



TOOLS FOR MODERN MICROBIOLOGY

**FASTER, EASIER
BETTER**



PRODUCT CATALOG

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HUMANKIND HAS BEEN PLAGUED BY PATHOGENS IN VARIOUS FORMS THROUGHOUT HISTORY.

PATHOGENS CAUSE HARM by being present in our drinking water, our foods, in plants and animals, and in our environment as a whole. Pathogenic organisms, including bacteria, parasites, and viruses are often present in the environment in extremely low concentrations. As little as a single organism or particle has the ability to sicken or kill the infected person, plant, or animal. Detecting pathogens quickly and at low levels is important for protecting humans and guiding treatment. In cases of infection, this holds true across a wide range of areas including:

- Water, food, and drug safety
- Environmental monitoring
- Infection control
- Outbreak investigations
- Biodefense

We now have the ability to identify these pathogens using rapid microbial methods (RMMs)



COMMON PROBLEMS ASSOCIATED WITH PATHOGEN DETECTION INCLUDE:

- The dangerous pathogens within a sample can be very dilute.
- The volume used for analysis in RMMs is so small that the threat is often missed.

This volume mismatch can be overcome by rapidly concentrating the dilute pathogens and delivering them in a final volume that closely matches the small input volume required for the assay, thereby improving the limit of detection by two, three, four, or even five orders of magnitude.

INNOVAPREP'S 35 pending and awarded patents apply to highly efficient concentration of biological particles collected from air, surfaces, and liquids. InnovaPrep's Wet Foam Elution™ process underlies many of these patents and enables instant delivery of the concentrated sample. The primary utility for these technologies is to greatly improve the way dilute biological samples are collected and prepared for analysis. Specifically, these technologies allow the most advanced RMMs to perform at their full potential.



APPLICATIONS

ENVIRONMENTAL MONITORING

InnovaPrep air samplers and concentration technologies are used for a wide variety of public health and other environmental monitoring applications.

- Recreational water monitoring
- Source tracking
- Legionella monitoring
- Agriculture run-off monitoring
- Aquaculture
- Bioaerosol and particulate sampling
- Environmental genomics

BEVERAGE QUALITY TESTING

The Concentrating Pipette provides rapid concentration of spoilage organisms and particulates. It can concentrate molds, yeasts, and bacteria from up to 355 mL of beer in minutes for rapid analysis with PCR or other analytical methods. Average concentration factors of 1000X -2000X are commonly achievable. Your products can be screened for quality in a single shift. It saves money in labor, product hold times, wasted packaging in the case of recall, and insures prolonged quality. It allows more screening to be performed in a shift – faster, easier and better.

- Beer
- Spirits
- Wine
- Coolers and specialty beverages
- Soft drinks



ANIMAL HEALTH

InnovaPrep sample collection and concentration devices are used for disease monitoring of livestock animals; whether for monitoring airborne pathogenic disease or diagnostic samples such as blood, urine or oral fluids.

- Airborne bacterial and viral disease monitoring
- Concentration of pathogens in livestock specimens, such as blood, urine, or saliva
- Indoor/outdoor air monitoring

PHARMA

The Pharma Industry is currently shifting to the widespread use of rapid molecular methods for quality control. InnovaPrep's Concentrating Pipette Select can help realize the promise of these new analytical methods, increasing speed, sensitivity, and ease of use by rapidly concentrating samples prior to analysis by RMMs. InnovaPrep technologies also include solutions for monitoring air and surface contamination.

- Biological and particulate contamination in water, intermediate products such as cell culture media, and finished products including parenteral fluids and compound drugs
- Monitoring of aseptic processing environments, including air and surface samples
- Assay development



APPLICATIONS

BIOSURVEILLANCE

InnovaPrep's field and laboratory air sampling and liquid sample concentration technologies are the best solutions available for rapid sample prep in the field and for trace detection of threat organisms when paired with modern molecular methods. InnovaPrep technologies are portable, scalable, integratable and easy to use.

We have a successful history working with partners to integrate our sample collection and concentration technologies in biodefense and biosurveillance systems.

- Military applications
- Government laboratories
- Mobile laboratories
- Outbreak investigations
- Postal systems
- Public Health

DRINKING WATER

InnovaPrep concentration technologies are used by water and wastewater treatment plant testing labs for fast and easy concentration of indicator organisms and waterborne pathogens including parasites, bacteria, and viruses, where detection of trace contamination is of the highest importance.

- Source water
- Treated water
- Well water
- Bottled water
- Shorten boil orders following repair of broken mains



FOOD SAFETY

InnovaPrep concentration devices provide rapid concentration of pathogens, spoilage organisms, and particulate contamination from liquid food samples and beverages.

- Liquid, air, and surface microbial monitoring
- Irrigation waters
- Process waters
- Produce wash waters
- Vat rinses
- Outbreak investigations

CLINICAL RESEARCH

InnovaPrep bio-concentrators are used for concentrating pathogens from clinical specimens such as blood, urine, and other bodily fluids. (Suitable for research purposes only, not intended for cIVD). Other applications include:

- Airborne pathogen monitoring
- Metagenomics research
- Assay development



CONCENTRATING PIPETTE SELECT™



THE CONCENTRATING PIPETTE SELECT

The CP Select is an automated, rapid bio-concentrator for modern microbiology. It is highly efficient and effective for concentrating bacteria, parasites, molds, fungal spores and fragments, whole cells, and viruses. No centrifugation, no pH adjustment, no incubation, and no transfer steps are required. The resulting concentrated sample is delivered in a clean buffer solution.

The one-pass method works by robust filtration through its high-flow single-use pipette tips followed by instant sample recovery with the automated Wet Foam Elution™ process.

Efficient – provides concentration factors beyond competing technologies, exponentially increasing detection of trace contamination while greatly reducing time and labor.

Versatile – works with a variety of sample types, sample volumes, and analysis methods. The single-use Concentrating Pipette Tips (CPTs) come in six pore sizes including an ultrafilter (see Tip Selection Guide).

Reduces your costs - by greatly reducing time, labor, and peripheral lab supplies.

- Fast: able to concentrate up to 150 mL/min
- Easy one-button operation
- No laborious decontamination steps. The entire sample path is contained within the disposable CPT
- Accepts large starting volumes up to 5L, providing high concentration factors
- Final concentrate volume is adjustable from 150 µL up to 1000 µL
- Small footprint saves bench space
- Portable Battery Pack is optional

Concentration Factor Example:

1L sample concentrated to 250 µL with
80% recovery efficiency gives a concentration factor of 3,200X
($1000\text{mL} \div 250\mu\text{L} \times 80\% = 3200\text{X}$)

APPLICATIONS FOR THE CONCENTRATING PIPETTE

- Water, food, beverage and drug safety
- Quality assurance/quality control
- Life sciences R&D
- Environmental monitoring
- Infection monitoring
- Biosurveillance

CONCENTRATING
PIPETTE SELECT™



WET FOAM ELUTION™

InnovaPrep's patented Wet Foam Elution process uses a very specific high-quality foam in order to be effective. The elution fluid is composed of water, a low concentration surfactant (less than 0.1%), a pH buffer, and infused with carbon dioxide. During the extraction process, the dissolved carbon dioxide expands and comes out of solution to form microbubbles. These microbubbles increase the volume of the fluid sixfold or more as it recovers the biological organisms from the filter consumable in seconds. Upon elution, the foam immediately off-gasses and collapses into a liquid; the sample concentrate is then ready for analysis.

An additional benefit of Wet Foam Elution is the clean buffer exchange. In many situations, the starting sample matrix is not desirable for the chosen analysis method. During concentration, soluble inhibitors and smaller particles are removed, unlike tangential flow filtration. The Wet Foam Elution provides a clean buffer in which the recovered biological particles are suspended.

CONCENTRATING PIPETTE SELECT SUPPLIES

ELUTION FLUID - TRIS



HC08001 = QTY 1
HC08001-6 = QTY 6

0.075% Tween 20/25 mM Tris. Recommended for rapid analytical methods. Each canister provides up to 30 elutions.

ELUTION FLUID - PBS



HC08000 = QTY 1
HC08000-6 = QTY 6

0.075% Tween 20/PBS. Recommended for classical analytical methods. Each can provides up to 30 elutions.

STORAGE FLUID - MAINTENANCE



HC08558 = QTY 1
HC08558-5 = QTY 5

For decontaminating the fluid path of the Concentrating Pipette. Each kit provides up to 14 decontamination cycles.

PIPETTE FILTER SLEEVES

HC08016 = QTY 25



The sleeves are made to slide over a Concentrating Pipette Tip for use as a prefilter. The 330µm prefilter prevents solids from clogging the tip of the pipette when concentrating liquids that may contain large solid particles.

Be Flat™ DEGASSING JAR



HC08547-1 = QTY 1
HC08547-6 = QTY 6

Rapidly removes CO₂ from carbonated beverages prior to concentration on the Concentrating Pipette.

MICRON PREFILTER BAG

HC08528 = QTY 1



10" glazed polypropylene felt bag rated to allow 1 micron passage. Makes an effective prefilter for very difficult biological sample matrices prior to concentration with the Concentrating Pipette.

CPT SELECTION GUIDE

PART NUMBER	FILTER TIP MEDIA TYPE	PORE SIZE	MEMBRANE SURFACE AREA	INPUT SAMPLE VOLUME (VARIES BY MATRIX)	FINAL CONCENTRATED SAMPLE VOLUME	FLOW RATE (VARIES BY MATRIX)
CC08000	Flat membrane Polycarbonate Track Etch	0.4 μm	8.5 cm ²	Up to 1 L	200-1000 μL	Up to 100 mL/min.
Recommended for concentrating bacteria, whole cells, spores, pollen, and parasites from food and beverage matrices containing proteins.						
CC08001	Flat membrane Polyethersulfone	0.1 μm	8.5 cm ²	Up to 1 L	200-1000 μL	Up to 100 mL/min.
Recommended for concentrating bacteria, whole cells, spores, pollen, and parasites from environmental samples.						
CC08018	Hollow Fiber Polysulfone	0.45 μm	98 cm ²	Up to 5 L	150-1000 μL	Up to 150 mL/min.
Recommended for concentrating bacteria, whole cells, spores, pollen, and parasites from high fouling matrices.						
CC08022	Hollow Fiber Polysulfone	0.2 μm	98 cm ²	Up to 5 L	150-1000 μL	Up to 150 mL/min.
Recommended for concentrating bacteria, whole cells, spores, pollen, and parasites from all sample types.						
CC08020	Hollow Fiber Polysulfone	0.05 μm	98 cm ²	Up to 3 L	150-1000 μL	Up to 90 mL/min.
CC08003	Hollow Fiber Polysulfone	Ultra-filtration	98 cm ²	Up to 500 mL	150-1000 μL	Up to 50 mL/min.
The addition of Tween 20 to the starting sample may increase recovery with certain targets and matrices. A final concentration in the sample of 0.05% to 0.1% is common although higher concentrations may be beneficial in some instances. Contact InnovaPrep for assistance.						
CC08004 Unirradiated	Hollow Fiber Polysulfone	0.05 μm	98 cm ²	Up to 3 L	150-1000 μL	Up to 90 mL/min.
CC08011 Unirradiated	Hollow Fiber Polysulfone	Ultra-filtration	98 cm ²	Up to 500 mL	150-1000 μL	Up to 50 mL/min.
The unirradiated tips are deeply discounted and come only in qtys of 200. Recommended for applications such as wastewater monitoring where sterility is not required						



LARGE VOLUME CONCENTRATION THE LVC KIT™

FLUIDPREP™

THE INNOVAPREP LARGE VOLUME CONCENTRATION (LVC) KIT™

allows rapid concentration and clean buffer exchange of bacteria and viruses from liquid volumes up to 100 liters. The kit works much like InnovaPrep's automated concentration instruments, which use membrane filtration to concentrate and a patented Wet Foam Elution technology to rapidly recover the microorganisms into a small final volume (70 mL) for rapid analysis. The one-pass method improves your limit of detection exponentially - especially important for the detection of trace pathogens.

THE LVC KIT CONTAINS a high-flow filter cell, tubing and clamps, and an elution canister containing InnovaPrep's Wet Foam (either Tween 20 PBS or Tween 20 Tris).

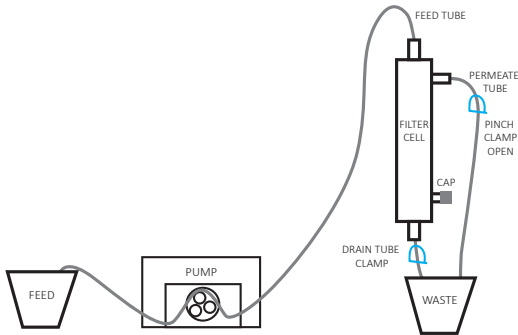


LVC™

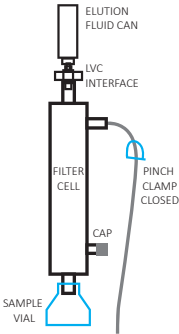
Using existing head pressure or your own pump, the fluid sample is forced through the filter cell's membranes in a dead-end configuration. The particles are trapped as the fluid is forced out of the filter cell to waste. To recover the captured biological particles from the filter cell, the user manually presses the elution canister into the fitting in the top of the filter cell. The foam is released and forced through the bore of the hollow fibers recovering the biological particles and dispenses them into a collection container. The foam then breaks down into a liquid in seconds and is ready for analysis.

The LVC kit provides a fast and simple first stage concentration step prior to a second stage step with the Concentrating Pipette. The InnovaPrep Concentrating Pipette will allow you to process the concentrate further to about 250 μ L in minutes, potentially achieving concentration factors up to 6 orders of magnitude.

SAMPLE PROCESSING SET-UP:



SAMPLE RECOVERY SET-UP:



LVC KIT - PBS



CC01116-P = QTY 1

- (1) Large filter cell (30 kDa pore size, polysulfone, with a surface area of 2m²),
 - (1) PBS Elution Fluid, (1) Connection Kit.
- Requires a pump for operation

LVC KIT - Tris



CC01116-T = QTY 1

- (1) Large filter cell (30 kDa pore size, polysulfone, with a surface area of 2m²),
 - (1) TRIS Elution Fluid, (1) Connection Kit.
- Requires a pump for operation



ACD-200 BOBCAT™ AIR SAMPLER WITH RAPID FILTER ELUTION KIT

AIRREP™

THE BOBCAT™ is a lightweight, portable, dry electret filter air sampler with a unique sample recovery kit. It is ideally suited for the collection of bioaerosols and particulate matter, including submicron-sized particles.

The Bobcat Air Sampler takes up little more than one-quarter of a cubic foot, and comes with a built-in-tripod and a flow rate of 200 liters per minute. The system uses a dry 52mm electret filter as the collection media. Electret filters are made with a combination of positively and negatively charged fibers. This substantially increases the collection efficiency and allows for the use of lower pressure drop filters, which allows higher sampling rates for extended periods, even when using battery power.

APPLICATIONS FOR THE ACD-200 BOBCAT

- Biosurveillance
- Public health
- Environmental monitoring
- Animal health monitoring
- Indoor air quality monitoring
- First responders
- Industrial hygiene monitoring
- Metagenomics



ACD-200 BOBCAT™

Features of the ACD-200 Bobcat

- Lightweight, rugged design (7.8lbs, 3kg)
- Built-in tripod and carry handle
- Built-in omni-directional aerosol inlet
- Easy to read status display
- Built-in mass flow sensor for consistent sampling rates up to 200 LPM.
- 4 programmable run modes to balance collection rates with extended battery life
- Disposable, single-use filter and elutor components
- No liquids in the collector. Allows for use in extreme temperatures 2°C to 60°C in non-condensing environments
- Eluting captured particles from the filter takes only 5 seconds; sample is ready for analysis in less than one minute
- Optional external trigger is available

ACD-200 BOBCAT™ AIR SAMPLER SUPPLIES

FILTER ELUTION KIT



AC00201-T = QTY 1 TRIS

AC00201-P = QTY 1 PBS

Single-use kit includes: collection filter, sample cup with lid, elutor and elution fluid

FILTER ELUTION KIT - REPEATER BAG



AC08069-T = QTY 1 TRIS

AC08069-P = QTY 1 PBS

The Filter Elution Kit with Repeater Bag allows for safe and simple fluid transfer to an assay in the field. Includes collection filter, repeater bag with Luer fitting, and elution fluid

