandy loam) - Chlordane** The certified value was determined by USEPA SW846 (3rd edition) Extraction Methods 3540B/3541 (soxhlet), 3550A (sonication) and Analysis Method 8081 (pesticides by GC). The sample is suitable for these and other similar methods. Certified value Lot BL825 Chlordane ..... 392 µg/kg	50 g
New	RTC-CRM852-050	**Sediment - Chlordane** Certified value Lot 002531 Chlordane (total) ..... 235 µg/kg	50 g
	RTC-CRM828-050	**Soil (Silty loam) - Pesticides** Fortified to meet the requirements of NELAC Fields of Testing, RCRA Solid. The Reference Values were determined by USEPA SW846 (3rd edition) method 8081A. Certified values Lot 001682 Aldrin ..... 126 µg/Kg 4,4'-DDD ..... 397 µg/Kg 4,4'-DDE ..... 293 µg/Kg 4,4'-DDT ..... 302 µg/Kg Dieldrin ..... 225 µg/Kg Endosulfan I ..... 170 µg/Kg Endosulfan II ..... 223 µg/Kg Endosulfan sulfate ..... 319 µg/Kg Endrin ..... 336 µg/Kg alpha-HCH ..... 338 µg/Kg beta-HCH ..... 272 µg/Kg gamma-HCH (Lindane) ..... 384 µg/Kg Heptachlor ..... 136 µg/Kg Methoxychlor ..... 279 µg/Kg	50 g
	RTC-CRM846-050	**Soil (Loamy sand) - Pesticides** The reference values were determined by USEPA SW846 (3rd edition) method 8081A. The sample is suitable for this and other similar methods. Certified values Lot 015141 Aldrin ..... 63.8 µg/kg alpha-Chlordane ..... 98.3 µg/kg gamma-Chlordane ..... 376 µg/kg 4,4'-DDD ..... 259 µg/kg 4,4'-DDE ..... 243 µg/kg 4,4'-DDT ..... 190 µg/kg Dieldrin ..... 290 µg/kg Endosulfan I ..... 187 µg/kg Endosulfan II ..... 119 µg/kg Endosulfan sulfate ..... 160 µg/kg Endrin aldehyde ..... 116 µg/kg Endrin ketone ..... 82.7 µg/kg Endrin ..... 222 µg/kg delta-HCH ..... 100 µg/kg alpha-HCH ..... 256 µg/kg beta-HCH ..... 327 µg/kg gamma-HCH (Lindane) ..... 147 µg/kg Heptachlor ..... 70.8 µg/kg Heptachlor epoxide ..... 238 µg/kg Methoxychlor ..... 238 µg/kg Propachlor ..... 287 µg/kg Trifluralin ..... 282 µg/kg	50 g
	RTC-CRM829-050	**Soil (Silty loam) - Toxaphenes** Certified value Lot 01678 Toxaphene ..... 221 µg/kg	50 g
	RTC-CRM826-050	**Soil (Sandy loam) - Toxaphene** The Certified value was determined by USEPA SW846 (3rd edition) Extraction Methods 3540B/3541 (soxhlet), 3550A (sonication) and Analysis Method 8081 (pesticides by GC). The sample is suitable for these and other similar methods. Certified value Lot BL826 Toxaphene ..... 257 µg/kg	50 g

Code	Product	Unit
RTC-CRM813-050	Soil (Sandy loam) - Toxaphene	50 g

The certified value was determined by USEPA SW846 (3rd edition) Extraction Methods 3540B/3541 (soxhlet), 3550A (sonication) and Analysis Method 8081 (pesticides by GC). The sample is suitable for these and other similar methods.

Certified value

Lot BC813

Toxaphene ..... 254 µg/kg

New RTC-CRM853-050 — Soil (Clay) - Toxaphenes — 50 g

Certified value

Lot 010770

Toxaphene ..... 306 µg/kg

RTC-CRM847-050 — Soil (Clay Loam) - Pesticides — 50 g

The certified values were determined by USEPA SW846 (3rd edition) method 8081A. The sample is suitable for this and other similar methods.

Certified values

Lot 002405

4,4'-DDD	228 µg/kg	Endrin aldehyde	49.3 µg/kg
4,4'-DDE	218 µg/kg	alpha-HCH	225 µg/kg
4,4'-DDT	172 µg/kg	beta-HCH	92.4 µg/kg
Aldrin	115 µg/kg	delta-HCH	67.6 µg/kg
Dieldrin	125 µg/kg	gamma-HCH (Lindane)	340 µg/kg
Endosulfan I	160 µg/kg	Heptachlor	109 µg/kg
Endosulfan II	233 µg/kg	Heptachlor epoxide (beta)	98.7 µg/kg
Endosulfan sulfate	270 µg/kg	Methoxychlor	172 µg/kg
Endrin	377 µg/kg		

New RTC-CRM981-010 — Clay loam - Dioxins/Furans — 10 g

Certified values

Lot 013623

1,2,3,4,6,7,8-HpCDF	789 ± 50.7 pg/g	1,2,3,4,6,7,8,9-OCDD	305 ± 36.9 pg/g
1,2,3,4,6,7,8-HpCDD	196 ± 12.4 pg/g	1,2,3,7,8-PeCDD	83.9 ± 8.43 pg/g
HpCDD (total)	196 ± 11.0 pg/g	PeCDD (total)	95.4 ± 2.34 pg/g
HpCDF (total)	796 ± 54.3 pg/g	2,3,7,8-TCDD	804 ± 57.6 pg/g
1,2,3,4,7,8-HxCDD	479 ± 40.5 pg/g	2,3,7,8-TCDF	306 ± 28.9 pg/g
1,2,3,6,7,8-HxCDD	87.0 ± 11.0 pg/g	TCDF (total)	323 ± 30.0 pg/g
1,2,3,7,8,9-HxCDD	908 ± 55.5 pg/g	TCDD (total)	804 ± 56.9 pg/g
HxCDD (total)	1430 ± 137 pg/g	PCDD (total)	2750 ± 136 pg/g
1,2,3,4,7,8-HxCDF	228 ± 13.0 pg/g	PCDD + PCDF (total)	4690 ± 275 pg/g
HxCDF (total)	235 ± 10.2 pg/g	PCDF (total)	1950 ± 183 pg/g
1,2,3,4,6,7,8,9-OCDF	700 ± 64.3 pg/g		

RTC-CRM141-050 — Soil (Loamy clay) - PAHs — 50 g

The organic sample is a soil containing extractable PAHs for analysis by 8100, 8270, 8310 or equivalent methods.

Certified values

Lot: 015161

Naphthalene	188 ± 40.3 µg/kg	Benzo(k)fluoranthene	253 ± 43.9 µg/kg
Acenaphthene	693 ± 174 µg/kg	Chrysene	316 ± 52.0 µg/kg
Acenaphthylene	176 ± 45.5 µg/kg	Dibenzo(a,h)anthracene	451 ± 70.4 µg/kg
Anthracene	393 ± 130 µg/kg	Fluoranthene	176 ± 40.3 µg/kg
Benzo(a)anthracene	409 ± 83.0 µg/kg	Fluorene	338 ± 111 µg/kg
Benzo(a)pyrene	198 ± 25.8 µg/kg	Indeno(1,2,3-cd)pyrene	394 ± 52.0 µg/kg
Benzo(b)fluoranthene	364 ± 48.6 µg/kg	Phenanthrene	719 ± 221 µg/kg
Benzo(g,h,i)perylene	618 ± 109 µg/kg	Pyrene	331 ± 62.0 µg/kg

New RTC-CRM860-050 — Soil (Clay Loam) - Pesticides — 50 g

Certified values

Lot 010760

Hexachlorobenzene	83.3 µg/kg
delta-BHC	65.7 µg/kg
alpha-BHC (alpha-Hexachlorocyclohexane)	115 µg/kg
beta-BHC (beta-Hexachlorocyclohexane)	109 µg/kg
alpha-Chlordane	74.0 µg/kg
gamma-Chlordane	101 µg/kg
4,4'-DDD	116 µg/kg
4,4'-DDE	70.8 µg/kg
4,4'-DDT	49.4 µg/kg
Dieldrin	79.7 µg/kg
Endosulfan I	91.5 µg/kg
Endosulfan II	111 µg/kg
Endosulfan sulfate	58.6 µg/kg
Endrin aldehyde	50.2 µg/kg
Endrin ketone	119 µg/kg
Endrin	75.3 µg/kg
Heptachlor	68.1 µg/kg
Heptachlor epoxide	106 µg/kg
Methoxychlor	96.6 µg/kg

Code	Product	Unit

RTC-CRM020-050 — Dry soil No. 2 (Sandy loam) - Trace elements — 50 g

Soil is from a USEPA Superfund site located in the Western United States. The certified values were determined by USEPA SW846 (3rd edition) Methods 3050 and 6010, except for mercury (Method 7471) and pH (method 9045). The sample is suitable for other 3000 series metals digestion procedures and 7000-series spectroscopic methods.

Certified values

Lot D020

pH 2.96	Co..... 4.51 mg/kg	Ni ..... 16.9 mg/kg
Ag ..... 38.5 mg/kg	Cr..... 13.6 mg/kg	Pb ..... 5111 mg/kg
Al..... 1760 mg/kg	Cu..... 729 mg/kg	Sb ..... 8.38 mg/kg
As..... 400 mg/kg	Fe ..... 191706 mg/kg	Se ..... 6.57 mg/kg
Ba ..... 24.8 mg/kg	Hg..... 1.12 mg/kg	Tl..... 5.91 mg/kg
Ca ..... 25584 mg/kg	Mg ..... 2687 mg/kg	V ..... 6.47 mg/kg
Cd ..... 15.4 mg/kg	Mn ..... 945 mg/kg	Zn..... 3010 mg/kg

Indicative values for K, Na, Sr

RTC-CRM021-100 — Dry soil No. 3 (Sandy loam) - Trace elements — 100 g

Soil is from a waste site in the Midwestern United States. The certified values were determined by USEPA SW846 (3rd edition) Methods 3050 and 6010, except for Mercury (Method 7471). The sample is suitable for other 3000-series metals digestion procedures and 7000-series spectroscopic methods.

Certified values

Lot E021

Ag ..... 6.5 mg/kg	Cr..... 10.7 mg/kg	Na ..... 380 mg/kg
Al..... 2725 mg/kg	Cu..... 4792 mg/kg	Ni ..... 12.6 mg/kg
As..... 24.8 mg/kg	Fe ..... 6481 mg/kg	Sb ..... 4950 mg/kg
Ba ..... 586 mg/kg	Hg..... 4.7 mg/kg	Zn..... 546 mg/kg
Ca ..... 5426 mg/kg	K..... 1006 mg/kg	
Cd ..... 1.2 mg/kg	Mn ..... 174 mg/kg	

Indicative values for Co, Mg, Pb, Sn, Tl, V

RTC-CRM022-020 — Dry soil No. 5 (Loam) - Trace elements and cyanide — 20 g

This soil is from a waste site in the Western United States. The certified values were determined by USEPA SW846 (3rd edition) Methods 3050 and 6010, except for Arsenic (7060A), Mercury (7471A), Selenium (7740), Thallium (7841) and Cyanide (9010A). The sample is suitable for other 3000-series metals digestion procedures and 7000-series 9000-series spectroscopic methods.

Certified values

Lot D522

Al..... 10060 mg/kg	Co..... 5.7 mg/kg	Na ..... 268 mg/kg
As..... 5.4 mg/kg	Cu..... 12.4 mg/kg	Ni ..... 16 mg/kg
Ba ..... 109 mg/kg	Fe ..... 13555 mg/kg	Pb ..... 415 mg/kg
Be ..... 0.5 mg/kg	Hg..... 5 mg/kg	V ..... 23 mg/kg
Ca ..... 27242 mg/kg	K..... 3170 mg/kg	Zn..... 46 mg/kg
Cd ..... 3.1 mg/kg	Mg ..... 9524 mg/kg	Cyanide..... 26.6 mg/kg
Cr..... 18.8 mg/kg	Mn ..... 318 mg/kg	

Indicative values for B, Ag, Hg, Sb, Se, Si, Sn, Sr, Tl

RTC-CRM008-050 — Sediment 1 - Trace elements — 50 g

Sediment/soil from a river bank and bottom near the Chesapeake Bay. The certified values were determined by USEPA SW846 (3rd edition) Methods 3050 and 6010, except for arsenic (7060A), mercury (7471A), selenium (7740), and thallium (7841). The sample is suitable for other 3000-series metals digestion procedures and 7000-series spectroscopic methods.

Certified values

Lot J408

Al..... 23906 mg/kg	Co..... 11 mg/kg	Mn..... 261 mg/kg
As..... 14 mg/kg	Cu..... 36 mg/kg	Na ..... 8706 mg/kg
Ba ..... 54 mg/kg	Fe ..... 33042 mg/kg	Ni ..... 26 mg/kg
Be ..... 1 mg/kg	Hg..... 0.72 mg/kg	Pb ..... 95.9 mg/kg
Ca ..... 2935 mg/kg	K..... 3948 mg/kg	V ..... 44.4 mg/kg
Cr..... 48 mg/kg	Mg ..... 6742 mg/kg	Zn..... 134 mg/kg

Indicative values for Ag, B, Cd, Mo, Sb, Se, Si, Sn, Sr, Tl

RTC-CRM023-050 — Soil (Sandy loam) - Metals — 50 g

Soil is from a contaminated site located in the Western United States. The certified values were determined by USEPA SW846 (3rd edition) Methods 3050 and 6010, except for Mercury (Method 7471). The sample is suitable for other 3000-series metals digestion procedures and 7000-series spectroscopic methods.

Certified values

Lot DG023

Ag ..... 132 mg/kg	Co..... 8.9 mg/kg	Ni ..... 11.0 mg/kg
Al..... 8472 mg/kg	Cu..... 4.7 mg/kg	Pb ..... 213 mg/kg
As..... 380 mg/kg	Fe ..... 10678 mg/kg	Se ..... 116 mg/kg
Ba ..... 75.5 mg/kg	Hg..... 77.8 mg/kg	Sr ..... 32,6 mg/kg
Be ..... 0.4 mg/kg	K..... 2231 mg/kg	Tl..... 111.51 mg/kg
Ca ..... 5425 mg/kg	Mg ..... 3064 mg/kg	V ..... 21.7 mg/kg
Cd ..... 0.9 mg/kg	Mn ..... 206 mg/kg	Zn..... 93.8 mg/kg
Cr..... 31.1 mg/kg	Na..... 295 mg/kg	

Indicative values for B, Si

Code	Product	Unit

RTC-CRM024-050 — Soil (Sandy loam) - Metals — 50 g

This soil is from a site in the Western United States. The certified values were determined by USEPA SW846 (3rd edition) Methods 3050B and 6010B, except for mercury (Method 7471). The sample is suitable for other 3000-series metals digestion procedures and 7000-series spectroscopic methods.

Certified values

Lot 11024

Ag ..... 13.3 mg/kg	Cr ..... 25.4 mg/kg	Na ..... 287 mg/kg
Al ..... 8681 mg/kg	Cu ..... 8.70 mg/kg	Ni ..... 15.0 mg/kg
As ..... 3.42 mg/kg	Fe ..... 10196 mg/kg	Pb ..... 15.7 mg/kg
B ..... 7.22 mg/kg	Hg ..... 0.71 mg/kg	Sr ..... 35.4 mg/kg
Ba ..... 79.6 mg/kg	K ..... 2102 mg/kg	V ..... 20.8 mg/kg
Be ..... 0.43 mg/kg	Mg ..... 2945 mg/kg	Zn ..... 37.3 mg/kg
Ca ..... 5534 mg/kg	Mn ..... 199 mg/kg	
Cd ..... 2.15 mg/kg	Mo ..... 0.58 mg/kg	

Indicative values for Sb, Se, Si, Tl

RTC-CRM025-050 — Soil (Sandy loam) - Metals — 50 g

This soil is from a moderate contaminated site located in the Western United States. The certified values were determined by USEPA SW846 (3rd Edition) Methods 3050 and 6010, except for Arsenic (7060A), Mercury (7471A), Selenium (7740), and Thallium (7841). The sample is suitable for other 3000-series metals digestion procedures and 7000-series 9000-series spectroscopic methods.

Certified values

Lot JG025

Ag ..... 132 mg/kg	Cr ..... 441 mg/kg	Mn ..... 173 mg/kg
Al ..... 7637 mg/kg	Co ..... 4.07 mg/kg	Na ..... 313 mg/kg
As ..... 339 mg/kg	Cu ..... 7.76 mg/kg	Ni ..... 12.2 mg/kg
Ba ..... 1839 mg/kg	Fe ..... 9439 mg/kg	Pb ..... 1447 mg/kg
Be ..... 0.33 mg/kg	Hg ..... 99.8 mg/kg	Se ..... 518 mg/kg
Ca ..... 28320 mg/kg	K ..... 1992 mg/kg	V ..... 19.3 mg/kg
Cd ..... 369 mg/kg	Mg ..... 4376 mg/kg	Zn ..... 51.8 mg/kg

Indicative values for B, Mo, Sb, Si, Sr, Tl

RTC-CRM026-050 — Soil (Sandy loam) - Metals — 50 g

This soil is from a slightly contaminated site located in the Rocky Mountain Region of the United States. The following certified values were determined by USEPA SW846 (3rd edition) Methods 3050 and 6010, except for mercury (Method 7471). The sample is suitable for other 3000-series metals digestion procedures and 7000-series spectroscopic methods.

Certified values

Lot BE026

Al ..... 17730 mg/kg	Co ..... 6.77 mg/kg	Na ..... 119 mg/kg
As ..... 5.41 mg/kg	Cu ..... 18.8 mg/kg	Ni ..... 14.4 mg/kg
Ba ..... 214 mg/kg	Fe ..... 21906 mg/kg	Pb ..... 25.6 mg/kg
Be ..... 18.0 mg/kg	Hg ..... 2.42 mg/kg	Sr ..... 38.4 mg/kg
Ca ..... 6221 mg/kg	K ..... 3600 mg/kg	V ..... 32.0 mg/kg
Cd ..... 11.7 mg/kg	Mg ..... 2837 mg/kg	Zn ..... 140 mg/kg
Cr ..... 27.2 mg/kg	Mn ..... 633 mg/kg	

Indicative values for Ag, B, Mo, Sb, Se, Si, Tl

The following certified values were determined by using USEPA SW846 Method 7060A for Arsenic, by using USEPA SW846 Method 7471B for Mercury, and by using Aqua Regia DIN 38414-S7 Method for Cadmium, Chromium, Copper, Lead, Nickel, and Zinc.

As ..... 5.41 mg/kg	Cu ..... 22.5 mg/kg	Ni ..... 19.3 mg/kg
Cd ..... 12.9 mg/kg	Pb ..... 30.7 mg/kg	Zn ..... 169 mg/kg
Cr ..... 36.9 mg/kg	Hg ..... 2.42 mg/kg	

RTC-CRM027-050 — Soil (Sandy loam) - Metals — 50 g

This soil is from a moderately contaminated site located in the Western United States.The Reference Values were determined by USEPA SW846 (3rd edition) Methods 3050B and 6010, except for mercury (Method 7471) and pH (method 9045).The sample is suitable for other 3000-series metals digestion procedures and 7000-series spectroscopic methods.

Certified values

Lot HC027

Ag ..... 5.98 mg/kg	Co ..... 4.70 mg/kg	Ni ..... 10.5 mg/kg
Al ..... 8537 mg/kg	Cu ..... 9.87 mg/kg	Pb ..... 51.9 mg/kg
As ..... 12.4 mg/kg	Fe ..... 11173 mg/kg	Sb ..... 3.28 mg/kg
Ba ..... 166 mg/kg	Hg ..... 3.80 mg/kg	Se ..... 14.0 mg/kg
Be ..... 2.73 mg/kg	K ..... 2115 mg/kg	Sr ..... 43.0 mg/kg
Ca ..... 5970 mg/kg	Mg ..... 2755 mg/kg	V ..... 21.4 mg/kg
Cd ..... 12.0 mg/kg	Mn ..... 259 mg/kg	Zn ..... 51.3 mg/kg
Cr ..... 26.9 mg/kg	Na ..... 241 mg/kg	

Indicative values for B, Mo, Si ,Tl

Code	Product	Unit
RTC-CRM028-050	Soil (Sandy loam) - Metals	50 g

This soil is from a moderately contaminated site location in the Western United States.The Reference Values were determined by USEPA SW846 (3rd edition) Methods 3050 and 6010, except for mercury (Method 7471) and pH (method 9045). The sample is suitable for other 3000-series metals digestion procedures and 7000-series spectroscopic methods.

Certified values

Lot IH028

Al ..... 7562 mg/kg	Cr ..... 19.0 mg/kg	Mn ..... 209 mg/kg
As ..... 3.83 mg/kg	Co ..... 4.3 mg/kg	Na ..... 231 mg/kg
Ba ..... 73.2 mg/kg	Cu ..... 8.51 mg/kg	Ni ..... 11.0 mg/kg
Be ..... 0.38 mg/kg	Fe ..... 10000 mg/kg	Pb ..... 10.4 mg/kg
Ca ..... 5883 mg/kg	K ..... 2045 mg/kg	V ..... 19.2 mg/kg
Cd ..... 0.50 mg/kg	Mg ..... 2995 mg/kg	Zn ..... 75.0 mg/kg

Indicative values for B, Si, Sr

RTC-CRM030-050	Soil (Sandy loam) - Metals	50 g

This soil is from a moderately contaminated site location in the Western United States. The Reference Values were determined by USEPA SW846 (3rd edition) Methods 3050B and 6010B, except for mercury, pH, cyanide and fluoride (methods 7471, 9045, 9213, and 9214), respectively. The sample is suitable for other 3000-series metals digestion procedures and 7000-series spectroscopic methods.

New	RTC-CRM033-050	Soil - Metals	50 g

The values were determined by USEPA SW846 (3rd edition) Methods 3050B/3051, 6010B, and 7000 series. The sample is suitable for these and other similar methods.

Certified values

Lot 013545

Antimony, Sb ..... 60.6 mg/kg	Molybdenum, Mo ..... 67.7 mg/kg	
Arsenic, As ..... 132 mg/kg	Nickel, Ni ..... 201 mg/kg	
Barium, Ba ..... 487 mg/kg	Potassium, K ..... 18900 mg/kg	
Beryllium, Be ..... 218 mg/kg	Selenium, Se ..... 304 mg/kg	
Boron, B ..... 139 mg/kg	Silicon, Si ..... 858 mg/kg	
Cadmium, Cd ..... 56.6 mg/kg	Silver, Ag ..... 82.1 mg/kg	
Calcium, Ca ..... 7830 mg/kg	Sodium, Na ..... 1540 mg/kg	
Chromium, Cr (total) ..... 302 mg/kg	Strontium, Sr ..... 125 mg/kg	
Cobalt, Co ..... 108 mg/kg	Thallium, Tl ..... 72.7 mg/kg	
Copper, Cu ..... 61.1 mg/kg	Titanium, Ti ..... 287 mg/kg	
Iron, Fe 11100mg/kg	Tin, Sn ..... 107 mg/kg	
Lead, Pb ..... 315 mg/kg	Vanadium, V ..... 314 mg/kg	
Lithium, Li ..... 128 mg/kg	Zinc, Zn ..... 251 mg/kg	
Magnesium, Mg ..... 9990 mg/kg	Aluminum, Al ..... 11900 mg/kg	
Manganese, Mn ..... 680 mg/kg	pH 7.76	
Mercury, Hg ..... 25.4 mg/kg	Phosphorus, P ..... 162 mg/kg	

New	RTC-CRM034-050	Soil (Loamy sand) - Metals	50 g

The values were determined by USEPASW846 (3rd edition) Methods 3050B/3051, 6010B, and 7000 series. The sample is suitable for these and other similar methods.

Certified values

Lot AL034

Ag ..... 27.0 mg/kg	Co ..... 49.7 mg/kg	Mo ..... 76.4 mg/kg
Al ..... 13500 mg/kg	Cr ..... 207 mg/kg	Na ..... 463 mg/kg
As ..... 148 mg/kg	Cu ..... 76.1 mg/kg	Ni ..... 192 mg/kg
B ..... 136 mg/kg	Fe ..... 11900 mg/kg	Pb ..... 60.6 mg/kg
Ba ..... 227 mg/kg	Hg ..... 13.0 mg/kg	Se ..... 68.0 mg/kg
Be ..... 101 mg/kg	K ..... 3420 mg/kg	Tl ..... 97.6 mg/kg
Ca ..... 11300 mg/kg	Mg ..... 4190 mg/kg	V ..... 47.1 mg/kg
Cd ..... 31.3 mg/kg	Mn ..... 559 mg/kg	Zn ..... 324 mg/kg

Indicative values for pH. Sb, Sn

New	RTC-CRM036-050	Soil (Loamy sand) - Metals	50 g

This fortified soil is from a site located in the Western United States. The certified values were determined by USEPA SW846 (3rd edition) Methods 3050B/3051, 6010B, and 7000 series. The sample is suitable for these and other similar methods.

Certified values

Lot 12014

Aluminum, Al ..... 6770 mg/Kg	Cobalt, Co ..... 163 mg/kg	Potassium, K ..... 14200 mg/kg
Antimony, Sb ..... 56.6 mg/kg	Copper, Cu ..... 266 mg/kg	Selenium, Se ..... 188 mg/kg
Arsenic, As ..... 114 mg/kg	Iron, Fe ..... 8200 mg/kg	Silver, Ag ..... 84.0 mg/kg
Barium, Ba ..... 298 mg/kg	Lead, Pb ..... 188 mg/kg	Sodium, Na ..... 9590 mg/kg
Beryllium, Be ..... 108 mg/kg	Magnesium, Mg ..... 8350 mg/kg	Thallium, Tl ..... 85.4 mg/kg
Boron, B ..... 86.6 mg/kg	Manganese, Mn ..... 951 mg/kg	Tin, Sn ..... 102 mg/kg
Cadmium, Cd ..... 224 mg/kg	Mercury, Hg ..... 1.26 mg/kg	Vanadium, V ..... 97.4 mg/kg
Calcium, Ca ..... 3310 mg/kg	Molybdenum, Mo ..... 235 mg/kg	Zinc, Zn ..... 197 mg/kg
Chromium, Cr (total) 77.6 mg/kg	Nickel, Ni ..... 221 mg/kg	pH 6.91

Code	Product	Unit

New RTC-CRM043-050 — Soil (Sandy loam) - Metals — 50 g

The certified values were determined by USEPA SW846 (3rd edition) Methods 3050B/3051, 6010B, 6020, and 7000 series. The sample is suitable for these and other similar methods.

Certified values

Lot 016111

Al 19100 mg/kg	Fe 22500 mg/kg	Sn 196 mg/kg
Ag 87.7 mg/kg	Hg 27.2 mg/kg	Sr 357 mg/kg
As 190 mg/kg	K 5040 mg/kg	Ti 514 mg/kg
B 128 mg/kg	Mg 6640 mg/kg	Tl 140 mg/kg
Ba 690 mg/kg	Mn 789 mg/kg	V 127 mg/kg
Be 122 mg/kg	Mo 110 mg/kg	Zn 424 mg/kg
Ca 16600 mg/kg	Na 402 mg/kg	pH 5.67
Cd 223 mg/kg	Ni 176 mg/kg	Phosphorus, P 523 mg/kg
Co 146 mg/kg	Pb 143 mg/kg	Silica 1380 mg/kg
Cr 301mg/kg	Sb 40.6 mg/kg	
Cu 131 mg/kg	Se 144 mg/kg	

Indicative values for Si, pH

RTC-CRM048-050 — Soil (Sandy loam) - Metals — 50 g

The values were determined by USEPA SW846 (3rd edition) Methods 3050B/3051, 6010B, 6020, and 7000 series.

Certified values

Lot 017065

Ag 75.5 mg/kg	Cu 277 mg/kg	Sb 139 mg/kg
Al 12900 mg/kg	Fe 12300 mg/kg	Se 177 mg/kg
As 123 mg/kg	Hg 28.0 mg/kg	Sn 93.5 mg/kg
B 135 mg/kg	K 11300 mg/kg	Sr 213 mg/kg
Ba 235 mg/kg	Mg 7050 mg/kg	Ti 178 mg/kg
Be 76.8 mg/kg	Mn 1160 mg/kg	Tl 60.5 mg/kg
Ca 6430 mg/kg	Mo 138 mg/kg	V 101 mg/kg
Cd 140 mg/kg	Na 8270 mg/kg	Zn 724 mg/kg
Co 177 mg/kg	Ni 100 mg/kg	pH 6.82
Cr 239 mg/kg	Pb 86.9 mg/kg	Phosphorus, P 298 mg/kg

RTC-CRM044-050 — Soil (Silty loam) - Metals — 50 g

The values were determined by using USEPA SW846 Method 7060A for arsenic, by using USEPA SW846 Method 7471B for mercury, and by using Aqua Regia Method for cadmium, chromium, copper, lead, nickel, and zinc.

Certified values

Lot CF044

Ag 114 mg/kg	Cu 64.0 mg/kg	Sb 106 mg/kg
Al 3540 mg/kg	Fe 3180 mg/kg	Se 81.1 mg/kg
As 52.3 mg/kg	Hg 9.70 mg/kg	Si 991 mg/kg
B 113 mg/kg	K 1480 mg/kg	Sn 93.5 mg/kg
Ba 145 mg/kg	Mg 8920 mg/kg	Sr 4520 mg/kg
Be 37.3 mg/kg	Mn 204 mg/kg	Ti 138 mg/kg
Ca 206000 mg/kg	Mo 14.5 mg/kg	Tl 65.3 mg/kg
Cd 71.6 mg/kg	Na 651 mg/kg	V 82.1 mg/kg
Co 50.6 mg/kg	Ni 87.1 mg/kg	Zn 136 mg/kg
Cr 88.5 mg/kg	Pb 77.8 mg/kg	pH 6.82

RTC-CRM045-050 — Soil (Silty clay) - Metals — 50 g

The values were determined by using USEPA SW846 Method 7060A for arsenic, by using USEPA SW846 Method 7471B for Mercury, and by using Aqua Regia Method for cadmium, chromium, copper, lead, nickel, and zinc.

Certified values

Lot CF045

As 18.4 mg/kg	Cr 85.3 mg/kg	Pb 42.8 mg/kg
Cd 1.61 mg/kg	Hg 0.795 mg/kg	Zn 330 mg/kg
Co 13.5 mg/kg	Mn 292 mg/kg	
Cu 122 mg/kg	Ni 199 mg/kg	

RTC-CRM046-050 — Soil (Clay) - Metals — 50 g

The values were determined by using USEPA SW846 Method 7060A for arsenic, by using USEPA SW846 Method 7471B for Mercury, and by using Aqua Regia Method for cadmium, chromium, copper, lead, nickel, and zinc.

Certified values

Lot CF046

As 7.47 mg/kg	Cu 62.2 mg/kg	Ni 37.5 mg/kg
Cd 7.01 mg/kg	Pb 45.3 mg/kg	Zn 114 mg/kg
Cr 45,7 mg/kg	Mn 118 mg/kg	
Co 8.22 mg/kg	Hg 0.153 mg/kg	

Code	Product	Unit
RTC-CRM049-050	Soil (Sandy clay) - Metals	50 g

The values were determined by USEPA SW846 (3rd edition) Methods 3050B/3051, 6010B, 6020, and 7000 series. The sample is suitable for these and other similar methods.

Certified values

Lot 10248

Ag ..... 125 mg/kg	Cu ..... 88.5 mg/kg	Sb ..... 123 mg/kg
Al ..... 560 mg/kg	Fe ..... 9170 mg/kg	Se ..... 72.1 mg/kg
As ..... 65.3 mg/kg	Hg ..... 13.5 mg/kg	Si ..... 168 mg/kg
B ..... 59 mg/kg	K ..... 3020 mg/kg	Sn ..... 236 mg/kg
Ba ..... 12.7 mg/kg	Mg ..... 899 mg/kg	Sr ..... 8.62 mg/kg
Be ..... 60.5 mg/kg	Mn ..... 636 mg/kg	Ti ..... 47.1 mg/kg
Ca ..... 4790 mg/kg	Mo ..... 98.6 mg/kg	Tl ..... 125 mg/kg
Cd ..... 80 mg/kg	Na ..... 665 mg/kg	V ..... 57.8 mg/kg
Co ..... 84 mg/kg	Ni ..... 344 mg/kg	Zn ..... 542 mg/kg
Cr ..... 355 mg/kg	Pb ..... 111 mg/kg	pH 2,23

Code	Product	Unit
RTC-CRM051-050	Soil (Clay) - Metals	50 g

The values were determined by USEPA SW846 (3rd edition) Methods 3050B/3051, 6010B, 6020, and 7000 series. The sample is suitable for these and other similar methods.

Certified values

Lot 16485

Al ..... 12600 mg/kg	Fe ..... 6490 mg/kg	Si ..... 453 mg/kg
Ag ..... 29.1 mg/kg	Hg ..... 4.08 mg/kg	Sn ..... 218 mg/kg
As ..... 79.4 mg/kg	K ..... 7790 mg/kg	Sr ..... 283 mg/kg
B ..... 157 mg/kg	Mg ..... 1440 mg/kg	Ti ..... 177 mg/kg
Ba ..... 391 mg/kg	Mn ..... 408 mg/kg	Tl ..... 192 mg/kg
Be ..... 304 mg/kg	Mo ..... 156 mg/kg	V ..... 213 mg/kg
Ca ..... 8320 mg/kg	Na ..... 857 mg/kg	Zn ..... 256 mg/kg
Cd ..... 48.3 mg/kg	Ni ..... 76 mg/kg	pH 4.34
Co ..... 59.2 mg/kg	Pb ..... 181 mg/kg	Phosphorus, P ..... 414 mg/kg
Cr ..... 171 mg/kg	Sb ..... 105 mg/kg	Sulfur, S ..... 471 mg/kg
Cu ..... 327 mg/kg	Se ..... 76.9 mg/kg	

Code	Product	Unit
RTC-CRM052-050	Soil (Loamy clay) - Metals	50 g

The values were determined by Dutch standard methods (NEN 56..; 57..; 64..; and 66..; series) after total digestion using predominantly nitric/hydrochloric acid mixture (Aqua Regia) in pressurised microwave digester units. The sample is suitable for use by these, or other similar digestion and analytical procedures.

Certified values

Lot 015055

Ag ..... 23.0 mg/kg	Mn ..... 217 mg/kg
Al ..... 9660 mg/kg	Mo ..... 34.3 mg/kg
As ..... 33.4 mg/kg	Ni ..... 50.8 mg/kg
Ba ..... 239 mg/kg	Pb ..... 82.9 mg/kg
Be ..... 46.0 mg/kg	Sb ..... 37.9 mg/kg
B ..... 90.5 mg/kg	Se ..... 25.3 mg/kg
Cd ..... 43.0 mg/kg	Si ..... 667 mg/kg
Ca ..... 2860 mg/kg	Na ..... 319 mg/kg
Co ..... 44.1 mg/kg	Sr ..... 148 mg/kg
Cr ..... 57.8 mg/kg	Sn ..... 77.5 mg/kg
Cu ..... 56.5 mg/kg	Tl ..... 113 mg/kg
Fe ..... 14700 mg/kg	Ti ..... 43.2 mg/kg
Hg ..... 2.40 mg/kg	V ..... 107 mg/kg
K ..... 2390 mg/kg	Zn ..... 94.3 mg/kg
Li ..... 101 mg/kg	pH 7.02
Mg ..... 1690 mg/kg	

	Code	Product	Unit
New	RTC-CRM059-050	Soil (Loamy clay) - Metals	50 g

Certified values

Lot 010755

Antimony, Sb ..... 86.0 mg/kg	Molybdenum, Mo ..... 9.30 mg/kg
Arsenic, As ..... 153 mg/kg	Nickel, Ni ..... 75.5 mg/kg
Barium, Ba ..... 138 mg/kg	Potassium, K ..... 3720 mg/kg
Beryllium, Be ..... 39.1 mg/kg	Selenium, Se ..... 106 mg/kg
Boron, B ..... 155 mg/kg	Silver, Ag ..... 98.5 mg/kg
Cadmium, Cd ..... 65.0 mg/kg	Sodium, Na ..... 5710 mg/kg
Calcium, Ca ..... 11700 mg/kg	Strontium, Sr ..... 43.8 mg/kg
Chromium, Cr (total) ..... 136 mg/kg	Thallium, Tl ..... 81.1 mg/kg
Cobalt, Co ..... 44.3 mg/kg	Tin, Sn ..... 81.9 mg/kg
Copper, Cu ..... 99.4 mg/kg	Titanium, Ti ..... 14.3 mg/kg
Iron, Fe ..... 21100 mg/kg	Vanadium, V ..... 95.1 mg/kg
Lead, Pb ..... 107 mg/kg	Zinc, Zn ..... 428 mg/kg
Magnesium, Mg ..... 1580 mg/kg	pH 6.83
Manganese, Mn ..... 220 mg/kg	Aluminum, Al ..... 7790 mg/kg
Mercury, Hg ..... 9.72 mg/kg	Silicon, Si ..... 508 mg/kg

	Code	Product	Unit
New	RTC-CRM2003-050	Taiwan clay - Trace metals	50 g

The certified values were determined by using USEPA SW846 Method 7060A for Arsenic, by using USEPA SW846 Method 7471B for Mercury, and by using Aqua Regia Method for Cadmium, Chromium, Copper, Lead, Nickel, and Zinc.

Certified values

Lot A-21

Arsenic, As	20.7 mg/kg	Lead, Pb	44.1 mg/kg
Cadmium, Cd	1.66 mg/kg	Manganese, Mn	292 mg/kg
Chromium, Cr (total)	86.8 mg/kg	Mercury, Hg	0.865 mg/kg
Cobalt, Co	13.5 mg/kg	Nickel, Ni	206 mg/kg
Copper, Cu	126 mg/kg	Zinc, Zn	342 mg/kg

New	RTC-CRM2004-050	Taiwan clay - Trace metals	50 g

The certified values were determined by using USEPA SW846 Method 7060A for Arsenic, by using USEPA SW846 Method 7471B for Mercury, and by using Aqua Regia Method for Cadmium, Chromium, Copper, Lead, Nickel, and Zinc.

Certified values

Lot B-22

Arsenic, As	7.81 mg/kg	Lead, Pb	44.9 mg/kg
Cadmium, Cd	7.89 mg/kg	Manganese, Mn	118 mg/kg
Chromium, Cr (total)	47.1 mg/kg	Mercury, Hg	0.140 mg/kg
Cobalt, Co	8.22 mg/kg	Nickel, Ni	38.5 mg/kg
Copper, Cu	65.1 mg/kg	Zinc, Zn	118 mg/kg

	RTC-CRM202-225	Soil (Sandy loam) - TCLP metals	225 g

Collected from sites located in the Western United States and analysed for eight Toxicity Characteristic Leaching Procedure (TCLP) Metals. The samples were certified using method USEPA SW 846, 3rd edition, 1311, 6011 and 7000 series.

Certified values in the Method 1311 extract

Lot 000109

Ag	4.33 mg/L	Cd	21.4 mg/L	Pb	38.2 mg/L
As	1.70 mg/L	Cr	3.64 mg/L	Se	1.96 mg/L
Ba	4.51 mg/L	Hg	2.13 mg/L	Zn	0.449 mg/L

	RTC-CRM204-225	Soil (Sandy loam) - TCLP Metals	225 g

Collected from sites located in the Western United States and analysed for eight Toxicity Characteristic Leaching Procedure (TCLP) Metals. The samples were certified using method USEPA SW 846, 3rd edition, 1311, 6011 and 7000 series.

Certified values

Lot 000107

As	0.5 mg/L	Cr	3.31 mg/L
Cd	14.8 mg/L	Pb	4.51 mg/L

Indicative values for Ag, Ba, Hg, Se

	RTC-CRM206-225	Soil (Sandy loam) - TCLP Metals	225 g

Collected from sites located in the Western United States and analysed for eight Toxicity Characteristic Leaching Procedure (TCLP) Metals. The samples were certified using method USEPA SW 846, 3rd edition, 1311, 6011 and 7000 series.

Certified values

Lot 000117

Ag	0.605 mg/L	Cd	8.20 mg/L	Pb	1.78 mg/L
As	11.7 mg/L	Cr	0.0747 mg/L	Se	20.3 mg/L
Ba	0.247 mg/L	Hg	1.17 mg/L		

	RTC-CRM207-225	Soil (Loamy sand) - TCLP metals	225 g

Collected from sites located in the Western United States and analysed for eight Toxicity Characteristic Leaching Procedure (TCLP) Metals. The samples were certified using method USEPA SW 846, 3rd edition, 1311, 6011 and 7000 series.

Certified values

Lot 000165

Ag	0.965 mg/L	Cd	7.30 mg/L	Pb	2.54 mg/L
As	8.61 mg/L	Cr	0.762 mg/L	Se	21.1 mg/L
Ba	0.426 mg/L	Hg	0.0304 mg/L		

	RTC-CRM208-225	Soil (Sandy loam) - TCLP metals	225 g

Collected from sites located in the Western United States and analysed for six Toxicity Characteristic Leaching Procedure (TCLP) Metals. The samples were certified using method USEPA SW 846, 3rd edition, 1311, 6011 and 7000 series.

Certified values

Lot 000162

As	5.16 mg/L	Cd	46.0 mg/L	Hg	1.33 mg/L
Ba	34.6 mg/L	Cr	0.727 mg/L	Pb	1.76 mg/L

Code	Product	Unit
RTC-CRM209-225	Soil (Sandy loam) - TCLP metals Collected from sites located in the Western United States and analysed for six Toxicity Characteristic Leaching Procedure (TCLP) Metals. The samples were certified using method USEPA SW 846, 3rd edition, 1311, 6011 and 7000 series. Certified values Lot 000153 As 12.3 mg/L; Cd 4.75 mg/L; Pb 31.3 mg/L Ba 0.265 mg/L; Cr 0.243 mg/L	225 g
RTC-CRM210-225	Soil (Sandy loam) - TCLP metals Collected from sites located in the Western United States and analysed for eight Toxicity Characteristic Leaching Procedure (TCLP) Metals. The samples were certified using method USEPA SW 846, 3rd edition, 1311, 6011 and 7000 series. Certified values Lot 000442 Ag 0.12 mg/L; Cd 6.50 mg/L; Pb 133 mg/L As 1.98 mg/L; Cr 0.46 mg/L; Se 1.38 mg/L Ba 0.50 mg/L; Hg 0.45 mg/L	225 g
RTC-CRM211-225	Soil (Sandy loam) - TCLP metals Collected from sites located in the Western United States and analysed for eight Toxicity Characteristic Leaching Procedure (TCLP) Metals. The samples were certified using method USEPA SW 846, 3rd edition, 1311, 6011 and 7000 series. Certified values Lot 000534 As 4.49 mg/L; Cr 0.533 mg/L; Zn 1.43 mg/L Ba 0.320 mg/L; Pb 0.867 mg/L Cd 3.18 mg/L; Se 1.68 mg/L	225 g
RTC-CRM212-225	Soil (Loamy sand) - TCLP metals Collected from sites located in the Western United States and analysed for eight Toxicity Characteristic Leaching Procedure (TCLP) Metals. The samples were certified using method USEPA SW 846, 3rd edition, 1311, 6011 and 7000 series. Certified values Lot 000609 As 0.295 mg/L; Cd 0.377 mg/L; Se 0.310 mg/L Ba 0.716 mg/L; Cr 0.0187 mg/L Indicative values for Cu, Ag, Hg, Zn	225 g
RTC-CRM213-225	Soil (Loamy sand) - TCLP metals Collected from sites located in the Western United States and analysed for eight Toxicity Characteristic Leaching Procedure (TCLP) Metals. The samples were certified using method USEPA SW 846, 3rd edition, 1311, 6011 and 7000 series. Certified values Lot 000718 As 3.12 mg/L; Cd 13.1 mg/L; Hg 1.36 mg/L Ag 0.0335 mg/L; Cr 0.280 mg/L; Se 7.56 mg/L Ba 2.12 mg/L; Pb 4.83 mg/L	225 g
RTC-CRM215-225	Soil (Sandy loam) - TCLP metals Collected from sites located in the Western United States and analysed for eight Toxicity Characteristic Leaching Procedure (TCLP) Metals. The samples were certified using method USEPA SW 846, 3rd edition, 1311, 6011 and 7000 series. Certified values Lot 000962 Extraction fluid 1 / Extraction fluid 2 As 3.3 mg/L / 5.76 mg/L Ba 16.5mg/L / 17.4 mg/L Cd 31.4 mg/L / 54.1 mg/L Cr 0.912 mg/L / 2.09 mg/L Pb 0.565 mg/L / 1.93 mg/L Hg 1.48 mg/L / 1.78 mg/L Se 1.31 mg/L / 1.87 mg/L Ag ND / ND ND: not detected	225 g
RTC-CRM217-225	Soil (Sandy loam) - TCLP metals Collected from sites located in the Western United States and analysed for eight Toxicity Characteristic Leaching Procedure (TCLP) Metals. The samples were certified using method USEPA SW 846, 3rd edition, 1311, 6011 and 7000 series. Certified values Lot BC217 As 1.84 mg/L; Cr 0.467 mg/L; Se 8.63 mg/L Ba 3.43 mg/L; Pb 1.75 mg/L; Ag 0.037 mg/L Cd 8.85 mg/L; Hg 0.198 mg/L	225 g

	Code	Product	Unit
New	RTC-CRM218-225	**Soil (Loam) - TCLP Metals** Collected from sites located in the Western United States and analysed for eight Toxicity Characteristic Leaching Procedure (TCLP) Metals. The samples were certified using method USEPA SW 846, 3rd edition, 1311, 6011 and 7000 series. All values are expressed in mg/L in the Method 1311 extract. Certified values Lot 017197 As ..... 5.04 mg/L; Ag ..... 0.0377 mg/L; Ba ..... 49.4 mg/L; Cd ..... 48.6 mg/L; Cr ..... 0.243 mg/L; Cu ..... 0.0572 mg/L; Hg ..... 1.03 mg/L; Pb ..... 6.73 mg/L; Ni ..... 0.0213 mg/L; Sb ..... 0.0154 mg/L; Se ..... 40.6 mg/L; V ..... 0.794 mg/L; Zn ..... 41.3 mg/L	225 g
	BCR-143R	**Sewage sludge amended soil - Major and trace elements** Certified values Cd ..... 71.8 mg/kg; Co ..... 12.3 mg/kg; Cu ..... 130.6 mg/kg; Hg ..... 1.10 mg/kg; Mn ..... 904 mg/kg; Ni ..... 299 mg/kg; Pb ..... 179.7 mg/kg; Zn ..... 1055 mg/kg Aqua regia soluble content Cd ..... 72.0 mg/kg; Cr ..... 426 mg/kg; Mn ..... 858 mg/kg; Ni ..... 296 mg/kg; Pb ..... 174 mg/kg; Zn ..... 1063 mg/kg	40 g
	BCR-483	**Sewage sludge amended soil - Extractable trace elements** EDTA-extractable Certified values Cd ..... 24.3 mg/kg; Cr ..... 28.6 mg/kg; Cu ..... 215 mg/kg; Ni ..... 28.7 mg/kg; Pb ..... 229 mg/kg; Zn ..... 612 mg/kg Acetic acid-extractable Certified values Cd ..... 18.3 mg/kg; Cr ..... 18.7 mg/kg; Cu ..... 33.5 mg/kg; Ni ..... 25.8 mg/kg; Pb ..... 2.10 mg/kg; Zn ..... 620 mg/kg Indicative values for the calcium chloride extractable content, the sodium nitrate extractable content and the ammonium nitrate extractable content.	70 g
	BCR-484	**Sewage sludge amended (terra rossa) soil - Extractable trace elements** EDTA-extractable Certified values Cd ..... 0.51 mg/kg; Cu ..... 88 mg/kg; Ni ..... 1.39 mg/kg; Pb ..... 59.7 mg/kg; Zn ..... 383 mg/kg Acetic acid-extractable Certified values Cd ..... 0.48 mg/kg; Cu ..... 33.9 mg/kg; Ni ..... 1.69 mg/kg; Pb ..... 1.17 mg/kg; Zn ..... 193 mg/kg Indicative values for the calcium chloride extractable content, the sodium nitrate extractable content and the ammonium nitrate extractable content.	70 g
	RTC-CRM005-050	**Sewage sludge amended (terra rossa) soil - Trace elements** Soil from a sewage sludge agricultural land farming application located in the Western United States. The certified values were determined by USEPA SW846 (3rd edition) Methods 3050A and 6010A, except for arsenic (7060A), mercury (7471A), selenium (7740), and thallium (7841). The sample is suitable for other 3000-series metals digestion procedures and 7000-series spectroscopic methods. pH 7.59 Certified values Lot J050 Ag ..... 36.3 mg/kg; Al ..... 15300 mg/kg; As ..... 6.91 mg/kg; Ba ..... 853 mg/kg; Be ..... 1 mg/kg; Ca ..... 119000 mg/kg; Cd ..... 13.7 mg/kg; Co ..... 6.18 mg/kg; Cr ..... 41.4 mg/kg; Cu ..... 465 mg/kg; Fe ..... 12700 mg/kg; Hg ..... 3.32 mg/kg; K ..... 6230 mg/kg; Mg ..... 6706 mg/kg; Mn ..... 172 mg/kg; Mo ..... 14 mg/kg; Na ..... 2490 mg/kg; Ni ..... 26 mg/kg; Pb ..... 89.2 mg/kg; Se ..... 19.9 mg/kg; V ..... 109 mg/kg; Zn ..... 625 mg/kg Indicative values for P, Tl	50 g
New	RTC-PB-2000	**Clay loam - Lead** RTC-Pb-2000 was certified using methods USEPA SW846, 3rd edition, 3050 (hot block), 3051 (microwave), 6010 (ICP-EOS), 6020 (ICP-MS) and 7000 (AES) series. Certified value Lot 091103/ Lot 01932 Lead, Pb ..... 2000 mg/kg	50 g
New	RTC-PB-3000	**Soil - Lead** RTC-Pb-3000 was certified using methods USEPA SW846, 3rd edition, 3050 (hot block), 3051 (microwave), 6010 (ICP-EOS), 6020 (ICP-MS) and 7000 (AES) series. Certified value Lot 015429 Lead, Pb ..... 3000 mg/kg	50 g

	Code	Product	Unit
New	RTC-CRM499-100	Loamy sand - pH The soil is to be extracted and analyzed using an appropriate extraction and analytical method to determine pH corrosivity such as USEPA Method SW-846 9040B or 9045C. Lot 015063 pH ..... 9.18 ± 0.0577	100 g
New	RTC-CRM498-100	Clay soil - pH, conductivity The soil is to be extracted and analyzed using an appropriate extraction and analytical method to determine pH corrosivity such as USEPA Method SW-846 9040B or 9045C. Lot 015914 Specific conductance Conductivity (25ºC) ..... 2100 ± 389 µmhos/cm pH ..... 9.20 ± 0.0754	100 g
New	METRANAL-31	Light sandy soil - Trace elements METRANAL™ The material is primarily designed for internal and external quality control purposes in the determination of total element contents and contents of element fraction extractable by the below described conventional procedures in soils and materials of similar matrix (quality control charts, inter-laboratory comparisons, estimation of bias etc.) but not for ensuring traceability of measurements and calibration purposes. Indicative values Total Be ..... 3.32 µg/g; Cd ..... 0.32 µg/g; Co ..... 9.66 µg/g; Cr ..... 89.6 µg/g; Cu ..... 30.8 µg/g; Hg ..... 0.087 µg/g; Mn ..... 540 µg/g; Ni ..... 31.9 µg/g; Pb ..... 43.8 µg/g; V ..... 58.7 µg/g; Zn ..... 120 µg/g Aqua regia extractable content according to ISO 11466(1995) As ..... 10.4 µg/g; Ba ..... 108 µg/g; Be ..... 1.02 µg/g; Cd ..... 0.29 µg/g; Co ..... 9.15 µg/g; Cr ..... 71.9 µg/g; Cu ..... 28.9 µg/g; Mn ..... 479 µg/g; Ni ..... 31.8 µg/g; Pb ..... 24.1 µg/g; V ..... 52.0 µg/g; Zn ..... 108 µg/g Boiling 2 mol/L nitric acid As ..... 5.92 mg/kg; Be ..... 0.71 µg/g; Co ..... 8.44 µg/g; Cr ..... 48.5 µg/g; Cu ..... 24.1 µg/g; Mn ..... 438 µg/g; Ni ..... 18.7 µg/g; Pb ..... 23.7 µg/g; V ..... 42.7 µg/g; Zn ..... 97.1 µg/g Cold 2 mol/L nitric acid As ..... 2.32 µg/g; Be ..... 0.52 µg/g; Cd ..... 0.18 µg/g; Co ..... 5.19 µg/g; Cr ..... 23.6 µg/g; Cu ..... 18.1 µg/g; Mn ..... 357 µg/g; Ni ..... 10.0 µg/g; Pb ..... 20.7 µg/g; V ..... 21.0 µg/g; Zn ..... 58.0 µg/g	80 g
New	METRANAL-32	Light sandy soil - Trace elements METRANAL™ The material is primarily designed for internal and external quality control purposes in the determination of total element contents and contents of element fraction extractable by the below described conventional procedures in soils and materials of similar matrix (quality control charts, inter-laboratory comparisons, estimation of bias etc.) but not for ensuring traceability of measurements and calibration purpose. Indicative values Total As ..... 32.4 µg/g; Be ..... 8.77 µg/g; Cd ..... 0.31 µg/g; Co ..... 12.6 µg/g; Cr ..... 179 µg/g; Cu ..... 29.3 µg/g; Hg ..... 0.090 µg/g; Mn ..... 540 µg/g; Ni ..... 42.0 µg/g; Pb ..... 58.9 µg/g; V ..... 54.9 µg/g; Zn ..... 69.0 µg/g Aqua regia extractable content according to ISO 11466(1995) As ..... 26.1 µg/g; Be ..... 2.83 µg/g; Cd ..... 0.28 µg/g; Co ..... 11.1 µg/g; Cr ..... 147 µg/g; Cu ..... 27.3 µg/g; Mn ..... 531 µg/g; Ni ..... 40.1 µg/g; Pb ..... 35.5 µg/g; V ..... 44.6 µg/g; Zn ..... 64.0 µg/g Boiling 2 mol/L nitric acid As ..... 15.1 mg/kg; Be ..... 1.94 µg/g; Cd ..... 0.26 µg/g; Co ..... 10.2 µg/g; Cr ..... 121 µg/g; Cu ..... 23.8 µg/g; Hg ..... 0.046 µg/g; Mn ..... 481 µg/g; Ni ..... 33.7 µg/g; Pb ..... 34.1 µg/g; V ..... 37.7 µg/g; Zn ..... 58.1 µg/g Cold 2 mol/L nitric acid As ..... 6.12 µg/g; Be ..... 1.40 µg/g; Cd ..... 0.21 µg/g; Co ..... 6.64 µg/g; Cr ..... 62.9 µg/g; Cu ..... 19.8 µg/g; Mn ..... 425 µg/g; Ni ..... 16.0 µg/g; Pb ..... 30.6 µg/g; V ..... 21.3 µg/g; Zn ..... 34.2 µg/g	80 g

	Code	Product	Unit
New	METRANAL-33	Silty clay loam - Trace elements METRANAL™	80 g

The material is primarily designed for internal and external quality control purposes in the determination of total element contents and contents of element fraction extractable by the below described conventional procedures in soils and materials of similar matrix (quality control charts, inter-laboratory comparisons, estimation of bias etc.) but not for ensuring traceability of measurements and calibration purposes.

Indicative values

Total

Be ..... 2.18 µg/g	Cu ..... 29.1 µg/g	Pb ..... 33.5 µg/g
Cd ..... 0.32 µg/g	Hg ..... 0.096 µg/g	V ..... 76.2 µg/g
Co ..... 11.5 µg/g	Mn ..... 600 µg/g	Zn ..... 81.0 µg/g
Cr ..... 79.8 µg/g	Ni ..... 31.3 µg/g	

Aqua regia extractable content according to ISO 11466(1995)

As ..... 11.6 µg/g	Cr ..... 42.4 µg/g	Pb ..... 25.2 µg/g
Be ..... 1.29 µg/g	Cu ..... 25.4 µg/g	V ..... 52.9 µg/g
Cd ..... 0.32 µg/g	Mn ..... 529 µg/g	Zn ..... 69.4 µg/g
Co ..... 10.3 µg/g	Ni ..... 28.8 µg/g	

Boiling 2 mol/L nitric acid

Be ..... 0.95 µg/g	Cu ..... 20.6 µg/g	Pb ..... 22.7 µg/g
Cd ..... 0.27 µg/g	Hg ..... 0.054 µg/g	V ..... 25.3 µg/g
Co ..... 8.31 µg/g	Mn ..... 476 µg/g	Zn ..... 54.2 µg/g
Cr ..... 23.8 µg/g	Ni ..... 22.2 µg/g	

Cold 2 mol/L nitric acid

As ..... 1.30 µg/g	Cr ..... 9.06 µg/g	Pb ..... 19.3 µg/g
Be ..... 0.69 µg/g	Cu ..... 15.8 µg/g	V ..... 11.4 µg/g
Cd ..... 0.23 µg/g	Mn ..... 435 µg/g	Zn ..... 24.4 µg/g
Co ..... 5.90 µg/g	Ni ..... 11.9 µg/g	

New	METRANAL-34	Loam - Trace elements METRANAL™	80 g

The material is primarily designed for internal and external quality control purposes in the determination of total element contents and contents of element fraction extractable by the below described conventional procedures in soils and materials of similar matrix (quality control charts, inter-laboratory comparisons, estimation of bias etc.) but not for ensuring traceability of measurements and calibration purposes.

Indicative values

Total

As ..... 49.6 µg/g	Cr ..... 82.2 µg/g	Ni ..... 33.3 µg/g
Be ..... 4.17 µg/g	Cu ..... 183 µg/g	Pb ..... 93.4 µg/g
Cd ..... 1.52 µg/g	Hg ..... 0.223 µg/g	V ..... 126 µg/g
Co ..... 20.0 µg/g	Mn ..... 869 µg/g	Zn ..... 227 µg/g

Aqua regia extractable content according to ISO 11466(1995)

As ..... 42.4 µg/g	Cr ..... 46.3 µg/g	Pb ..... 83.1 µg/g
Be ..... 2.69 µg/g	Cu ..... 167 µg/g	V ..... 95.1 µg/g
Cd ..... 1.44 µg/g	Mn ..... 741 µg/g	Zn ..... 198 µg/g
Co ..... 17.5 µg/g	Ni ..... 30.4 µg/g	

Boiling 2 mol/L nitric acid

As ..... 27.1 µg/g	Cr ..... 27.3 µg/g	Pb ..... 82.6 µg/g
Be ..... 2.17 µg/g	Cu ..... 159 µg/g	V ..... 48.9 µg/g
Cd ..... 1.44 µg/g	Mn ..... 572 µg/g	Zn ..... 169 µg/g
Co ..... 12.5 µg/g	Ni ..... 21.4 µg/g	

Cold 2 mol/L nitric acid

As ..... 16.4 µg/g	Cr ..... 14.6 µg/g	Ni ..... 11.9 µg/g
Be ..... 1.84 µg/g	Cu ..... 137 µg/g	Pb ..... 71.7 µg/g
Cd ..... 1.36 µg/g	Hg ..... 0.094 µg/g	V ..... 11.4 µg/g
Co ..... 9.42 µg/g	Mn ..... 527 µg/g	Zn ..... 24.4 µg/g

WEPAL soil reference materials

The Wageningen Evaluating Programmes for Analytical Laboratories (WEPAL) runs international sample exchange programmes for continuous quality control of analytical data as produced by chemical laboratories. There are almost 700 laboratories who take part in one or more of WEPAL's regular ring-tests programmes. The WEPAL soil reference samples are supplied with certificates including consensus values, indicative values and values for information, based on the results of the proficiency programme. The certificates are available on request.

For each soil there are values for several sample preparation methods e.g.:

- Real totals
- Acid extractable (so-called totals)
- Aqua Regia (ISO 11466)
- Extraction with boiling 2 M HNO_3
- Extraction with 0.1 M $NaNO_3$
- Extraction with 0.01 M $CaCl_2$ 1:10
- Extraction with 1 M NH_4NO_3 1:2.5 (w/v) (DIN 19730)
- Extraction with 1 M NH_4-acetate
- Extraction with $BaCl_2$
- Soil characteristics

	Code	Product	Unit
New	WEPAL-ISE-880	Cat clay - Inorganic composition (please ask for detailed information)	100 g
New	WEPAL-ISE-882	Heavy clay - Inorganic composition (please ask for detailed information)	100 g
New	WEPAL-ISE-886	Riverclay - Inorganic composition (please ask for detailed information)	100 g
New	WEPAL-ISE-912	Loess (soil under Forest) - Inorganic composition (please ask for detailed information)	100 g
New	WEPAL-ISE-921	Riverclay - Inorganic composition (please ask for detailed information)	100 g
New	WEPAL-ISE-930	Moist Clay - Inorganic composition (please ask for detailed information)	100 g
New	WEPAL-ISE-934	Loess - Inorganic composition (please ask for detailed information)	100 g
New	WEPAL-ISE-936	Organic clay soil - Inorganic composition (please ask for detailed information)	100 g
New	WEPAL-ISE-938	Andosol - Inorganic composition (please ask for detailed information)	100 g
New	WEPAL-ISE-944	Subsoil loess - Inorganic composition (please ask for detailed information)	100 g
New	WEPAL-ISE-946	Salt-marsh soil - Inorganic composition (please ask for detailed information)	100 g
New	WEPAL-ISE-948	Forest subsoil - Inorganic composition (please ask for detailed information)	100 g
New	WEPAL-ISE-950	Sandy soil - Inorganic composition (please ask for detailed information)	100 g
New	WEPAL-ISE-951	Riverclay - Inorganic composition (please ask for detailed information)	100 g
New	WEPAL-ISE-953	Heavy clay - Inorganic composition (please ask for detailed information)	100 g
New	WEPAL-ISE-955	Sandy soil - Inorganic composition (please ask for detailed information)	100 g
New	WEPAL-ISE-957	Latosol - Inorganic composition (please ask for detailed information)	100 g
New	WEPAL-ISE-959	Sandy soil - Inorganic composition (please ask for detailed information)	100 g
New	WEPAL-ISE-963	Irish coarse - Inorganic composition (please ask for detailed information)	55 g
New	WEPAL-ISE-967	Sandy soil - Inorganic composition (please ask for detailed information)	100 g
New	WEPAL-ISE-968	Sandy soil - Inorganic composition (please ask for detailed information)	100 g
New	WEPAL-ISE-972	Marine clay - Inorganic composition (please ask for detailed information)	100 g
New	WEPAL-ISE-973	Organic sandy soil - Inorganic composition (please ask for detailed information)	100 g
New	WEPAL-ISE-974	Loess (acid brown earth) - Inorganic composition (please ask for detailed information)	100 g
New	WEPAL-ISE-975	Loess (acid brown earth) - Inorganic composition (please ask for detailed information)	100 g
New	WEPAL-ISE-977	Sandy soil - Inorganic composition (please ask for detailed information)	100 g
New	WEPAL-ISE-979	Rendzina soil - Inorganic composition (please ask for detailed information)	100 g
New	WEPAL-ISE-980	Forrest soil - Inorganic composition (please ask for detailed information)	100 g
New	WEPAL-ISE-982	Regolith on granodioritic rock - Inorganic composition (please ask for detailed information)	100 g
New	WEPAL-ISE-983	Marine sediment - Inorganic composition (please ask for detailed information)	100 g
New	WEPAL-ISE-984	Marine sediment - Inorganic composition (please ask for detailed information)	100 g
New	WEPAL-ISE-991	Rock soil - Inorganic composition (please ask for detailed information)	100 g
New	WEPAL-ISE-999	Moist clay - Inorganic composition (please ask for detailed information)	100 g

Sewage sludges

	Code	Product	Unit
New	ERM-CC136	**Sewage sludge - Extractable and total metals**	25 g

An aged sewage sludge collected from a disused sewage works site at Heathrow in London, UK. Dried, sterilised and ground to a powder. The extractable metal content refers to metals soluble in Aqua Regia using methods based on ISO11466 (1995).

Assessed values

Al 15100 mg/kg	Fe 22200 mg/kg	Ni 130 mg/kg
Ba 633 mg/kg	K 2030 mg/kg	Pb 341 mg/kg
Co 23.2 mg/kg	Mg 2820 mg/kg	Zn 890 mg/kg
Cr 399 mg/kg	Mn 544 mg/kg	
Cu 464 mg/kg	Na 397 mg/kg	

LGC6181	**Sewage sludge - Extractable metals**	100 g

The extractable metal content refers to metals soluble in Aqua Regia using methods based on ISO11466 (1995).

Certified values

Ag 55 mg/kg	Cr 78 mg/kg	Ni 45 mg/kg
As 7.8 mg/kg	Fe 40300 mg/kg	Pb 105 mg/kg
Cd 5.8 mg/kg	Hg 4.9 mg/kg	V 20 mg/kg
Cu 354 mg/kg	Mn 454 mg/kg	Zn 1100 mg/kg

LGC6182	**Sewage sludge - PAHs**	30 g

A digested sewage sludge of mixed origin was taken from a city water treatment plant immediately after discharge from a digestion tank.

Assessed Values

Acenaphthene 0.10 mg/kg	Chrysene 0.84 mg/kg
Anthracene 0.17 mg/kg	Fluoranthene 1.81 mg/kg
Benzo(*a*)anthracene 0.66 mg/kg	Fluorene 0.19 mg/kg
Benzo(*b*)fluoranthene 0.95 mg/kg	Indeno(1,2,3*cd*)pyrene 0.58 mg/kg
Benzo(*k*)fluoranthene 0.45 mg/kg	Naphthalene 0.33 mg/kg
Benzo(*ghi*)perylene 0.62 mg/kg	Phenanthrene 1.04 mg/kg
Benzo(*a*)pyrene 0.59 mg/kg	Pyrene 1.53 mg/kg

Indicative values for Acenaphthylene, Dibenzo(a,h)anthracene

LGC6184	**Sewage sludge - PCBs**	30 g

A digested sewage sludge of mixed origin, taken from a city water treatment plant in the Czech Republic, immediately after discharge from a digestion tank.

Certified values

PCB 101 37 µg/kg	PCB 118 17 µg/kg	PCB 153 112 µg/kg

Assessed values

PCB 28 28 µg/kg	PCB 149 63 µg/kg	PCB 187 35 µg/kg
PCB 52 14 µg/kg	PCB 170 37 µg/kg	PCB 194 13 µg/kg
PCB 138 77 µg/kg	PCB 180 78 µg/kg	

Indicative values for PCB 31, PCB 77, PCB 110

BCR-145R	**Sewage sludge (mixed origin) - Trace elements**	40 g

Certified values

Cd 3.50 mg/kg	Hg 2.01 mg/kg	Pb 286 mg/kg
Co 5.61 mg/kg	Mn 156 mg/kg	Zn 2122 mg/kg
Cu 696 mg/kg	Ni 247 mg/kg	

Indicative value for Cr

Aqua Regia soluble content

Certified values

Cr 307 mg/kg	Ni 251 mg/kg	Zn 2137 mg/kg
Cu 707 mg/kg	Pb 282 mg/kg	

Indicative values for Cd, Co, Hg, Mn

BCR-146R	**Sewage sludge (industrial origin) - Trace elements**	40 g

Certified values

Cd 18.8 mg/kg	Cu 838 mg/kg	Ni 69.7 mg/kg
Co 7.39 mg/kg	Hg 8.62 mg/kg	Pb 609 mg/kg
Cr 196 mg/kg	Mn 324 mg/kg	Zn 3061 mg/kg

Aqua regia soluble content

Certified values

Cd 18.5 mg/kg	Cu 831 mg/kg	Ni 65.0 mg/kg
Co 6.5 mg/kg	Hg 8.39 mg/kg	Pb 583 mg/kg
Cr 174 mg/kg	Mn 298 mg/kg	Zn 3043 mg/kg

BCR-597	**Sewage sludge - Chromium**	40 g

Certified value

Cr 203 mg/kg

Sewage sludges

Code	Product	Unit
BCR-677	Sewage sludge - PCDD/PCDFs	40 g

Certified values

2,3,7,8-TCDD	1.51 pg/g	2,3,4,7,8-PeCDF	16.9 pg/g
1,2,3,7,8-PeCDD	4.1 pg/g	1,2,3,4,7,8-HxCDF	14.5 pg/g
1,2,3,6,7,8-HxCDD	235 pg/g	1,2,3,6,7,8-HxCDF	6.1 pg/g
1,2,3,7,8,9-HxCDD	79 pg/g	1,2,3,7,8,9-HCDF	0.84 pg/g
1,2,3,4,6,7,8-HpCDD	3.5 x 10^3 pg/g	2,3,4,6,7,8-HxCDF	5.6 pg/g
OCDD	12.7 x 10^3 pg/g	1,2,3,4,6,7,8-HpCDF	62 pg/g
2,3,7,8-TCDF	45 pg/g	1,2,3,4,7,8,9-HpCDF	6.3 pg/g
1,2,3,7,8-PeCDF	24.8 pg/g	OCDF	177 pg/g

CMI-CRM7006	Sewage sludge - PCDDs and PCDFs		60 g

Certified values

2,3,7,8-TeCDD	4,5 ± 0,3 ng/kg	1,2,3,4,7,8,9-HpCDF	110 ± 17 ng/kg
1,2,3,7,8-PeCDD	2,1 ± 0,3 ng/kg	OCDF	1590 ± 290 ng/kg
1,2,3,4,7,8-HxCDD	2,6 ± 0,5 ng/kg	PCB 77	2380 ± 370 ng/kg
1,2,3,6,7,8-HxCDD	5 ± 0,9 ng/kg	PCB 81	108 ± 16 ng/kg
1,2,3,7,8,9-HxCDD	3,7 ± 0,6 ng/kg	PCB 126	169 ± 32 ng/kg
1,2,3,4,6,7,8-HpCDD	65 ± 10 ng/kg	PCB 169	25 ± 4 ng/kg
OCDD	519 ± 74 ng/kg	PCB 105	3430 ± 495 ng/kg
2,3,7,8-TeCDF	110 ± 17 ng/kg	PCB 114	169 ± 36 ng/kg
1,2,3,7,8-PeCDF	157 ± 21 ng/kg	PCB 118	15800 ± 2300 ng/kg
2,3,4,7,8-PeCDF	87 ± 11 ng/kg	PCB 123	121 ± 30 ng/kg
1,2,3,4,7,8-HxCDF	376 ± 63 ng/kg	PCB 156	9140 ± 1300 ng/kg
1,2,3,6,7,8-HxCDF	102 ± 13 ng/kg	PCB 157	802 ± 130 ng/kg
1,2,3,7,8,9-HxCDF	11 ± 2,2 ng/kg	PCB 167	4130 ± 670 ng/kg
2,3,4,6,7,8-HxCDF	19,8 ± 2,8 ng/kg	PCB 189	1860 ± 260 ng/kg
1,2,3,4,6,7,8-HpCDF	256 ± 41 ng/kg		

Indicative values for metals, other PCBs, PAHs, pesticides, brominated flame retardants

RTC-CNS312-050	Sewage sludge - PAHs, PCBs and pesticides	50 g

The PAH 10 list of polycyclic aromatic hydrocarbons is defined according to VROM, the Dutch Ministry of Housing and Urban Planning. The reference values were determined by Dutch standard methods (NEN 5771, 5718, and 5719).

Reference values

Lot 002554

Acenaphthene	2.99 mg/kg	PCB 118	73.6 µg/kg
Acenaphthylene	2.42 mg/kg	PCB 138	136 µg/kg
Anthracene	1.67 mg/kg	PCB 153	214 µg/kg
Benzo(a)anthracene	1.45 mg/kg	PCB 180	232 µg/kg
Benzo(a)pyrene	0.872 mg/kg	Total PCB	1350 µg/kg
Benzo(b)fluoranthene	0.241 mg/kg	2,4-DDD	625 µg/kg
Benzo(g,h,i)perylene	0.835 mg/kg	2,4-DDE	258 µg/kg
Benzo(k)fluoranthene	0.678 mg/kg	2,4-DDT	223 µg/kg
Chrysene	1.12 mg/kg	4,4-DDD	809 µg/kg
Dibenzo(a,h)anthracene	0.407 mg/kg	4,4-DDE	229 µg/kg
Fluoranthene	4.19 mg/kg	4,4-DDT	23.5 µg/kg
Fluorene	2.01 mg/kg	Aldrin	221 µg/kg
Indeno(1,2,3-cd)pyrene	0.54 mg/kg	alpha-BHC	137 µg/kg
Naphthalene	2.58 mg/kg	beta-BHC	111 µg/kg
Phenanthrene	0.462 mg/kg	gamma-BHC (Lindane)	578 µg/kg
Pyrene	4.17 mg/kg	Dieldrin	569 µg/kg
Total PAH 10 (VROM 10)	13.8 mg/kg	Endosulfan I	296 µg/kg
Total PAH16 (EPA 16)	25.1 mg/kg	Endrin	336 µg/kg
PCB 28	205 µg/kg	Hexachlorobenzene	689 µg/kg
PCB 52	263 µg/kg	Heptachlor	197 µg/kg
PCB 101	257 µg/kg	Heptachlor epoxide (beta)	104 µg/kg

RTC-CNS311-050	Sewage Sludge - Trace Elements	50 g

The Reference Values were determined by Dutch standard methods (NEN 56..; 57..; 64..; and 66..; series) after total digestion using predominantly nitric/hydrochloric acid mixture (Aqua Regia) in pressurised microwave digester units. The sample is suitable for use by these, or other similar digestion and analytical procedures.
Reference values

Lot 002545

Ag	18 mg/kg	Mn	232 mg/kg
Al	13200 mg/kg	Mo	10.4 mg/kg
As	3.3 mg/kg	Ni	19.2 mg/kg
Ba	347 mg/kg	Pb	25.4 mg/kg
Cd	1.74 mg/kg	V	12 mg/kg
Co	2.97 mg/kg	Zn	563 mg/kg
Cr	40.4 mg/kg	Chemical Oxygen Demand (COD)	771 mg/kg
Cu	402 mg/kg	Kjeldahl – Nitrogen (KN)	41.1 g/kg
Fe	22500 mg/kg	Phosphorus, Total (TP)	23.1 g/kg
Hg	1.71 mg/kg		

Code	Product	Unit

RTC-CRM018-050 Sewage sludge (wet) - Metals — 50 g

Raw sewage sludge from a publicly owned treatment works (POTW), representative of a residential area with industrial influence. The certified values were determined by USEPA SW846 (3rd edition) Methods 3050 and 6010, except for arsenic (7060A), mercury (7471A), selenium (7740), and thallium (7841). The sample is suitable for other 3000-series metals digestion procedures and 7000-series spectroscopic methods.

Certified values

Lot AG18a

Ag ..... 72.1 mg/kg	Cr ..... 40.1 mg/kg	Na ..... 1000 mg/kg
Al ..... 22400 mg/kg	Cu ..... 840 mg/kg	Ni ..... 20.4 mg/kg
As ..... 6.63 mg/kg	Fe ..... 9900 mg/kg	Pb ..... 126 mg/kg
Ba ..... 1100 mg/kg	Hg ..... 4.78 mg/kg	Se ..... 8.38 mg/kg
Be ..... 0.30 mg/kg	K ..... 2660 mg/kg	Sr ..... 420 mg/kg
Ca ..... 49100 mg/kg	Mg ..... 4300 mg/kg	V ..... 39.2 mg/kg
Cd ..... 5.57 mg/kg	Mn ..... 200 mg/kg	Zn ..... 1120 mg/kg
Co ..... 3.22 mg/kg	Mo ..... 10.5 mg/kg	

Indicative values for B, P, Si,Sb, Tl, Ammonia as N, TOC, Nitrogen (total Kjeldahl), Total solids

RTC-CRM029-050 Sewage sludge - Metals — 50 g

Digested sewage sludge from a publicly owned treatment works (POTW), representative of a residential area with light industrial influenence. The certified values were determined by USEPA SW846 (3rd edition) Methods 3050B and 6010B, except for Mercury (Method 7471). The sample is suitable for other 3000-series metals digestion procedures and 7000-series spectroscopic methods.

Certified values

Lot 013583

Ag ..... 70.4 mg/kg	K ..... 3370 mg/kg	Tl ..... 44.9 mg/kg
Al ..... 12400 mg/kg	Li ..... 63.7 mg/kg	Ti ..... 34.0 mg/kg
As ..... 27.4 mg/kg	Mg ..... 8280 mg/kg	V ..... 41.5 mg/kg
Ba ..... 1080 mg/kg	Mn ..... 399 mg/kg	Zn ..... 1400 mg/kg
Be ..... 4.51 mg/kg	Mo ..... 19.1 mg/kg	Ammonia as N ..... 5450 mg/kg
B ..... 186 mg/kg	Na ..... 1650 mg/kg	Kjeldahl nitrogen ..... 4.07 Wt%
Ca ..... 48400 mg/kg	Ni ..... 172 mg/kg	Nitrate ..... 11200 mg/kg
Cd ..... 487 mg/kg	Pb ..... 300 mg/kg	pH 7.10
Co ..... 5.70 mg/kg	Sb ..... 5.78 mg/kg	Phosphorus, total ..... 2.21 Wt%
Cr ..... 345 mg/kg	Se ..... 25.4 mg/kg	Residue, total (TS) ..... 91.5 Wt%
Cu ..... 1100 mg/kg	Si ..... 828 mg/kg	Residue, volatile ..... 59.1 Wt%
Fe ..... 20700 mg/kg	Sn ..... 97.1 mg/kg	S ..... 13600 mg/kg
Hg ..... 6.13 mg/kg	Sr ..... 647 mg/kg	Total organic carbon .. 28.3 Wt%

RTC-CRM031-040 Sewage sludge - Metals — 40 g

The values were determined by USEPA SW846 (3rd edition) Methods 3050B/3051, 6010B, 6020, and 7000 series. The pH value was determined by USEPA SW 846 (3rd edition) Methods 9040, and 9045C.The sample is suitable for other 3000-series metals digestion procedures and 7000-series spectroscopic methods.

Certified values

Lot 014679

Ag ..... 100 mg/kg	Na ..... 845 mg/kg
Al ..... 13100 mg/kg	Ni ..... 136 mg/kg
As ..... 217 mg/kg	Pb ..... 121 mg/kg
B ..... 158 mg/kg	Sb ..... 107 mg/kg
Ba ..... 851 mg/kg	Se ..... 119 mg/kg
Be ..... 155 mg/kg	Sn ..... 94.0 mg/kg
Ca ..... 49400 mg/kg	Sr ..... 459 mg/kg
Cd ..... 212 mg/kg	Ti ..... 31.1 mg/kg
Co ..... 73.4 mg/kg	Tl ..... 112 mg/kg
Cr (total) ..... 243 mg/kg	V ..... 133 mg/kg
Cu ..... 639 mg/kg	Zn ..... 908 mg/kg
Fe ..... 22400 mg/kg	Ammonia as N ..... 5380 mg/kg
Hg ..... 11 mg/kg	Kjeldahl nitrogen total (TKN) ..... 3.55 %
K ..... 7460 mg/kg	pH 7.02
Li ..... 103 mg/kg	Phosphorus total ..... 2.21 %
Mg ..... 8920 mg/kg	Residue total (TS) ..... 90.6 %
Mn ..... 1240 mg/kg	Residue-volatile ..... 55.5 %
Mo ..... 71.4 mg/kg	Sulfur ..... 13900 mg/kg

Sewage sludges

Code	Product	Unit
RTC-CRM055-050	Sludge - Metals The values were determined by USEPA SW846 3050(Nitric Acid/Hot Plate), 3051(Nitric Acid/Microwave), 7000 series(AA), 6010(ICP) and Dutch standard methods (NEN 56..; 57..; 64..; and 66..; series) after total digestion using predominantly nitric/hydrochloric acid mixture (Aqua Regia) in pressurised microwave digester units. The sample is suitable for use by these, or other similar digestion and analytical procedures. Certified values Lot 015148 Ag 64.7 mg/kg; Al 14800 mg/kg; As 229 mg/kg; B 110 mg/kg; Ba 765 mg/kg; Be 167 mg/kg; Ca 47200 mg/kg; Cd 60.6 mg/kg; Co 97.0 mg/kg; Cr 289 mg/kg; Cu 482 mg/kg; Fe 20100 mg/kg; Hg 12.5 mg/kg; K 2420 mg/kg; Mn 693 mg/kg; Mg 9210 mg/kg; Mo 133 mg/kg; Na 758 mg/kg; Ni 163 mg/kg; Pb 154 mg/kg; Sb 75.3 mg/kg; Se 162 mg/kg; Sn 148 mg/kg; Sr 445 mg/kg; Tl 82.0 mg/kg; V 245 mg/kg; Zn 1240 mg/kg; pH 7.16; Phosphorus (total) 2.14 Wt%; Residue, total (TS) 86.4 Wt%; Residue-volatile 56.2 Wt%; Sulfur 11500 mg/kg	50 g
NIST-2781	Domestic sludge - Metals Certified values As 7.82 mg/kg; Cd 12.78 mg/kg; Cu 627.4 mg/kg; Hg 3.64 mg/kg; Mo 46.7 mg/kg; N 4.78 %; Ni 80.2 mg/kg; Pb 202.1 mg/kg; Se 16.0 mg/kg; Zn 1273 mg/kg Indicative values for Ag, Al, Ca, Cr, Fe, K, Mg, Na, P, Si, Ti	40 g
NIST-2782	Industrial sludge - Leachable and total metals Obtained from an industrial site in northern New Jersey, USA where pharmaceutical research is carried out. Certified values As 166 mg/kg; Cd 4.17 mg/kg; Cr 109 mg/kg; Cu 2594 mg/kg; Hg 1.10 mg/kg; Mo 10.07 mg/kg; Ni 154.1 mg/kg; Pb 574 mg/kg; Se 0.44 mg/kg; Zn 1254 mg/kg Indicative values for a wide range of additional elements	70 g

WEPAL sewage sludge and compost reference materials

The Wageningen Evaluating Programmes for Analytical Laboratories (WEPAL) runs international sample exchange programmes for continuous quality control of analytical data as produced by chemical laboratories. There are almost 700 laboratories who take part in one or more of WEPAL's regular ring-tests programmes.

The WEPAL sewage sluge and compost reference samples are supplied with certificates including consensus values, indicative values and values for information, based on the results of the proficiency programme. The certificates are available on request.

New	WEPAL-MARSEP-202	Compost - Inorganic composition (please ask for detailed information)	20 g
New	WEPAL-MARSEP-205	Compost - Inorganic composition (please ask for detailed information)	20 g
New	WEPAL-MARSEP-207	Sewage sludge - Inorganic composition (please ask for detailed information)	20 g
New	WEPAL-MARSEP-208	Sewage sludge - Inorganic composition (please ask for detailed information)	20 g
New	WEPAL-MARSEP-217	Sewage sludge - Inorganic composition (please ask for detailed information)	20 g
New	WEPAL-MARSEP-223	Compost - Inorganic composition (please ask for detailed information)	20 g
New	WEPAL-MARSEP-241	Champost - Inorganic composition (please ask for detailed information)	20 g
New	WEPAL-MARSEP-247	Sewage sludge - Inorganic composition (please ask for detailed information)	20 g
New	WEPAL-MARSEP-249	Sewage sludge - Inorganic composition (please ask for detailed information)	20 g