



## Introducing the HCl-40 Integratable Concentrator

The first fully automated, efficient and robust sample prep instrument built for ease of integration into sample collection/detection systems. The (pat. pend.) InnovaPrep technology concentrates dilute particles in a liquid. Nowhere is this more important than for the preparation of biological samples for trace analysis. The system separates the particles from the fluid, then delivers them in a highly concentrated form in a user-selected final fluid and volume format. The process is highly efficient and effective over a wide range of particle sizes from 5 nanometers to 20 microns.

The InnovaPrep Technology, in concert with the latest detection systems can aid in quickly identifying threats at previously undetectable levels.



### Unsurpassed sample concentration

*The concentration efficiency has been extensively tested*

The novel, rapid, one-pass method was developed to fill the recognized need for a macro to micro interface between large sample volumes and the ultra low volumes analyzed by advanced detectors.

Within the concentrator, hollow fiber concentration cells are used to capture particles from a liquid sample. When the entire sample has been processed, our patented “wet foam elution” process is used to efficiently recover the captured particles into a very small pre-set volume of the desired buffer.

The HCl-40 allows for the use of an exceptionally wide range of hollow fiber concentration cells—for the capture of bacteria, viruses, free DNA, and large molecules from liquids. Samples can be processed at a rate of up to 40 mL per minute.

### Concentration and recovery of Microorganisms

Species	Efficiency
<i>Bacillus thuringiensis israeliensis</i> (Bti)	97%
<i>Bacillus atrophaeus</i> (Bg)	95%
<i>Escherichia coli</i> (Ec)	99%
MS-2 bacteriophage	92%
Bg DNA	60%

### Attributes of the HCl-40 Integratable Sample Concentrator

- The HCl-40 is fast—up to 40 mL/min
- Biological samples remain viable
- Concentrate volumes can be pre selected from 1000 µl to 150 µl (smaller volumes are achievable in some applications)
- An input sample port can be used to accept collection fluid from a process sample stream
- The system has the ability to concentrate whole cells while passing free DNA.
- Concentration of the free DNA portion with a second InnovaPrep stage is now an option
- The sample is concentrated into a buffer or fluid chosen by the user
- Small footprint
- Intuitive touchpad control panel

### Particle Size Efficiency

Particle Size (µm)	Represented Particle	Efficiency
4.5	Agglomerates of bacteria	97%
1.0	Single bacteria	90%
0.05	Viruses	79%
0.025	DNA, Lower limit for viruses	60%

## Proven technology with excellent reliability

The HCI-40 Integratable Sample Concentration system is currently integrated into Homeland Security monitoring systems. It has shown superior performance and reliability with multiple matrices. With a history of successful performance, the HCI-40 is an excellent application for collection/detection systems.

Standard fittings and service connections make integration simple and straightforward. Programming updates are easily performed through a RJ-45 connector, and trigger signals can be delivered via serial protocols. All materials contacting the sample are inert and do not inhibit PCR or other assays

## Markets for the HCI-40 Integratable Sample Concentration System

*The InnovaPrep technology has use anywhere the detection, identification, and mitigation of biological contamination is important*

- Biodefense
- Environmental monitoring
- Drinking water
- Waste water
- Process water quality

Specifications	
Flow rate	Up to 40 mL/min
Input sample volume range	1 mL to 1 Liter-plus
Final concentrated sample volume range	1000 $\mu$ L — 150 $\mu$ L Smaller volumes are achievable in some applications
Particle sizes	5 nanometers to 20 microns
Dimensions:	12"X11.5"X6"
Weight	8 lbs.
Power supply	90-264 VAC 47-63 HZ

The HCI-40 Integratable Sample Concentrator is manufactured and supported by:

InnovaPrep  
132 East Main Street  
Drexel, MO 64742  
816.619.3375  
[www.innovaprep.com](http://www.innovaprep.com)

