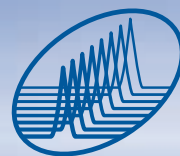




Scales of Economy

the sepbox[®]



sepiatec
SEPARATION INNOVATION AUTOMATION

Economies of Scale

There are many opportunities to face tomorrow's challenges...

Advanced and innovative products face increasing challenges. Each successful quest for a material with new, promising properties opens new markets, whether in the pharmaceutical, chemical, or agricultural field. Additional prerequisites to an inventive approach are cost and time efficiency.

...for which nature offers millions of compounds today...

Natural compounds are increasingly important in many research and development areas. Their structural diversity is supplemented by the synthetic potential of combinatorial chemistry. New classes of substances to be discovered, the highly diversified nature of these compounds and their chiral properties hold the promise of numerous market opportunities to whoever can find them first. This reservoir of nature is almost inexhaustible. Pharmaceutical research is just beginning to exploit it at a larger scale.

conventional
method of discovery



...that's why it takes innovative technological solutions like the **sepbox**® ...

sepiatec's **sepbox**® concept is based on a patented combination of High Performance Liquid Chromatography (HPLC) and Solid Phase Extraction (SPE), i.e. on reliable and proven techniques, providing an universal platform suitable for efficiently processing large sample numbers. Up to 600 samples for HTS can be obtained with maximum efficiency, purity and more than 90% recovery rate using 2-dimensional separation, both for polar and non-polar substances. Depending on the **sepbox**® equipment, one to three extracts can be completely separated per day and the highly pure individual components collected in microtiterplates or sample vials in suitable solvents. These are then available for easy and direct integration into high-throughput screening systems.

Many pre-fractionated samples for HTS can be generated using 1-dimensional separation. Throughput can be multiplied by parallelization.

Full automation results in highest efficiency.



...though never pure, always as a mixture...

Access to the inexhaustible reservoir of natural compounds has become much wider in recent years. However the same does not apply to the respective methods of automatic processing. Fractionation and separation of samples obtained from nature remain time-consuming, tedious and extremely expensive, even though the assays for testing these samples have become faster and cheaper thanks to advanced high-throughput screening processes.

Processing natural product extracts proves to be a major bottleneck in the process of drug discovery. Automation of sample preparation therefore has great economic potential.



sepbox® automation



...to bypass the bottleneck to HTS...

The unique sepbox concept allows you to process samples automatically and will make you up to 30 times faster than by using conventional processes.

- ◇ More compounds in less time
- ◇ Faster access to new leads
- ◇ Reduced expenses per measurement
- ◇ Added reliability
- ◇ More flexibility in research and development

...provided by sepiatec.

sepiatec GmbH, a management buyout from a successful corporation in the natural substances field, was founded in 2000. The enterprise is located in an expanding biotech region in Berlin (Germany). The team is a group of innovative researchers in the fields of chemistry, biology, physics, electronics, and software development. sepiatec is active around the world with a high sense of commitment, years of expertise, and growing success in the field of automated HPLC.

More projects in less time and at reduced costs

The Economy of Total Fractionation

To study a vast number of novel compounds does not necessarily require vast lab facilities...

To produce up to 1,800 almost pure compounds per day on an industrial scale is not just a matter of expenditure and human or spatial resources of enterprises and research facilities. It is a visionary investment decision that saves space and expenses. It also provides a major thrust to product development at an early stage.

...but to run the best technology available...

The **sepbox®2D** family of products provides the same options to each kind of research facility. Extracts of natural substances from 100 milligrams to 5 grams can be applied directly from microbiological, plant and animal material. If desired, you can even separate highly polar substances using the Polar Setup. These units can detect almost all substances by using two detection systems (ultraviolet detection – UV and an optional Evaporative Light Scattering Detection – ELSD).

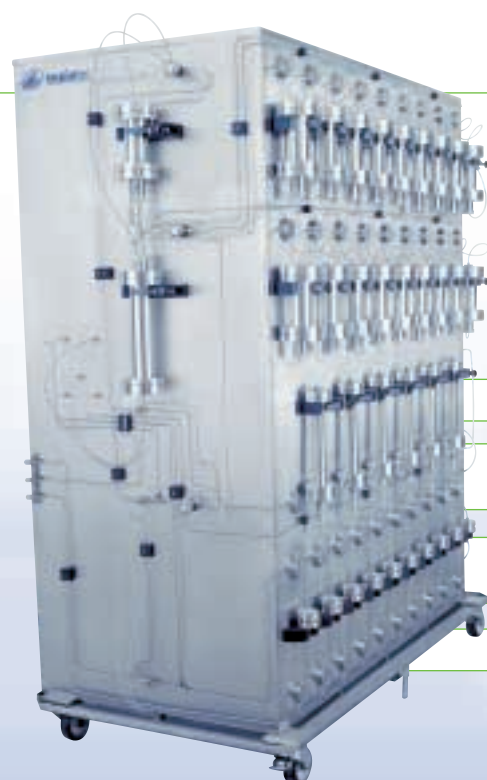
...sepbox®2D-technology has much more to offer.

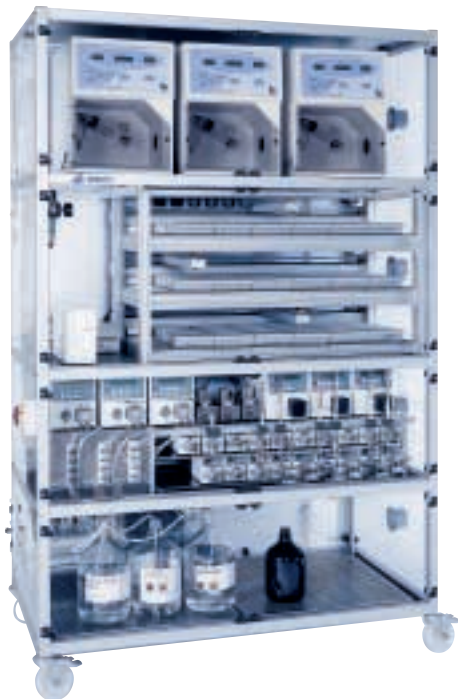
You will obtain quantities of individual chemical entities in a suitable solvent with which you can easily elucidate structures, screen different targets simultaneously, and build a diverse library.

sepbox®2D-5000

Methods used: HPLC-SPE-HPLC-SPE

- ◇ Up to 5000 mg injection of a crude natural extract
- ◇ Unique concept of a preparative, fully automated separation of natural compounds
- ◇ 2-dimensional separation of an extract into up to 600 almost pure substances, within 24 hours
- ◇ Fractions almost free of water and buffer from the second SPE step can be processed immediately
- ◇ Optimized column switching using specific separating materials for maximum results
- ◇ High-quality and reproducible results, high concentration of substances through patented HPLC-SPE coupling
- ◇ Optional Polar Setup function for highly polar substances





sepbox® 2D-250 / sepbox® 2D-100

Methods used: HPLC-SPE-HPLC

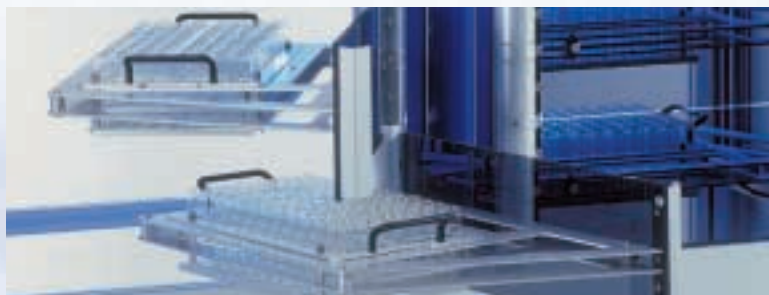
- ◇ Downscaled versions of **sepbox® 2D-5000** for separation of up to 250 mg or up to 100 mg of a crude natural extract
- ◇ Second HPLC-step done in parallel provides three times higher throughput compared to **sepbox® 2D-5000**
- ◇ 48 hours of unattended operation when charged with 6 natural substance extracts
- ◇ Collection of fractions on microtiterplates, which enables immediate use in HTS
- ◇ Generation of sample material for multiple HTS assays under standardized separation conditions and at a high reproducibility
- ◇ Optimized column switching
- ◇ Optional Polar Setup function for highly polar substances



Art.-No.	Device
120-01	sepbox® 2D-250 For medium to non polar compounds
120-02	sepbox® 2D-250 with ELSD For medium to non polar compounds
120-03	sepbox® 2D-250 with Polar Setup For polar to non polar compounds
120-04	sepbox® 2D-250 with ELSD and Polar Setup For polar to non polar compounds
120-05	Polar Setup for sepbox® 2D-250

Art.-No.	Device
120-06	sepbox® 2D-100 For medium to non polar compounds
120-07	sepbox® 2D-100 with ELSD For medium to non polar compounds
120-08	sepbox® 2D-100 with Polar Setup For polar to non polar compounds
120-09	sepbox® 2D-100 with ELSD and Polar Setup For polar to non polar compounds
120-10	Polar Setup for sepbox® 2D-100

Art.-No.	Device
100-01	sepbox® 2D-5000 For medium to nonpolar compounds
100-02	sepbox® 2D-5000 with Polar Setup For polar to nonpolar compounds
100-03	Polar Setup for sepbox® 2D-5000



The Economy of Prefractionation

Many unknown compounds will mean many new opportunities...

New and still unknown samples always hold many new opportunities. However, lack of time, human resources or funds prevent enterprises from using these chances consistently and effectively.

...if tedious and costly procedures can be avoided...

A steady supply with a great number of structurally interesting samples in sufficient concentrations is a must to operate high-throughput systems profitably. The **sepbox® 1D** family lets this come true. Up to 50 extracts per day can be pre-fractionated with high reproducibility. The substances are automatically processed and collected into microtiterplates for immediate subsequent screening or into vials. Round the clock, fully automated and without supervision.

...sepbox®-technology has much more to offer.

Samples taken from highly diluted and extremely complex mixtures – in natural compound chemistry, combinatorial chemistry, or when isolating impurities, byproducts and related substances of a synthesis – can be concentrated easily using the **sepbox® 1D** family and are available for further processing.



sepbox® 1D-5000

- ◇ Injection of up to 5000 mg of crude natural extract
- ◇ Fully automated patented HPLC-SPE coupling for high sample quality
- ◇ Preparative sample pre-fractionation of natural substances
- ◇ Fractions almost free of water and buffer obtained by the SPE step
- ◇ Efficient isolation and enrichment of impurities, byproducts and related substances of a synthesis by repeated injection permits their structural elucidation easily
- ◇ Individual setup for individual needs

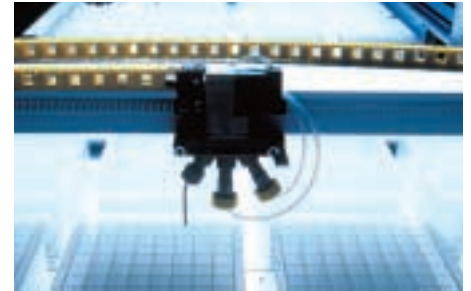
Art.-No.	Device
130-01	sepbox® 1D-5000

sepbox® 1D-100 / sepbox® 1D-10

- ◇ Injection of up to 100 mg or up to 10 mg of crude natural extract
- ◇ SPE/HPLC/SPE coupling for substance enrichment
- ◇ Fully automated system for pre-fractionation of extracts from natural substances
- ◇ Enrichment of highly diluted samples using an SPE injection module
- ◇ Fraction collection in microtiterplates, with an option to immediately carry out HTS
- ◇ Parallelization option can multiply throughput



Art.-No.	Device
110-01	sepbox® 1D-100
110-02	sepbox® 1D-100 with ELSD
110-03	sepbox® 1D-10
110-04	sepbox® 1D-10 with ELSD



Customized Solutions

The more challenging your research programs are...

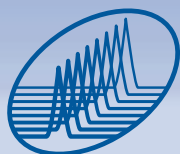
Every R & D program requires specific lab equipment. Tailor-made engineering solutions by **sepiatec** are as specific as your research program and as flexible as may be required for you to make progress.

...the more sophisticated will be the required technology...

No matter what you wish to do: automated rebuffering of samples, solvent renewal, special requirements to SPE, or fully automated extraction of a multitude of samples.

...and the more decisive is experience.

sepiatec's team has gained vast experience in the fields of automation, SPE, and HPLC over many years. The more specific your problem, the more you will profit from this expertise.



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