Filtration for soil testing

cytiva

Contents

Introduction

Understanding soil health is necessary for sustainable agriculture and effective environmental management. Comprehensive soil analysis provides detailed insights into factors that influence land use and productivity. These include physical properties such as texture, structure, and compaction; chemical characteristics like pH, salinity, and nutrient content; and biological indicators, including microbial activity and organic matter levels.

Additionally, soil analysis can detect the presence of contaminants such as heavy metals, pesticide residues, and other pollutants, which help to assess the safety and environmental integrity of a site.

This data empowers you to make informed decisions about fertilizer use, crop selection, and land strategies, to boost productivity and reduce environmental impact.

We provide a comprehensive range of filtration products that deliver fast, precise, and consistent results, safeguard analytical equipment, and help you meet regulatory standards. Our solutions cater to a wide variety of soil testing needs, including:

- **Nutrient profiling**
- **Trace element and heavy metal analysis**
- **Organic contaminants**
- **Soil organic matter and total organic carbon**
- **Soil pH testing**
- **Microbial and biological activity assessments**

This brochure shows how our laboratory filtration products help you dig deeper into soil quality, to cultivate a greener, more sustainable future.

Soil quality testing

Why test?

Soil testing provides information about soil composition and condition, so informed decisions can be made for agriculture, construction, environmental management, and land use planning.

Agriculture

Soil testing is vital for managing fertility and optimizing crop production. Regular soil analysis help maintain long-term soil health and sustainability, which directly impacts crop yields and food quality. Without testing, growers risk nutrient deficiencies, reduced productivity, and soil degradation.

Environmental management

Environmental professionals test soil to detect contamination, assess degradation, and guide conservation. Identifying pollutants and soil health indicators helps manage risks and supports sustainable land use.

Construction and civil engineering

Soil testing in construction assesses stability, load-bearing capacity, and drainage for safe, durable structures. It also detects contaminants like heavy metals or hydrocarbons, to prevent health risks, environmental damage, costly project delays, and maintain regulatory compliance.

Soil properties of interest

Soil analysis involves a suite of tests designed to evaluate the physical, chemical, and biological characteristics of soil. This information provides insights into its fertility, structure, health, and suitability for agricultural, environmental, or engineering applications.

Physical tests

Tests to evaluate the soil's structure, texture and ability to retain water and nutrients

- Particulate size analysis
- Soil texture
- Moisture content
- Permeability tests

Chemical tests

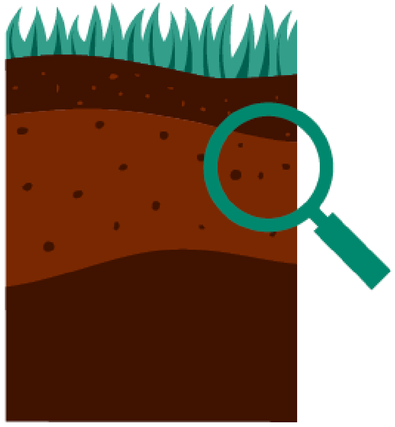
Tests to assess soil fertility, nutrient availability, deficiency, salinity, and contamination

- pH tests
- Electrical conductivity
- Cation exchange capacity
- Macronutrient analysis
- Micronutrient analysis
- Trace elements analysis
- Salinity and sodicity tests
- Heavy metals analysis
- Contaminant analysis

Biological tests

Tests that examine organic content, living organisms, and microbial activity

- Active and total carbon
- Organic matter analysis
- Enzyme activity tests
- Soil respiration tests
- Nematode and microbial analysis
- Microbial biomass



- **Soil sample analysis requires chemical compounds to be extracted from their matrix before analysis.**
- **Filters and filtration-related products play a key role throughout this process.**
- **Effective sample preparation is essential to maintain the integrity of soil testing results.**

Clarification and solids retention

One of the initial steps in soil testing protocols is gross clarification, which involves the removal of coarse particulates and organic debris. This is achieved using laboratory filters such as qualitative cellulose or glass fiber filters. These filters are selected based on their retention characteristics and chemical compatibility with the sample matrix, so the clarified liquid is prepared for further processing or direct analysis.

Clarification is important when performing spectroscopic analysis techniques. Particulate matter, debris, and undissolved solids can clog instrumentation, impact optical components, scatter light, and reduce signal quality, and lead to inaccurate measurements.

In spectroscopic techniques like UV-Vis and infrared spectroscopy, the presence of particulates can cause baseline noise and reduce the clarity of the spectral data.

Sample clarification can also enhance signal quality. Filtration obtains a clearer signal by removing contaminants that may produce background noise or interference. This is particularly important in techniques like nuclear magnetic resonance (NMR) and fluorescence spectroscopy, where high signal-to-noise ratios are crucial for accurate analysis.

In gravimetric analysis of soil samples, filters play a vital role in isolating and collecting solid residues. After filtration, the retained solids are usually dried or ignited in a furnace, and the remaining mass is weighed to calculate the concentration of the analyte. The choice of filter—its pore size, ash content, and chemical compatibility—directly affects the reliability and reproducibility of gravimetric measurements in soil analysis.

In more specialized extraction procedures, like isolating organic compounds from soil samples, Soxhlet extraction is a widely adopted method. In this technique, soil is packed into thimbles and solvent repeatedly washes the sample and extracts target analytes.

Cellulose filters

Cellulose filters are used to prepare samples by removing fine soil particles from liquid extracts after chemical treatments such as acid digestion, water extraction, or buffer solutions. These filters are commonly used in nutrient analysis (e.g., nitrate and phosphate testing) where the filtered solution is analyzed using UV-Vis spectrophotometry, and in heavy metal assessments (e.g., lead, cadmium, arsenic) where techniques like atomic absorption spectroscopy (AAS) or inductively coupled plasma mass spectrometry (ICP-MS) are used. Their advantages include chemical inertness, which prevents contamination of the sample; uniform pore size, which ensures consistent and accurate analytical results.

Whatman™ filter papers, have roots tracing back to the 18th century, and carry a legacy of excellence in scientific filtration. Their longstanding heritage reflects a commitment to quality and innovation in environmental and laboratory testing. They are manufactured from high-quality cotton linters which are treated to achieve a minimum alpha cellulose content of 98%.

We offer a selection of cellulose filters with varying flow rates, retention levels, loading capacities, and chemical resistance. They are available in qualitative, quantitative, and application specific formats.

Grade 512 ½

Low phosphate papers for the filtration of calcium lactate extracts from soil samples for the determination of K and P according to Egnér, Riehm, and Lederle.

Grade 0790 ½

Acid-washed paper with ash content of approximately 0.01%, low magnesium, and phosphorus for the determination of trace elements (Mg, Mn, Co, Cu, Mo, B).

To streamline soil sample preparation, replace flat filter paper circles with pre-folded filters to save significant time and effort—especially during peak testing periods. Though a small part of the workflow, this change eliminates manual folding, to boost efficiency, and provides consistent processing. Our Whatman filter papers are available in various ready-to-use folded formats, including fluted circles, cones, and quadrants. These options enhance convenience and consistency, making them ideal for high-throughput labs handling repetitive or large-scale soil analyses.

Boron deficiency is a common problem in farming that can reduce crop yields, especially in sandy, acidic, or low-organic soils. It affects plant growth by damaging flowers and stems, particularly in grains and broadleaf crops. To keep crops healthy, soil should have between 0.5 and 4 mg/kg of boron (1).

To get accurate results and avoid sample contamination—boron-free filter paper is essential. We offer several grades (Grade 1, 2, 6, 40 and 42) in folded format that contain less than 1 µg boron per gram of paper. The actual boron content is available in the Certificate of Analysis.

Grade 42 filter paper is widely used for the extraction and analysis of available boron in soil. When paired with a colorimeter or spectrophotometer, Grade 42 provides accurate and reliable filtration, and low background boron levels that support precise quantification in soil testing protocols.

Cellulose filter papers

References.

1. Sah, R.N., Brown, P.H. Techniques for boron determination and their application to the analysis of plant and soil samples. Plant and Soil 193, 15–33 (1997). doi: 10.1023/A:1004251606504

Ordering information

Description	Quantity	Product code
Cellulose filter circles, Grade 2, circles, 110 mm	100	1002-110
Cellulose filter circles, Grade 2, cone folded, 110 mm	1000	1002-10240
Cellulose filter circles, Grade 2, pyramid folded, 110 mm	10000	1002-10219
Cellulose filter circles, Grade 2V, folded filters, 240 mm	100	1202-240
Cellulose filter circles, Grade 4, circles, 110 mm	100	1004-110
Cellulose filter circles, Grade 40, circles, 110 mm	100	1440-110
Cellulose filter circles, Grade 40, quadrant folded, 110 mm	500	10380004
Cellulose filter circles, Grade 40, cone folded, 110 mm	1000	990010116
Cellulose filter circles, Grade 40, circles, 125 mm	100	1440-125
Cellulose filter circles, Grade 40, quadrant folded, 125 mm	500	10380005
Cellulose filter circles, Grade 40, pyramid folded, 125 mm	1000	9892-128
Cellulose filter circles, Grade 40, cone folded, 125 mm	1000	990010112
Cellulose filter circles, Grade 40, quadrant folded, 150 mm	500	10380006
Cellulose filter circles, Grade 41, circles, 110 mm	100	1441-110
Cellulose filter circles, Grade 41, quadrant folded, 110 mm	500	10380204
Cellulose filter circles, Grade 41, pyramid folded, 110 mm	1000	989510116
Cellulose filter circles, Grade 41, quadrant folded, 125 mm	500	10380205
Cellulose filter circles, Grade 41, quadrant folded, 150 mm	500	10380206
Cellulose filter circles, Grade 42, circles, 110 mm	100	1442-110
Cellulose filter circles, Grade 42, pyramid folded, 90 mm	1000	989610137
Cellulose filter circles, Grade 42, pyramid folded, 110 mm	1000	989610116
Cellulose filter circles, Grade 42, circles, 90 mm	100	1442-090
Cellulose filter circles, Grade 0858, quadrant folded, 185 mm	100	10334348

Cone folded filter papers

Pyramid folded filter papers

Quadrant folded filter papers

For a comprehensive selection of all available cellulose filter circles, grades and diameters please visit cytiva.com

Glass fiber filters

Glass fiber filters are used in more demanding soil testing applications due to their high chemical resistance, thermal stability, and ability to handle high particulate loads. Glass fiber filters are available binder-free for filtering extracts containing strong acids, bases, or organic solvents.

These filters are particularly useful in tests such as nutrient analysis, heavy metals detection, and dissolved organic carbon measurement, where sample purity and filter stability are critical. During analysis of dissolved organic carbon or microbial biomass, glass fiber filters prevent the introduction of additional organic compounds that might lead to incorrect analytical results.

Their depth filtration structure provides efficient particle retention without clogging, which is beneficial when processing large or particulate-rich soil samples.

In gravimetric soil tests, such as determining suspended solids or moisture content, glass fiber filters are often preferred for their consistent weight and dimensional stability. They can be dried and weighed repeatedly without absorbing moisture from the air, which is important for achieving accurate mass measurements.

Ordering information

Description	Quantity	Product code
Grade GF/B glass microfiber filters, circles, 25 mm	100	1821-025
Grade GF/C glass microfiber filters, circles, 25 mm	100	1822-025
Grade GF/C glass microfiber filters, circles, 47 mm	100	1822-047
Grade GF/D glass microfiber filters, circles, 25 mm	100	1823-025
Grade GF/D glass microfiber filters, circles, 47 mm	100	1823-047
Grade GF/F glass microfiber filters, circles, 25 mm	100	1825-025
Grade GF/F glass microfiber filters, circles, 47 mm	100	1825-047
Grade 934AH™ glass microfiber filters, circles, 24 mm	100	1827-024
Grade 934AH glass microfiber filters, circles, 47 mm	100	1827-047
Grade 934AH glass microfiber filters, circles, 90 mm	100	1827-090

For a comprehensive selection of all available glass fiber filters please visit cytiva.com

TCLP testing filters

TCLP filters are specialized glass fiber filters designed for use in the Toxicity Characteristic Leaching Procedure (TCLP). They are used to separate solid particulates from liquid extracts during environmental testing, particularly in the analysis of solid wastes and soils.

These filters proved integrity and reproducibility of analytical results by producing a clear leachate free of suspended solids.

In the TCLP procedure, a soil sample is mixed with an acidic extraction fluid to simulate landfill leaching conditions, then agitated to release soluble contaminants. The resulting mixture is filtered through a glass fiber TCLP filter to remove solids, allowing only dissolved substances to pass through for analysis by techniques such as ICP-MS or gas chromatography mass spectrometry (GC-MS).

Our TCLP filters are manufactured from binderless glass microfiber filters. They are acid-treated with low metal content to meet the requirements of EPA Method 1311. These filters provide high particle retention and chemical resistance, ideal for hazardous waste leachate analysis.

Whatman TCLP testing filters

Ordering information

Description	Quantity	Product code
Whatman TCLP limits test filter, 90 mm circle	50	1810-090
Whatman TCLP limits test filter, 142 mm circle	50	1810-142

Extraction thimbles

In soil testing, cellulose extraction thimbles are commonly used for the Soxhlet extraction of non-polar organic compounds such as pesticides, herbicides, and hydrocarbons. Made from high-purity alpha cellulose, our thimbles are suitable for use with mild organic solvents. They are an economical choice for standard extractions where moderate temperatures (typically up to 130°C) and low chemical reactivity are involved.

For more demanding soil analysis procedures, glass microfiber extraction thimbles are preferred. Glass microfiber thimbles, made from borosilicate glass fibers, are chemically inert and withstand temperatures up to 500°C, and are ideal for pressurized solvent extraction, accelerated solvent extraction, and analysis involving volatile or semi-volatile organic compounds. Glass fiber thimbles are the standard choice for persistent organic pollutants (POPs) extraction from soil.

Extraction thimbles

Ordering information

Description	Quantity	Product code
Cellulose thimbles, single thickness, 22 x 80 mm	25	2800-228
Cellulose thimbles, single thickness, 25 x 80 mm	25	2800-258
Cellulose thimbles, single thickness, 30 x100 mm	25	2800-300
Cellulose thimbles, single thickness, 33 x 80 mm	25	2800-338
Cellulose thimbles, single thickness, 33 x 94mm	25	2800-339
Cellulose thimbles, single thickness, 33 x118 mm	25	2800-331
Grade 603 cellulose extraction thimble, thickness 1.5 mm, 25 x 60 mm	25	10350215
Grade 603 cellulose extraction thimble, thickness 1.5 mm, 25 x 80 mm	25	10350217
Grade 603 cellulose extraction thimble, thickness 1.5 mm, 33 x 80 mm	25	10350240
Grade 603G, glass extraction thimble, thickness 1 mm, 10 × 38 mm	25	10371103
High purity glass Soxhlet extraction thimble, 19 × 90 mm	25	2814-199
High purity glass Soxhlet extraction thimble, tapered, 25 × 90 mm	25	2814-259
High purity glass Soxhlet extraction thimbles, 30 x 100mm	25	2814-300
High purity glass Soxhlet extraction thimble, 43 × 123 mm	25	2814-432

For a comprehensive selection of all available extraction thimbles please visit cytiva.com

Weighing boats and paper

Weighing boats and weighing paper are commonly used to accurately measure and transfer soil samples and reagents during analytical procedures.

In Kjeldahl analysis for total nitrogen determination in soil samples, weighing boats and weighing paper provide precision and prevent sample loss during the early stages of the procedure. Soil samples must be accurately weighed before digestion, as the initial mass directly influences the final nitrogen calculation.

Weighing boats are used to contain the soil during weighing due to their rigid design, which helps maintain sample integrity and simplifies transfer into the digestion flask. Our weighing boats are manufactured from low nitrogen parchment paper and contain no glue or chemical additives. The boats dissolve residue-free in digestion solutions without influencing analytical results.

Weighing paper is used to handle finely ground, dry soil samples, especially in labs aiming to minimize plastic use or when processing small sample quantities.

Weighing boats

Ordering information

Description	Quantity	Product code
Whatman Kjeldahl analysis weighing boat, Grade 609	100	10313032
Kjeldahl weighing paper, Grade B2, 6 x 6 inch	500	10347673
Kjeldahl weighing paper, Grade B2, 4 x 4 inch	500	10347672
Kjeldahl weighing paper, Grade B2, 3 x 3 inch	500	10347671

Analytical chemistry sample preparation

Analytical chemistry allows agronomists, environmental scientists, and laboratories to assess soil health, fertility, and contamination levels.

Advanced analytical techniques such as high-performance liquid chromatography (HPLC) are routinely employed to detect and quantify a wide range of compounds present in soil. HPLC is particularly effective for identifying agrochemical residues (e.g., pesticides and herbicides), polycyclic aromatic hydrocarbons (PAHs), phenols, and various organic pollutants that can affect soil quality and crop safety.

HPLC has high sensitivity and resolution for separating and quantifying complex mixtures, even at trace levels.

Ion chromatography (IC) is key technique used to measure the concentration of inorganic ions in soil samples. IC separates and quantifies anions such as nitrate, nitrite, phosphate, chloride, and sulphate, and cations like ammonium, calcium, magnesium, potassium, and sodium. This data is essential to understand soil nutrient profiles, salinity, and the potential for leaching into groundwater.

Proper filtration of soil extracts and mobile phase solutions is a simple and cost-effective way to protect chromatography systems from particulate contamination. Particulates can obstruct injection valves, pumps, tubing, and columns, resulting in shortened column life, system downtime, and compromised analytical accuracy. Effective filtration reduces issues such as ghost peaks, baseline noise, and signal interference, for reliable and reproducible results in soil analysis.

Metals analysis is a fundamental component of soil testing. Elevated concentrations of heavy metals such as lead (Pb), arsenic (As), cadmium (Cd), mercury (Hg), chromium (Cr), and zinc (Zn) can pose serious risks to human health, crops, and ecosystems. To quantify these elements, advanced instrumentation such as ICP-MS and inductively coupled plasma optical emission spectrometry (ICP-OES) are commonly used.

These techniques offer high sensitivity and the ability to detect trace and ultra-trace levels of multiple metals simultaneously. Sample preparation typically involves acid digestion of soil samples to extract metals into solution. Prior to analysis, the digested sample is filtered using laboratory-grade filters, often 0.45 µm membrane filters, to remove particulates that can clog instrument components or skew results. Effective filtration preserves integrity of the analysis, protects sensitive equipment, and helps maintain reliable data quality.

Considerations when selecting analytical sample preparation filtration devices.

1. Analysis type

Consider analysis method and instrumentation

- HPLC/UHPLC
- IC
- LCMS
- General sample preparation

2. Sample type and standards

Review guidance, regulations and standards

Consider chemical compatibility of the sample and filtration device

3. Pore size

Choose the correct pore size based on application and/or analytical chromatography column packing

- HPLC - 0.45 µm
- UHPLC - 0.2 µm

4. Sample volume and handling

Consider sample volume, device effective filtration area (EFA), hold-up volume, and the use of a prefilter

Consider handling - manual, automation or syringeless

HPLC, UHPLC, and other analytical techniques

What are you testing for?	Product		Characteristics and benefits	
Low solids content	**Puradisc™ filters** Ordering information p. 15		• Wide range of membranes, pore sizes and diameters • Choice of filter sizes (4, 13, 25 or 30 mm) to minimize sample loss • Diameter: 4, 13, 25, or 30 mm	• Available pore sizes: 0.1, 0.2, 0.45, 0.8, 1.0, 1.2, 5 µm • Membrane materials available: CA, DpPP, GMF, H-PTFE, Nylon, PES, PVDF, PTFE, RC
	SPARTAN™ filters Ordering information p. 15		• HPLC certified • Documented batch-to-batch quality and consistency ensure reproducible results • Diameter: 13 or 30 mm	• Available pore sizes: 0.2 or 0.45 µm • Membrane materials available: RC
Hard-to-filter samples	**Whatman GD/X™ filters** Ordering information p. 16		• For hard-to-filter samples • Pre-filter: Multilayer glass filter • Diameter: 13 or 25 mm	• Available pore sizes: 0.2, 0.45, 0.7, 1.0, 1.2, 1.5, 2.7, 5.0 µm • Membrane materials available: CA, GMF, Nylon, PES, PVDF, PTFE, RC
	GD/XP™ filters Ordering information p. 16		• For hard-to-filter samples where analytes of interest are inorganic ions • Pre-filter: Multilayer polypropylene • Diameter: 25 mm	• Available pore sizes: 0.45 µm • Membrane materials available: Nylon, PES, DpPP, PVDF, PTFE
HPLC/GC autosamplers	**Mini-UniPrep™ filters** Ordering information p. 17		• All-in-one filter and plastic autosampler vial • Fewer consumables are required, significantly reducing plastic waste • Dimensions: Once compressed equivalent to 12 mm × 32 mm vial	• Available pore sizes: 0.2 or 0.45 µm • Membrane materials available: GMF, Nylon, RC, PES, PTFE, PVDF

CA = cellulose acetate, DpPP = depth polyproplyene, GMF = glass microfiber filter, H-PTFE = hydrophilic polytetrafluoroethylene, PES = polyethersulfone, PTFE = polytetrafluoroethylene, PVDF = polyvinylidene difluoride, RC = regenerated cellulose

Puradisc syringe filters

Pore size	Nylon 25 mm	RC 25 mm	PVDF 25 mm	PTFE 25 mm	H-PTFE 25 mm	PES 25 mm	Quantity	CA 30 mm	Quantity
0.2 µm	6751-2502	6757-2502	6747-2502	6785-2502	6773-2502	6781-2502	200/pack	10462710	100/pack
0.2 µm	6753-2502	6758-2502	-	6798-2502	6774-2502	6794-2502	1000/pack	10462700	500/pack
0.45 µm	6751-2504	6757-2504	6747-2504	6785-2504	6773-2504	6781-2504	200/pack	10462610	100/pack
0.45 µm	6753-2504	6758-2504	6749-2504	6798-2504	6774-2504	6794-2504	1000/pack	10462600	500/pack

SPARTAN syringe filters

Membrane	Pore size	13 mm	13 mm with mini-tip	30 mm	Quantity
Regenerated cellulose	0.2 µm	10463100	10463040	10463060	100/pack
Regenerated cellulose	0.2 µm	10463102	10463042	10463062	500/pack
Regenerated cellulose	0.45 µm	10463110	10463030	10463050	100/pack
Regenerated cellulose	0.45 µm	10463112	10463032	10463052	500/pack

For a comprehensive selection of our syringe filters please visit cytiva.com

Whatman GD/X syringe filters (glass fiber prefilter), 25 mm diameter

Pore size	Nylon	PVDF	PTFE	PES	CA	RC	Quantity
0.2 µm	6870-2502	6872-2502	6874-2502	6876-2502	6880-2502	6887-2502	150/pack
0.2 µm	6871-2502	6873-2502	6875-2502	6905-2502	-	-	1500/pack
0.45 µm	6870-2504	6872-2504	6874-2504	6876-2504	6880-2504	6882-2504	150/pack
0.45 µm	6871-2504	6873-2504	6875-2504	6905-2504	6881-2504	6883-2504	1500/pack

GD/XP syringe filters (polypropylene prefilter), 25 mm diameter

Pore size	Nylon	PVDF	PTFE	DpPP	PES	Quantity
0.45 µm	6970-2504	6972-2504	6974-2504	6992-2504	6994-2504	150/pack
0.45 µm	6971-2504	6973-2504	-	6993-2504	6995-2504	1500/pack

For a comprehensive selection of our syringe filters please visit cytiva.com

Mini-UniPrep filters with polypropylene housing

Pore size	Housing	Cap	PTFE	PVDF	Nylon	RC	Quantity
0.2 µm	Translucent	Standard	UN203NPEORG	UN203NPEAQU	UN203NPENYL	UN203NPERC	100/pack
0.45 µm	Translucent	Standard	UN203NPUORG	UN203NPUAQU	UN203NPUNYL	UN203NPURC	100/pack
0.2 µm	Amber	Standard	UN203APEORG	UN203APEAQU	-	-	100/pack
0.45 µm	Amber	Standard	-	-	-	-	100/pack
0.2 µm	Translucent	Slit septum	US203NPEORG	US203NPEAQU	-	-	100/pack
0.45 µm	Translucent	Slit septum	US203NPUORG	US203NPUAQU	US203NPUNYL	-	100/pack

Multi-compressor

Description	Product code
Mini-UniPrep multi-compressor 1/pack comes with one tray	MUPMCPBC8
Mini-UniPrep multi-compressor tray 1/pack	MUPMCBT

Mini-UniPrep multicompressor

Ion chromatography

IC is used to measure the concentration of inorganic ions in soil samples. It provides accurate, sensitive, and simultaneous measurement of multiple anions and cations that are essential for assessing soil fertility, nutrient availability, salinity, and contamination. Additionally, it is valuable for detecting pollutants and monitoring environmental impact from agricultural or industrial sources, making it a reliable tool for both routine soil analysis and environmental regulation.

Filters for sample preparation prior to ion chromatography testing should feature very low levels of anion leaching.

Ion chromatography Acrodisc™ syringe filters are certified for low levels of inorganic extractables, with actual background levels of filter extractables for the first 1.5mL of filtrate that typically are less than 50 ppb for nitrate and less than 20 ppb for chloride, phosphate, and sulfate. They also offer high flow rates with optimized Supor™ polyethersulfone membrane.

Ordering information

Description	Quantity	Product code
IC Acrodisc syringe filters, Supor membrane, 0.2 µm, 13 mm	300/case	4483
IC Acrodisc syringe filters, Supor membrane, 0.45 µm, 13 mm	300/case	4485
IC Acrodisc syringe filters, Supor membrane, 0.2 µm, 25 mm	200/pack	4583
IC Acrodisc syringe filters, Supor membrane, 0.45 µm, 25 mm	200/pack	4585

Mobile phase filtration

By filtering the mobile phase before liquid chromatography, analysts can reduce particulate debris that may clog the sinker and column frits, contaminate samples, damage pump valves, block capillaries, impair peak performance, and contribute to extra peaks and excessive chromatographic noise.

We offer the SolVac™ filter holder and a range of 47 mm membrane discs. The SolVac filter holder has a versatile design that fits most HPLC bottles and containers, and eliminates the need to wash flasks and transfer mobile phase solvent from flask to reservoir.

Ordering information

Description	Quantity	Product code
SolVac filter holder	1	4020
wwPTFE membrane discs, 0.2 µm, 47 mm	50	60539
wwPTFE membrane discs, 0.45 µm, 47 mm	50	60548
Nylon membrane discs, 0.2 µm, 47 mm	100	66602
Nylon membrane discs, 0.45 µm, 47 mm	100	66608

For a comprehensive selection of all available membrane discs please visit cytiva.com

SolVac filter holder

Microbiological analysis

Microbiology evaluates the biological components of soil health, which is essential for nutrient cycling, organic matter decomposition, and overall ecosystem functioning.

Microbial populations, including bacteria, fungi, protozoa, and archaea, influence soil structure and fertility by interacting with minerals and organic compounds. By studying these microorganisms, scientists can better understand soil productivity, microbial diversity, and the presence of pathogens or beneficial species.

The membrane filtration (MF) technique is a well-established method in microbiology for detecting and enumerating microorganisms in liquid samples. It involves filtering a known volume of liquid through a membrane filter that retains microorganisms on its surface. The filter is then placed on a suitable agar medium and incubated to allow colony development.

In soil analysis, the MF technique can assess microbial contamination in soil leachates and quantify indicator organisms such as fecal coliforms, especially in environmental monitoring and agricultural runoff studies. The method is valued for its accuracy, reproducibility, and ability to detect low concentrations of microorganisms, which makes it a powerful tool in both environmental and applied microbiological research.

Laboratory filters are also commonly used in microbiological applications for the sterile filtration of culture media, and in sample preparation applications including DNA extraction for PCR analysis.

Learn more about our microbiology solutions

General laboratory accessories

Whatman pH indicator paper

The pH of soil helps evaluate how well it holds minerals. When the soil it too acidic, minerals will be leached out by rainwater before the plants have a chance to use them.

Highly alkaline soils are often associated with mineral deficiencies due to the low solubility of minerals in alkaline conditions. Neutral or slightly acidic soils are ideal for growing plants. However, some plants have very particular pH requirements.

There are many different ways to measure soil pH. Litmus (pH) paper is a quick and inexpensive method to test soil pH when a pH-meter is unavailable or when highly precise values are not necessary.

Ordering information

Description	Quantity	Product code
Color bonded, 0.0 to 14.0 range, 6 × 80 mm	100 strips	2613-991
Color bonded, 4.5 to 10.0 range, 6 × 80 mm	100 strips	2614-991
Integral comparison strip, 6.0 to 8.1 range, 11 × 100 mm	200 strips	2629-990

pH paper

Benchkote™ bench protection papers

Benchkote surface protectors minimize mess and contamination during spills. They feature a high-quality, smooth, absorbent lab paper layer that soaks up liquid and a second laminated polyethylene layer prevents flow-through to the working surface.

Ordering information

Description	Quantity	Product code
460 × 570 mm sheets	50 pack	2300-916
460 × 570 mm sheets	100 pack	2300-917

Optical lens cleaning tissue

Lenses and other optical surfaces made from glass, quartz, or plastic can be easily scratched if they are not cleaned with a very soft tissue. High-quality Whatman lens cleaning tissue provides the solution, and can be relied on to carefully and thoroughly remove surface moisture and grease.

Ordering information

Description	Quantity	Product code
Grade 105, 100 x 150 mm, 25 wallets of 25 sheets	25 wallets	2105-841
Grade 105, 200 x 300 mm	100 pack	2105-862

Environmental water analysis

Soil health and environmental water quality are deeply interconnected, changes in one often mirrored in the other. Healthy soils, rich in organic matter and well-structured, absorb and retain water more effectively, which reduces surface runoff and limits the movement of contaminants into rivers, lakes, and groundwater systems.

Degraded soils, whether compacted, eroded, or depleted, are more prone to runoff, which can carry sediment, nutrients, pesticides, and other pollutants into nearby water bodies. This runoff deteriorates water quality, harms aquatic ecosystems, and contributes to problems such as algal blooms, oxygen depletion, and biodiversity loss.

By analyzing both soils and environmental waters, land managers and scientist's gain insights into the flow of pollutants through the landscape. Elevated levels of nitrates, phosphates, or chemical residues in surface water can often be traced back to upstream land use practices and underlying soil conditions. For example, excessive fertilizer application or poor soil structure can lead to nutrient leaching or wash-off, while the detection of herbicides or heavy metals in water often points to contaminated soils as the source.

The combined analysis of soil and water helps identify critical contamination pathways and provides evidence for more sustainable land and water management practices.

Learn more about our environmental water testing solutions

Lab filtration: An environmental perspective

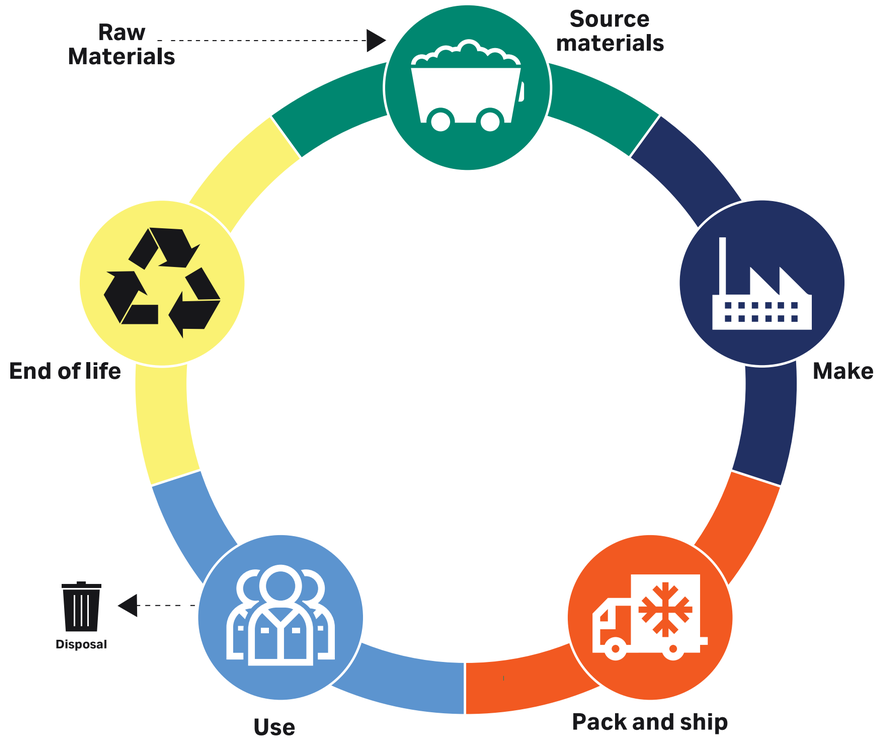
Since 1733, our lab filtration businesses of Whatman and Pall (since 1946) have been positively impacting society and the environment through the way our products have been used in research, manufacturing, quality, and testing.

Now we are prioritizing how we incorporate eco-design principles into every phase of our lab filtration products to reduce the environmental footprint. We set a goal to complete product carbon footprints (PCF) on 20% of our top products (by revenue) in 2025.

We will only succeed if we work together across the full value chain, suppliers and customers both. ~95% of our carbon emissions are Scope 3 emissions with raw materials and distribution being the primary categories. As of Q4 2024, 81% of our direct spend has been EcoVadis assessed. Also, we are actively sourcing biobased feedstock for plastic alternatives to reduce our dependence on virgin fossil fuels and the carbon impact of that plastic.

We are actively working towards achieving ISCC Plus certification for our Puradisc and Whatman GD/X syringe filter products by summer of 2025. The International Sustainability and Carbon Certification (ISCC) is a leading system supporting sustainable, fully traceable, deforestation-free, and climate-friendly supply chains. This certification will further validate our commitment to sustainable production.

Learn more about our commitment to sustainability



Unleashing the power of life cycle management

From raw material sourcing to manufacturing and distribution, we are committed to decarbonizing our products, processes, and ways of working to ensure we meet our current and future sustainability goals.

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