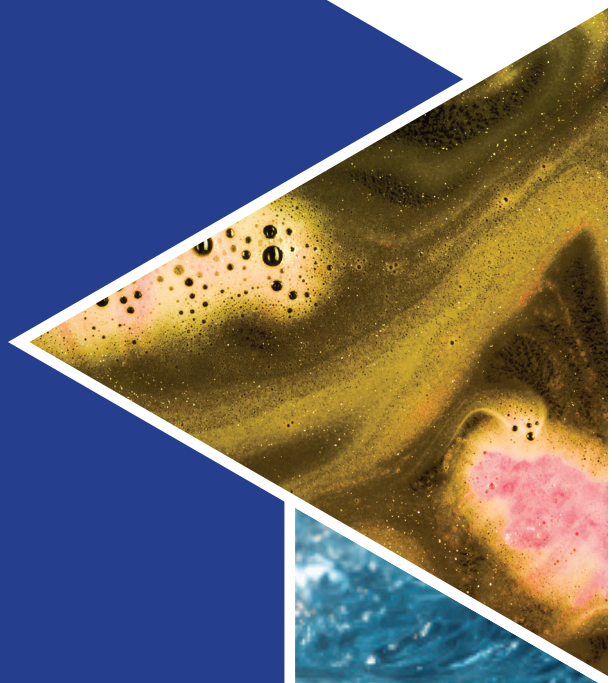
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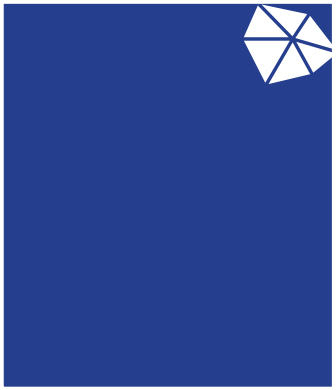
Matrix Reference Materials

Real-world matrices for confident environmental, industrial and regulatory testing









About Us

AnalytiChem manufactures an extensive portfolio of specialized reference materials, culture media, laboratory consumables, and sample preparation equipment and operates with a focus on providing the right solutions to ensure our customers obtain the best results with the highest competitive quality.

Formed in 2021 through the combination of industry leaders, we utilize the expertise of our group companies to provide an integrated value proposition for our customers who operate in the material science, environmental, petroleum, animal health and chemical industries.

Leveraging our global operational hubs in North America, Europe, and Australia and our ISO 17034, ISO/IEC 17025, and ISO 9001 certifications, we **Enable The Science** that our customers do to improve operational efficiency, safeguard the environment, and support the global infrastructure.

Products are intended for laboratory use only. Specifications, concentrations, and availability may change without notice. Refer to the SDS and CoA for safety, handling, and certification details. ISO accreditations apply only where stated. Hazardous materials are shipped according to applicable transportation regulations. Product descriptions provided in this catalog are intended solely for commercial and informational purposes. Actual product specifications, concentrations, and labeling details may vary. In all cases, the information displayed on the product label and certificate of analysis (CoA) shall be considered the authoritative and most current version.

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Table of Contents

About Us 2

Introduction 4

Portfolio at a glance 5

Regulatory and method landscape 6

Workflows deep dives 7

- Water metals: drinking water, groundwater and wastewater 7
- Enviro**MAT** Drinking Water 8
- Solids, nutrients, minerals and COD in water and wastewater 9
- Nutrients control 9
- Solids control 10
- Minerals control 11
- Soils, sediments, sludge and compost 12
- Agro**MAT** Compost (CP-1) 14
- Paint, coated articles and used oil 16
- Lead in Paint CRM 16
- Cadmium and Lead in Paint CRM 17
- Enviro**MAT** Used Oil HU-1 17

Introduction

Confidence in every result	Built for routine QC	Designed to feel like samples
Matrix-matched quality control materials for water, soil, sludge, oil, paint, nutrients, solids, minerals and COD workflows.	**Use for method validation, ongoing performance checks, analyst training, troubleshooting and audit-ready laboratory control.**	**Materials span potable water, groundwater, wastewater, contaminated soil, sewage sludge, compost, used oil and paint matrices.**

▶ **Move beyond calibration — prove control where real samples challenge your method**

AnalytiChem Matrix Reference Materials help laboratories demonstrate control where routine samples are most challenging: digestion, filtration, high organic content, dissolved and suspended solids, major ions, trace metals, nutrients, COD and coated-material testing. Selected materials are prepared and value-assigned through inter-laboratory studies, where multiple competent laboratories measure the same material to build a robust consensus value and confidence interval. For customers, this adds more than a number on a certificate: it provides independent, real-world measurement evidence, stronger confidence in QC decisions, better troubleshooting power and a more compelling story for audits, method validation and customer assurance.

Method confidence	Audit readiness	Troubleshooting power
Validate digestion, filtration, dilution, extraction, preservation and instrument response using matrices that resemble real samples.	**Support ISO 17034 quality systems with documented control materials and objective acceptance checks.**	**Separate instrument drift from sample preparation bias, matrix suppression, solids recovery issues or analyst technique.**
Training and competency	**Routine QC schedule**	**Customer assurance**
Use realistic samples to train analysts and confirm repeatable performance before samples are released.	**Build low, mid and high control points across nutrients, solids, minerals and COD work flows.**	**Show that your data is controlled not only by calibration, but by matrix-aware QC strategy.**

Portfolio at a glance

Workflow group	Products / part numbers	Application
peCHECK Nutrients	140-701-101 L1; 140-701-102 L2; 140-701-103 L3	Water/wastewater nutrient QC for ammonia, nitrate, orthophosphate, TKN and total phosphorus.
peCHECK Solids	140-702-101 L1; 140-702-102 L2; 140-702-103 L3	QC for suspended solids, dissolved solids and total solids workflows.
peCHECK Minerals	140-704-101 L1; 140-704-102 L2; 140-704-103 L3	General chemistry QC for conductivity, hardness, alkalinity, TDS, Ca, K, Mg, Na, Cl, F and sulfate.
EnviroMAT Water	Drinking Water Low/High (140-025-031 / 140-025-032); Ground Water Low/High (140-025-034 / 140-025-035); Waste Water Low/High (140-025-037 / 140-025-038)	Matrix-matched QC for water metals and real sample origin.
EnviroMAT / AgroMAT Solids	SS-1 (140-025-001); SS-2 (140-025-002); Sewage Sludge BE-1 (140-025-011); Compost CP-1 (140-025-111); AG-1 / AG-2 (140-025-101 / 140-025-102)	Digestion and recovery control in solid environmental, sludge and compost matrices; agricultural soil materials support extraction approaches that simulate plant uptake.
Paint CRMs	Lead in Paint Level 1/2 (140-025-200 / 140-025-201); Cadmium and Lead in Paint CRM (140-025-205)	CRMs for Pb in paint and Cd + Pb in paint used in environmental, consumer product and industrial hygiene analysis.
COD CRMs	140-715-101 Low Level; 140-715-102 High Level	QC for COD digestion/tube workflows in water and wastewater testing.
Used Oil	140-025-041 EnviroMAT Used Oil	Matrix-relevant QC for wear metal testing in oil condition monitoring.

A practical selection guide for choosing the right control material by sample type, analytical target and regulatory workflow.

Regulatory and method landscape

The table below links each product family to commonly used method areas. The method mapping is a commercial application guide, not a claim that every material is formally approved for every method. Laboratories should always verify the latest local regulatory requirements, scope of accreditation and method validation needs.

Workflow	Relevant method families	Recommended AnalytiChem materials	Material #
Drinking water / potable water metals	EPA 200.7, EPA 200.8, ISO 11885, ISO 17294-2	EnviroMAT Drinking Water Low/High; peCHECK Minerals	140-025-031/-032; 140-704-101 to -103
Groundwater metals	EPA 200.7, EPA 200.8, ISO 11885, ISO 17294-2	EnviroMAT Ground Water Low/High	140-025-034/-035
Wastewater metals and minerals	EPA CWA methods; ISO 11885; ISO 17294-2	EnviroMAT Waste Water Low/High; peCHECK Minerals	140-025-037/-038; 140-704-101 to -103
Soils, sediments and sludges	EPA 3050B/3051A digestion, EPA 6010/6020 analysis	EnviroMAT SS-1/SS-2; Sewage Sludge BE-1	140-025-001/-002; 140-025-011
Suspended, dissolved and total solids	ISO 11923; Standard Methods 2540 family; EPA solids procedures	peCHECK Solids L1-L3	140-702-101 to -103
Nutrients: nitrogen and phosphorus	EPA nutrient procedures; Standard Methods 4500 family	peCHECK Nutrients L1-L3	140-701-101 to -103
Chemical oxygen demand	ISO 15705; EPA 410 series; Standard Methods 5220 family	COD CRM Low/High	140-715-101/-102
Lead and cadmium in paint / coated articles	Environmental, consumer product and industrial hygiene workflows for toxic elements in surface-coated items such as toys, furniture and walls	Lead in Paint Level 1/2; Cadmium and Lead in Paint CRM	140-025-200/-201; 140-025-205
Used oil / wear metals	Wear metal screening by ICP/AA workflows	EnviroMAT Used Oil	140-025-041

Workflows deep dives

Parameter / control focus

Consensus value

CI Consensus interval

Water metals: drinking water, groundwater and wastewater

	Relevant materials	Part numbers	Typical methods / applications
Drinking water metals	EnviroMAT Drinking Water Low/High	140-025-031 / 140-025-032	Potable water metals; EPA 200.7, 200.8, 200.9; ISO 11885; ISO 17294-2
Groundwater metals	EnviroMAT Ground Water Low/High	140-025-034 / 140-025-035	Groundwater monitoring, contamination assessment and matrix recovery checks
Wastewater metals	EnviroMAT Waste Water Low/High	140-025-037 / 140-025-038	Wastewater discharge control, metals recovery and routine QC
Mineral balance support	peCHECK Minerals L1-L3	140-704-101 to -103	Hardness, alkalinity, conductivity, TDS and major-ion context for water workflows

In water metals testing, the challenge is rarely the calibration curve alone. Real drinking water, groundwater and wastewater samples bring different mineral backgrounds, dissolved solids and recovery behaviour, so laboratories need QC materials that reflect the sample types they actually release.

These materials help teams check the complete metals workflow, from preservation and preparation through ICP-OES, ICP-MS, AA or GFAA measurement. They are especially useful for potable water compliance checks, groundwater monitoring, wastewater discharge control, contamination investigations, method validation and routine analyst performance checks.

Consensus values are lot-specific. Values shown in brackets are informational/ reference values where full statistical intervals are not assigned.
Full uncertainty and tolerance interval data are available in the Certificate of Analysis for the relevant lot.

EnviroMAT Drinking Water

	Low	High	Low	High	Low	High
Lot #	**S241003035**	**lot S240201036**	**lot S240226070**	**lot S161128029**	**lot S240821037**	**lot S240314044**
Al	0.102	0.297	0.039	0.235	0.0710	0.434
As	0.0101	0.118	0.0041	0.423	0.0837	0.707
B	0.0753	2.96	0.0243	1.65	0.117	0.663
Ba	0.00805	0.766	0.0289	3.30	0.123	1.049
Be	0.00202	0.0498	0.0255	0.209	0.0124	0.476
Ca	0.415	9.62	0.27	7.72	2.40	39.9
Cd	0.00200	0.0482	0.00403	0.221	0.0226	0.268
Co	0.0108	0.0389	0.0199	0.124	0.0819	0.512
Cr	0.0130	0.248	0.0081	0.434	0.0609	0.406
Cu	0.0159	0.485	0.101	0.815	0.108	0.755
Fe	0.0281	0.500	0.0107	1.27	0.0591	0.594
Hg	–	0.00520	–	–	0.0195	0.0815
K	0.359	6.06	0.109	2.88	2.17	41.2
Li	0.00505	0.383	0.020	0.100	–	–
Mg	0.0414	3.50	0.089	6.59	1.04	23.1
Mn	0.00604	0.1063	0.0393	0.342	0.121	0.455
Mo	0.0228	0.188	0.00480	0.404	0.0402	0.704
Na	0.243	7.68	0.43	18.0	6.01	41.2
Ni	0.0202	0.248	0.0050	0.835	0.0829	0.772
P	0.0201	0.221	0.0076	0.499	1.02	10.4
Pb	0.00406	0.205	0.00205	0.110	0.0422	0.601
Sb	0.0118	0.0505	0.00296	0.0431	0.0205	0.547
Se	0.0614	0.118	0.00415	0.0324	0.0267	0.142
Sr	0.138	0.388	0.0535	0.935	0.146	0.913
Te	0.01177	–	–	–	–	–
Tl	0.00611	0.0794	0.0281	0.0385	0.0860	0.396
U	0.0050	0.0306	0.0193	0.258	0.103	0.254
V	0.0141	0.386	0.0050	0.873	0.0502	0.841
Zn	0.0433	2.49	0.0113	0.848	0.0311	0.896

Solids, nutrients, minerals and COD in water and wastewater

	Relevant materials	Part numbers	Typical methods / applications
Nutrients	peCHECK Nutrients L1-L3	140-701-101 to -103	Ammonia, nitrate, orthophosphate, TKN, total phosphorus; EPA and Standard Methods nutrient families
Solids	peCHECK Solids L1-L3	140-702-101 to -103	TSS, TDS and total solids; ISO 11923 and Standard Methods 2540 family
Minerals	peCHECK Minerals L1-L3	140-704-101 to -103	Conductivity, hardness, alkalinity, TDS, Ca, K, Mg, Na, Cl, F and sulfate
COD	COD CRM Low/High	140-715-101 / 140-715-102	COD digestion/tube QC; ISO 15705, EPA 410 series, Standard Methods 5220 family

Parameter / control focus

Consensus value

CI Consensus interval

For wet-chemistry and general chemistry labs, control does not stop at one result type. The same water or wastewater sample may need solids, nutrient species, mineral balance and COD data before the laboratory has a complete picture of the matrix.

This workflow brings those routine checks together in one practical QC story: filtration and gravimetry for TSS, TDS and total solids; ammonia, nitrate, orthophosphate, TKN and total phosphorus for nutrient control; conductivity, hardness, alkalinity and major ions for mineral balance; and low/high COD checks for digestion and oxygen-demand workflows.

The benefit is a more joined-up view of method performance. Instead of treating each parameter as a separate island, laboratories can build a routine QC programme that follows how real environmental samples behave: particulate load, dissolved residue, nutrient chemistry, ionic strength and organic load all under control.

Nutrients control

Nutrient testing is often where small shifts in digestion, colour development or matrix response become visible. peCHECK Nutrients gives laboratories low, mid and higher control points for nitrogen and phosphorus species, helping them monitor ammonia, nitrate, orthophosphate, total Kjeldahl nitrogen and total phosphorus with confidence.

How to use L1, L2 and L3 in practice: Use L1 when the laboratory needs control close to low-level environmental reporting ranges, such as final effluent, receiving water, potable water screening or early-warning nutrient release checks. Use L2 as the everyday routine control for typical wastewater, process water and batch QC where ammonia, nitrate, orthophosphate, TKN and total phosphorus are present at measurable mid-range levels. Use L3 when samples are stronger, more variable or more difficult to process, such as influent wastewater, high-load process streams, digestion checks, dilution checks or analyst competency challenges. This tiered approach supports the routine QA/QC expectation that laboratories demonstrate capability, use laboratory control samples, monitor matrix effects and apply corrective action when control results drift.

Parameter / control focus

Consensus value

CI Consensus interval

	Nutrients L1		Nutrients L2		Nutrients L3	
		CI		CI		CI
Ammonia (as N)	0.97	0.91-1.03	0.91-1.03	0.91-1.03	0.97	19.6-21.4
Nitrate (as N)	1.40	1.34-1.45	1.34-1.45	1.34-1.45	1.40	17.6-17.9
O-Phosphate (as P)	0.74	0.69-0.80	0.69-0.80	0.69-0.80	0.74	11.2-12.6
Total Kjeldahl Nitrogen	1.04	0.93-1.16	0.93-1.16	0.93-1.16	1.04	27.5-28.8
Total Phosphorus	0.79	0.74-0.84	0.74-0.84	0.74-0.84	0.79	11.2-11.5

Solids control

Solids testing is hands-on and technique-sensitive: filtration, drying, weighing and residue handling all influence the final number. peCHECK Solids gives laboratories realistic low-to-high control points for suspended, dissolved and total solids, including a high-solids challenge where workflow discipline matters most.

How to use L1, L2 and L3 in practice: Use L1 for lower-solids waters where precision in filtration, drying and weighing is critical, such as treated effluent, surface water or final discharge monitoring. Use L2 as a routine solids control for typical wastewater and process samples, where TSS, TDS and total solids need to remain stable from analyst to analyst and batch to batch. Use L3 as the high-solids challenge for influent wastewater, stormwater, industrial discharge or any sample where filter loading, residue handling, drying time and balance discipline can drive variability. This matters because solids are method-defined, technique-sensitive measurements, and Standard Methods 2540 highlights that sample heterogeneity, suspended matter and dissolved residue can strongly influence results.

	Solids L1	Solids L2	Solids L3
Suspended Solids	238	321	1928
Dissolved Solids	33.0	10.6	46.0
Total Solids	254	328	1970

Minerals control

Minerals control adds the background chemistry that often explains why samples behave the way they do. With conductivity, hardness, alkalinity, TDS and major ions in view, peCHECK Minerals helps laboratories understand ionic strength, mineral balance and routine water chemistry alongside metals, nutrients and COD results.

How to use L1, L2 and L3 in practice: Use L1 for low-mineral waters where small changes in conductivity, hardness, alkalinity, TDS and major ions can influence interpretation, such as potable water, deionised-water checks, low-ionic-strength surface water or low-level process water. Use L2 as the routine mineral-balance control for most water and wastewater laboratories, covering everyday checks of conductivity, hardness, alkalinity, TDS, calcium, magnesium, sodium, chloride, fluoride and sulfate. Use L3 for high-mineral or high-conductivity matrices, including industrial wastewater, brines, concentrated process waters, dilution checks and samples where ionic strength may affect instrument response, ion chromatography performance or metals recovery. This supports ISO/IEC 17025-style validity of results by giving laboratories practical control points across the range of matrices they actually test.

	Minerals L1	Minerals L2	Minerals L3
Conductivity	476 µmhos/cm	3333 µmhos/cm	6022 µmhos/cm
Total Hardness ($CaCO_3$)	12.3	226	515
Alkalinity @ pH 4.5 (as $CaCO_3$)	52.4	-	-
Total Dissolved Solids	183	1335	3218
Calcium (Ca)	2.62	63.9	132
Potassium (K)	15.8	168	479
Magnesium (Mg)	1.31	16.4	45.0
Sodium (Na)	31.4	99.6	382
Chloride (Cl)	20.3	105	463
Fluoride (F)	0.597	3.85	12.1
Sulfate (SO_4)	8.37	164	395

Consensus values shown are representative of the specific lot used for value assignment. Full uncertainty, confidence interval and tolerance interval data are provided in the Certificate of Analysis for each lot. Values shown in brackets are informational values and are not associated with full statistical intervals.

Parameter / control focus

Consensus value

CI Consensus interval

Soils, sediments, sludge and compost

	Relevant materials	Part numbers	Typical methods / applications
Soil / sediment metals	EnviroMAT SS-1 / SS-2	140-025-001 / 140-025-002	Digestion recovery and metals analysis; EPA 3050B/3051A with EPA 6010/6020
Sewage sludge	EnviroMAT Sewage Sludge BE-1	140-025-011	High-organic sludge matrix control and metals recovery
Compost	AgroMAT Compost CP-1	140-025-111	Compost and organic solid matrix QC
Agricultural matrix support	AgroMAT AG-1 / AG-2	140-025-101 / 140-025-102	Agricultural soil matrix support for agronomic extraction workflows. Extraction practices vary by country, region, laboratory protocol and soil type, and are selected to estimate plant-available nutrients rather than environmentally recoverable metals.

Solid environmental samples are where sample preparation becomes part of the result. Soil, sediment, sludge and compost can vary widely in particle size, organic content, digestion behaviour and metal recovery, so a simple aqueous check cannot show whether the full preparation route is under control.

These materials are built for laboratories that need to prove more than instrument performance. They help check homogenisation, digestion, extraction and recovery in real solid matrices before results are reported for contaminated land, sediment, sewage sludge, compost or agricultural soil applications. For agricultural soil, extraction practices are selected according to local protocols, soil type and agronomic purpose, helping laboratories evaluate plant-available nutrients rather than environmentally recoverable metals.

Used alongside ICP-OES, ICP-MS, AA or GFAA methods, they provide a practical way to separate true sample behaviour from preparation bias, incomplete recovery or analyst-to-analyst variability.

Environmental solid-sample methods commonly use strong-acid digestion or extraction to evaluate recoverable metals, followed by ICP or AA measurement. Agricultural soil testing has a different objective: extraction approaches are typically selected to estimate plant-available nutrients, and may vary by country, region, laboratory protocol and soil type. AG-1 and AG-2 are therefore positioned for agronomic soil testing workflows, not as materials linked to a single official ISO, ASTM, EPA or APHA agricultural extraction method. SS-1/SS-2 differ by concentration range; BE-1 adds sludge/high organic matrix; CP-1 adds compost; AG-1/AG-2 support agricultural soil workflows where extraction method choice is application- and region-dependent.

	EnviroMAT Soil SS-1	EnviroMAT Soil SS-2	EnviroMAT Sewage Sludge BE-1
Lot #	**SC0063618**	**S240607017**	**S131211025**
Ag	0.88	3.47	2.24
Al	12,163	9,166	34,860
As	20.7	4.21	4.31
B	26.9	14.4	12.6
Ba	464	107	329
Be	0.48	0.375	0.327
Ca	50,265	37,686	35,970
Cd	3.2	0.793	0.878
Ce	(40.1)	(35.8)	–
Co	12.9	8.53	6.21
Cr	103	78.0	58.0
Cu	403	111	300
Fe	72,000	23,958	18,143
Hg	0.41	0.0760	0.680
K	2,232	1,485	3,376
Li	14.3	10.3	7.59
Mg	9,690	5,519	7,202
Mn	737	283	551
Mo	6.8	1.15	4.93
Na	650	867	817
Ni	59.2	35.2	25.1
P	1,552	742	23,911
Pb	764	255	26.7
S	1,916	974	8,201
Sb	5.5	3.46	1.71
Se	0.78	0.230	2.87
Sn	340	11.1	12.4
Sr	114	110	221
Ti	530	834	315
Tl	(0.19)	0.0739	–
U	0.78	0.501	3.48
V	27.2	31.4	27.8
Zn	1,114	287	466

Consensus values shown are representative of the specific lot used for value assignment. Full uncertainty, confidence interval and tolerance interval data are provided in the Certificate of Analysis for each lot. Values shown in brackets are informational values and are not associated with full statistical intervals.

Parameter / control focus

Consensus value

CI Consensus interval

AgroMAT Compost (CP-1)

Lot #	Measurement units	S220425003
pH	pH units	7.71
Organic Matter	%	55.3
NO_3^-N	mg/kg	(1.04)
N-Total	%	1.73
H_2O	%	(3.4)
C/N Ratio	Ratio	18.4
Ca-Total	mg/kg	38,388
K-Total	mg/kg	3,078
Mg-Total	mg/kg	2,941
Na-Total	mg/kg	1,017
P-Total	mg/kg	5,413
S-Total	mg/kg	3,244
Al-Total	mg/kg	6,275

Lot #	Measurement units	S220425003
As-Total	mg/kg	2.68
Cd-Total	mg/kg	0.538
Co-Total	mg/kg	3.35
Cr-Total	mg/kg	18.3
Cu-Total	mg/kg	74.7
Fe-Total	mg/kg	16,334
Hg-Total	mg/kg	0.150
Mn-Total	mg/kg	600
Mo-Total	mg/kg	1.86
Ni-Total	mg/kg	20.5
Pb-Total	mg/kg	24.5
Se-Total	mg/kg	0.90
Zn-Total	mg/kg	201

Lot #	Extraction Method	AgroMAT - Clay Soil (AG-1) S131024028	AgroMAT - Sandy Soil (AG-2) S220425004
Phosphorus	Mehlich III	8.37	69.9
Phosphorus	Olsen	33.1	51.5
Potassium	Ammonium Acetate pH 7	337	513
Potassium	Mehlich III	387	525
Calcium	Ammonium Acetate pH 7	2,030	1,718
Calcium	Mehlich III	2,170	1,666
Magnesium	Ammonium Acetate pH 7	214	169
Magnesium	Mehlich III	285	254
Sodium	Ammonium Acetate pH 7	71.3	50.2
Sodium	Mehlich III	80.2	57.1
Zinc	DTPA	0.67	(1.11)
Zinc	Mehlich III	2.38	4.0

	Extraction Method	AgroMAT - Clay Soil (AG-1)	AgroMAT - Sandy Soil (AG-2)
Lot #		**S131024028**	**S220425004**
Zinc	Amm. Ace. pH 7 + EDTA	–	(2.5)
Manganese	DTPA	41.7	(22.9)
Manganese	Mehlich III	238	155
Manganese	Amm. Ace. pH 7 + EDTA	–	(43.3)
Copper	DTPA	1.26	(1.3)
Copper	Mehlich III	0.61	1.2
Copper	Amm. Ace. pH 7 + EDTA	–	(2.8)
Iron	DTPA	102	(100)
Iron	Mehlich III	584	969
Iron	Amm. Ace. pH 7 + EDTA	–	(221)
Boron	Hot Water	0.50	0.44
Boron	Mehlich III	0.76	0.67
Sulfur	Mehlich III	19.7	25.1
Aluminum	Mehlich III	1,519	1,502
pH	1:1 Soil:Water	7.04	6.94
pH	1:2 Soil:Water	7.16	6.99
pH	1:5 Soil:Water	–	(7.15)
pH	Saturated Paste	6.94	6.78
pH	Buffer SMP	7.19	7.06
Organic Matter	LOI (%)	3.74	3.5
Organic Matter	Walkley Black (%)	2.21	2.6
Nitrogen as Nitrate	KCl	9.75	143
Soluble Salts	1:1 Soil:Water (µS/cm)	(287)	–
Soluble Salts	1:2 Soil:Water (µS/cm)	197	643
Soluble Salts	Saturated Paste (µS/cm)	(597)	(1177)

Consensus values shown are representative of the specific lot used for value assignment. Full uncertainty, confidence interval and tolerance interval data are provided in the Certificate of Analysis for each lot. Values shown in brackets are informational values and are not associated with full statistical intervals.

AG-1 and AG-2 are agricultural soil materials designed to support agronomic soil testing workflows. Agricultural soil extraction practices vary by country, region, laboratory protocol and soil type, and are typically selected to estimate plant-available nutrients rather than environmentally recoverable metals. The extraction approaches listed below reflect commonly used agronomic laboratory practices and are not intended to represent a single official ISO, ASTM, EPA or APHA method.

Parameter / control focus

Consensus value

CI Consensus interval

Paint, coated articles and used oil

	Relevant materials	Part numbers	Typical methods / applications
Lead in paint	Lead in Paint CRM Level 1 / Level 2	140-025-200 / 140-025-201	Environmental, consumer product and industrial hygiene analysis; toxic element testing in surface-coated items such as toys, furniture and walls
Cadmium and lead in paint	Cadmium and Lead in Paint CRM	140-025-205	Environmental, consumer product and industrial hygiene analysis; combined Cd/Pb control for toxic element testing in surface-coated items such as toys, furniture and walls
Wear metals in used oil	EnviroMAT Used Oil	140-025-041	Oil condition monitoring, wear metal analysis and non-aqueous QC

Paint, coated articles and used oil sit outside the comfort zone of aqueous QC. The sample form and matrix can dominate the result, whether the laboratory is testing toxic elements in surface-coated items or monitoring wear metals in oil.

This workflow gives laboratories matrix-relevant controls for non-aqueous testing, supporting method validation, batch QC and troubleshooting where digestion, dilution, extraction or matrix matching can make the difference between a controlled result and a questionable one.

It is especially relevant for environmental, consumer product and industrial hygiene analysis of regulated metals in paint and coated materials, including surface-coated items such as toys, furniture and walls, and for wear metal monitoring in used oils where aqueous standards cannot fully represent the sample.

Lead in Paint CRM

	Level 1	Level 2
Lot #	**S201127037**	**S201022036**
Lead (Pb), mg/kg	177.7	336.9
Uncertainty (+/-)	3.5	9.0
Confidence Interval (mg/kg)	174.3 – 181.2	327.9 – 345.9
Tolerance Interval (mg/kg)	139.6 – 215.9	250.0 – 423.8

Cadmium and Lead in Paint CRM

Lot #	**S201220030**	
Cadmium (Cd)	192.3	186.5 – 198.1
Lead (Pb)	196.6	191.7 – 201.6

EnviroMAT Used Oil HU-1

	Organic Solvent Dilution	**Acid Digestion**
Lot #	**S140916011**	**S140916011**
Ag	17.4	14.8
Al	28.9	33.1
B	26.7	(18)
Ba	18.7	16.7
Ca	62.7	67.5
Cd	19.5	18.4
Cr	18.0	17.4
Cu	4,182	4,346
Fe	94.5	92.8
K	26.7	32.6
Mg	18.6	20.8
Mn	19.9	19.8
Mo	18.0	15.8
Na	35.1	47.8
Ni	64.0	65.8
P	(48)	(43)
Pb	25.1	25.0
Si	21.3	N/A
Sn	510	604
Ti	16.8	15.9
V	17.1	17.8
Zn	58.5	59.1

Consensus values shown are representative of the specific lot used for value assignment. Full uncertainty, confidence interval and tolerance interval data are provided in the Certificate of Analysis for each lot. Values shown in brackets are informational values and are not associated with full statistical intervals.

Interlaboratory confidence: The strength of these matrix reference materials is not only the matrix itself, but the way consensus values are assigned. Across the matrix portfolio, certified values are supported by interlaboratory studies, giving customers a broader, real-world view of laboratory performance than a single-lab value assignment. For paint materials specifically, participating laboratories have used recognised workflows including CPSC-CH-E1003-09, EPA 6010B and EPA 6020, with microwave or hot plate/heating block digestion followed by ICP-OES or ICP-MS measurement. This helps customers link the certified value to practical preparation choices, real measurement variability and the methods used in routine laboratories.

Why not also consider our comprehensive range covering your workflows from start to finish?

Choose the matrix that matches your workflow and use the table below to identify the right control material for your laboratory:

Recommended MRM	Material Number	You may also need these products based on application...
EnviroMAT Drinking Water Low / High	140-025-031 / 140-025-032	Potable water metals — ICP standards, high-purity reagents
EnviroMAT Ground Water Low / High	140-025-034 / 140-025-035	Groundwater metals — ICP standards, high-purity reagents
EnviroMAT Waste Water Low / High	140-025-037 / 140-025-038	Wastewater metals — ICP standards, DigiTUBEs, high-purity reagents
EnviroMAT Soil SS-1 / SS-2	140-025-001 / 140-025-002	Soil and sediment metals — DigiPREP, DigiTUBEs, ICP standards
EnviroMAT Sewage Sludge BE-1	140-025-011	Sewage sludge metals — DigiPREP, DigiTUBEs, ICP standards
AgroMAT Compost CP-1	140-025-111	Compost testing — pH, conductivity, IC and ICP standards
AgroMAT AG-1 / AG-2	140-025-101 / 140-025-102	Agricultural soil nutrients — IC, ICP, pH standards
peCHECK Nutrients L1 / L2 / L3	140-701-101 / 140-701-102 / 140-701-103	Nutrient control — IC and nutrient standards
peCHECK Solids L1 / L2 / L3	140-702-101 / 140-702-102 / 140-702-103	Solids testing — filtration consumables, TDS standards
peCHECK Minerals L1 / L2 / L3	140-704-101 / 140-704-102 / 140-704-103	Water chemistry — IC, ICP, hardness and conductivity standards
COD CRM Low / High	140-715-101 / 140-715-102	COD control — COD vials and standards
Lead in Paint Level 1 / Level 2	140-025-200 / 140-025-201	Lead in paint — Pb standards, DigiPREP, DigiTUBEs
Cadmium and Lead in Paint CRM	140-025-205	Cd/Pb in paint — Cd/Pb standards, DigiPREP, DigiTUBEs
EnviroMAT Used Oil	140-025-041	Used oil wear metals — Conostan oil standards

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