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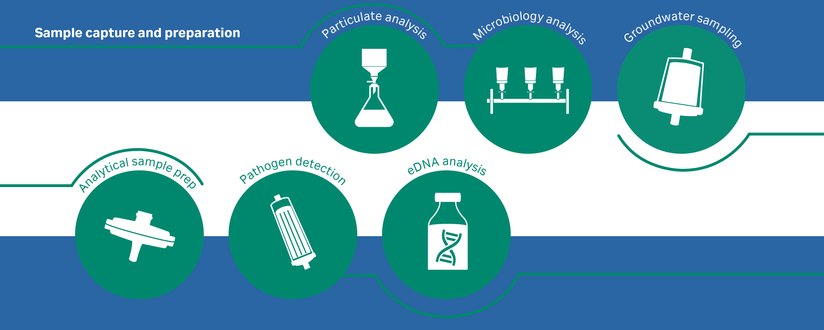
Environmental water quality testing

Sample capture and preparation solutions for environmental water testing applications

Environmental water quality and contamination can have significant and wide-ranging impacts on ecosystems, human health, and biodiversity.

Contaminants arise from numerous locations including agricultural, industrial, and domestic sources. This infographic explores those sources of contamination and the typical test methods for analysis.

Sample capture and preparation



Effective sample collection and preparation steps using filtration are crucial when performing environmental water analysis.

Selecting the correct filter helps you achieve reliable and reproducible results in various testing types including microbiology, chemical, eDNA, and suspended solids analysis.

Sediment

Caused by natural erosion and man-made activities, leads to water turbidity.

Test methods: Total suspended solids (TSS) and total dissolved solids (TDS) test methods. *(ASTM D3977-97 Standard Test Methods for Determining Sediment Concentration in Water samples)*

Animal waste (natural or farming)

Microbial and pathogenic contamination can threaten water-based species and harm humans if they swim in or consume polluted water. Livestock waste is a potential source of estrogenic and antibiotic contamination.

Test methods: Microbiology analysis and pathogen detection. eDNA analysis for virus detection and species monitoring. Chemical analysis for hormones and antibiotics using techniques such as LC-MS.

Agricultural contaminants

Contaminants may include pesticides, fertilizers, herbicides, sediment, and agricultural runoff containing nutrients like nitrogen and phosphorus. Fertilizer contamination can lead to algae blooms that impact oxygen levels in water.

Test methods: Total suspended solids (TSS) and total dissolved solids (TDS) test methods. Hydrocarbons and chemical analysis.

Stormwater and urban runoff

Runoff may carry a wide range of chemical and biological contaminants into environmental water supplies.

Test methods: Total suspended solids (TSS) and total dissolved solids (TDS) test methods. Metals, hydrocarbons and chemical analysis. Microbiology analysis.

Industrial waste

Industrial activities can release heavy metals (e.g., copper, zinc, lead, cadmium and chromium) leading to toxicity for aquatic life and potential bioaccumulation in the food chain. Effluents may contain chemicals (including PFAS), disinfection by-products (DBPs), hydrocarbons, microplastics, and suspended solids.

Test methods: Total suspended solids (TSS) and total dissolved solids (TDS) test methods. Hydrocarbons and chemical analysis (e.g. HPLC, IC and LC-MS). Groundwater sampling. Microbiology analysis.

Domestic waste

Untreated blackwater (sewage) and greywater (other domestic) can carry pathogens and chemical contaminants into environmental water supplies. Chemical contamination may include: PFAS, disinfection by-products (DBPs), hormones and drugs.

Test methods: Total suspended solids (TSS) and total dissolved solids (TDS) test methods. Metals, hydrocarbons and chemical analysis. Microbiology analysis. eDNA analysis can be used in public health testing to monitor viruses and pathogens.

Learn more about environmental water quality testing at

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