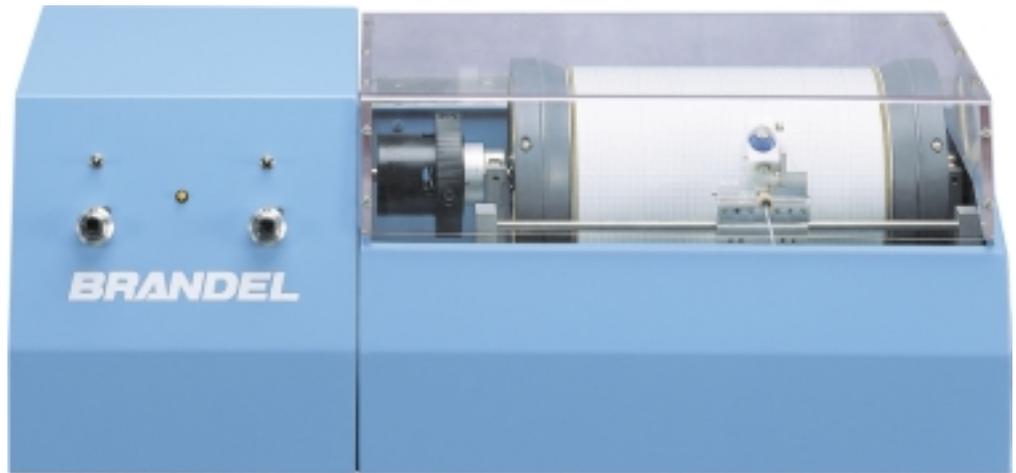


Continuous Small-Volume Fractionator

A Revolutionary Method for Collecting and Fixing Small Volumes



Until now, collecting extremely small volumes presented a number of basic difficulties. Most methods rely on the concept of a “drop” – the idea that a given liquid flowing at a constant rate from a fixed opening should produce drops of the same volume. Nice in theory, but in practice, not very accurate.

Further difficulties arise simply because of the small sample size. A drop that adheres to the side of a microtube, for example, can often mean loss of a significant portion of the sample.

Our Continuous Small-Volume Fractionator circumvents these problems by avoiding the “drop” altogether. Fluid flows from a cannular onto a substrate wrapped around a turning cylinder. As the cylinder rotates, the cannular tracks across the substrate, causing samples to be fixed in a spring-like spiral. When substrate is removed, the flat sheet provides a series of parallel, linear samples set at a slight angle.

Among the many advantages to this new method are increased accuracy in determining counts, volume or concentration. Sample loss is minimized, and the cost of consumables and their disposal is greatly reduced.

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A Revolutionary Method for Collecting and Fixing Small Volumes

The Continuous Small-Volume Fractionator from Brandel introduces an entirely new method of working with extremely small sample volumes for later analysis. Aside from being faster, more precise, and more versatile than conventional methods, it also reduces the cost of consumables and their disposal.

The basic premise is quite simple. A flat sheet of filter paper, membrane or other substrate is wrapped around a rotating cylinder. Fluid from your source is fed through a cannular traveling from left to right, and is absorbed into the substrate. When removed from the drum and laid flat, the substrate will contain a series of slightly angled, parallel samples.

Flow rate, cylinder rotation and cannular cross-feed are user adjustable, so that the amount and spacing of samples meets your analytical requirements.

In addition, start, stop and interrupt commands can be sent from a host to the Fractionator by way of a communications port, so that precise amounts of sample can be fixed as a *continuous line* or as *discrete events*. A programmable event marker provides visual locators for samples on the sheet.

Determining Counts, Concentration or Volume

Since drum rotation and cannular cross-feed are adjustable, it is possible to collect very small amounts of sample in a known volume. If, for example, the sample has a flow rate of 1ml and the cylinder is rotating at

10mm/sec, in one minute the cylinder will travel 600mm. Thus, in every 1mm of substrate there will be 6 microlitres of sample.

Similarly, if you have a known concentration, it is possible to determine the amount of sample in a measured area of substrate.

Fast, Efficient and Versatile

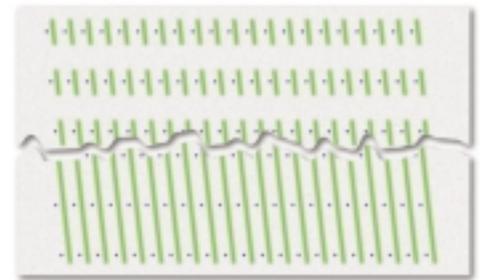
Because this method is continuous and does not use vials or tubes, there is no loss of sample. There's no need to stop the process for indexing, and order of samples is maintained by the chronologic sequence of collection.

Various substrates can be used, depending upon your analytic techniques, cost, and the amount of fluid to be fixed.

Once fixed, samples can be analyzed quickly with an image detector. Some detectors can be programmed to read the entire substrate, process the data and analyze the samples – making the results available for interpretation in a matter of minutes rather than hours or days.

Features

- Collects small-volumes of fluid from a continuous stream and fixes onto a variety of substrates.
- Connects to a variety of sources, such as columns, HPLC, fractionator or other.
- Can be used with various imaging



Samples can be fixed to substrate as discrete events (upper), or as a continuous stream (lower). Small dots represent event markers that provide visual cues as to sample location. All spacing parameters are user definable.

detectors, scintillation counters, fluorescent detectors, etc. Cutting substrate permits analyses such as electrophoresis, PCR, etc.

- Variable cylinder rotation and cross-feed allows user to determine concentration in a known volume, or counts in a known concentration.
- Communications port allows a host to start and stop movement of substrate cylinder, event marker, and cannular carriage. Samples can be fixed in a continuous line or as discrete events.

Advantages

- No loss of small-volume samples as with conventional fraction collectors.
- Minimizes cost and disposal of consumables.
- Provides a linear sequence of events, eliminating mixup of samples or chronology.
- Event marker can be used to visually highlight events on substrate.
 - Operates with a variety of substrates in a 40x20 cm sheet.
 - Works with most types of fluid delivery systems.



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