EVA IV - an analytical preparation system for all kinds of applications, a new system by LCTech that makes work so much easier

Overview of Contents:

Broad Spectrum of Application for the EVA IV Analytical Preparation System

The new EVA IV-system by LCTech processes fully automatically up to 52 samples one after the other - sequentially and individually. The ideal application is the **reproducible concentration** of samples **to a defined end volume**.

Solvent exchange is also automatically performed.

The system is especially suitable for sample series, which can be processed one after the other. Such series are found in analytical laboratories.

EVA IV Analytical sample preparation system - with circulating cooler and mobile table (recommended installation - optional accessory)

The system is ideally suited for the application in the field of sample preparation, e.g.

- for **PAH analysis** of soil and water
- for sample preparation in pesticide analysis
- within the framework of the **H53-method** (DIN EN ISO 9377-2)
- and other work **intensive concentration steps.**

Automation of a Diverse Range of Processing Steps

The unique variety of solvent handling capabilities when combined with stored processing methods and a generous capacity for parameterisable sets of processing data all enhance the extraordinary flexibility of the system.

The EVA IV analytical preparation system can be successfully applied to the following processing steps:

- Fully automatic, unattended concentration of an **undefined to a defined volume** (1mL, 5 mL, or 10 mL).
- Execution of a **simple solvent exchange**,
  e.g. from petroleum ether to acetonitrile, as used in PAH analysis.
- Concentration of a sample and its **quantitative transfer** into the previous sample container, e.g. in order to **subsequently** put the sample over an SPE-column.
- Execution of a multiple **solvent exchange**, should a single exchange not be adequate.
- **Evaporation to dryness** and taking up of the sample in a **different solvent**; prerequisite is here a good solubility of the dried sample.
- **Concentration** and **quantitative** transfer into a sample container.
- Process for **internal standard**
- **Speedup processes** for standard concentration and process for internal standard

In all cases, sample transfer, i.e. sample uptake, processing and preparation in aliquots, is conducted in closed vials.

Essential Benefits of the new System

Simple Operation

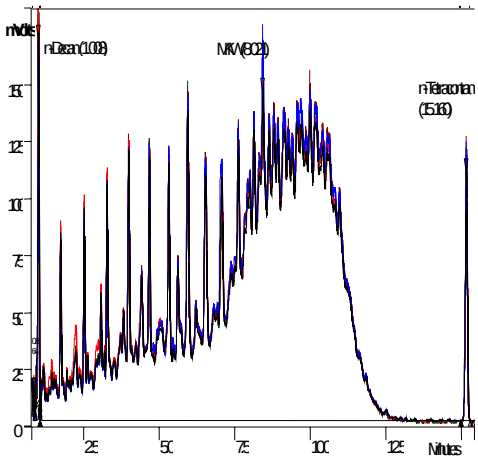
Great effort has been put into the design to make it uncomplicated and easy to understand and operate. Despite the large flexibility of possible parameters, sample processing may be defined within only a few minutes. Methods can be saved and easily retrieved at any time.

Individual Processing of Each Sample

Terminal

Each sample can be processed individually. Up to 98 processing profiles can be saved as a numerical program, re-loaded within seconds and then assigned to another sample in free combination. With this procedure, the characteristics of the matrix or the constituents can be carefully considered when the parameters are chosen. Consequently, the vacuum profile per sample can be pre-set according to the respective requirements and the sample can be concentrated either very gently or extremely quickly. This is also the reason why various matrices can follow each other within one processing sequence. Carry-over effects are reliably avoided by individually adjustable rinsing cycles.

Excellent Reproducibility



This Figure illustrates the superimposed GC-FID-chromatograms of five consecutively processed samples for the determination of the hydrocarbon index in accordance with EN ISO 9377-2:2000. Each time, 50 mL of petroleum ether were concentrated to 1 mL end volume; the concentration of the BAM CRM 5004 standard was 1 mg/mL.

Result: Reproducibility of the system is extraordinary.

The Latest Vacuum Technology

The two essential processing parameters are vacuum and energy supply. A frequency-controlled membrane vacuum pump by VACUUBRAND, Wertheim, has been integrated into the system. This pump can evacuate a system to up to approximately 2 mbar or, alternatively, may be operated in a stepped vacuum profile for very gentle processing. Consequently, the user may choose between either a set pressure cut-off or an automatic mode. All processes can be operated with the set pressure cut-off, whereby the vapour pressure of the solvent to be concentrated is known. However, the automatic mode is recommended, where more complex solvent mixtures are to be concentrated. In the latter case, the system itself searches for the respective vapour pressure.

Supply of heat energy into the system can be set and maintained anywhere between room temperature and 70°C +/- 1 °C.

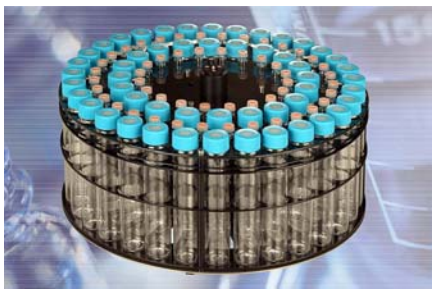
Ports with needle and carousel rack

Low in Emission

The system can be operated as an all-round closed system. Sample container and autosampler vials can be sealed with septa. The condensed distillate is automatically discharged into a collection basin (waste) and can be led into a recycler if required. The evaporator flask is rinsed automatically with up to two different solvents; residues are usually completely rinsed off (no cross-contamination amongst the samples).

Flexibility with the used Sample Containers

The system can be loaded with up to 52 samples of 60 mL each, with 26 samples of 100 mL each or with 12 samples of 250 mL each. At the discharge end, either 1mL autosampler vials or different 16 mL vials are available.



Robust for Unsupervised Operation

The system was developed for the fully automated operation in the laboratory. Consequently, this system can also be used for "overnight runs". EVA IV has been designed with a particular view to robustness and low maintenance, and all common solvents can be utilised. The system is self-cleaning and quiet. The operation is menu-controlled and therefore incredibly simple.

... and just in case

A software update or support from LCTech is quickly and inexpensively available via modem. In this way, service costs can be dramatically minimised in the long run.

Oder Details

System

- **EVA IV, Sample Preparation System -** basic unit ready-to-operate
  Serial processing of samples; for evaporating an undefined volume to a defined end-volume. 240 VAC, 60 Hz. The sample racks, bottles for equipping the rack as well as waste bottles need to be ordered separately according to the application.

  EVAIII-1, End-volume 1 mL
  Order Number EVAIII-1

  EVAIII-5, End-volume 5 mL
  Order Number EVAIII-5

Software

- **VarioSoft 1.0 - PC-Software to control EVAIII**
  and to store Sample ata and Process Parameters into a LIMS compatible, encrypted ASCII-Datasheet.

  PC-Requirements: Windows 98SE or higher; 2 GPc Hard Drive; one RS232 Interface (Com-Port); CD Rom Drive
  Order-Number 10274

Sample Racks

- **Rack for 12 samples**
  250 mL bottles (62 x 145 mm) to 1,5 mL-GC-vials
  Order Number P-250-1

  250 mL bottles (62 x 145 mm) to 16 mL-sample vials
  Order Number P-250-16

- **Rack for 26 samples**
  115 mL bottles (42 x 146 mm) to 1,5 mL-GC-vials
  Order Number P-100-1

  115 mL bottles (42 x 146 mm) to 16 mL-sample vials
  Order Number P-100-16

- **Rack for 52 samples**
  60 mL bottles (28 x 146 mm) to 1,5 mL-GC-vial
  Order Number P-60-1

  60 mL bottles (28 x 146 mm) to 16 mL-sample vials
  Order Number P-60-16

Bottles and vials for equipping the racks

- **Screw-thread bottle, with residue removal (concave bottom)**
  Nominal content about 250 mL, with sealing cap (GL25)
  with aperture for seal; suitable for sample rack P-250- ... ;
  2 bottles per carton (= 1 selling unit)
  Order Number F-250

- **Screw-thread bottle, with residue removal (concave bottom)**
  Nominal content max. 115 mL; with sealing cap (GL25)
  with aperture for seal; suitable for sample rack P-100-.. ;
  2 bottles per carton (= 1 selling unit)
  Order Number F-100

- **Screw-thread bottle,** suitable for DIOEX-ASE-System,
  Nominal content about 60 mL, with sealing cap (GL24)
  with aperture for seal; suitable for sample rack P-60- ... ;
  144 pcs. per carton (= 1 selling unit)
  Order Number F-060-D

- **Sealing cap** with hole (for seal break-through)
  suitable for all screw-thread bottles F-115 and F-200 (GL25)
  Packing unit: 10 pieces (= 1 selling unit)
  Order Number V-0025-SL

- **Sealing cap** with hole (for seal break-through)
  suitable for all screw-thread bottles F-060-D (GL24)
  Packing unit: 144 pieces (= 1 selling unit)
  Order Number V-0024-SL

- **Special-Seals**
  suitable for all screw-thread bottles F-200, F100 und F-060-D
  Packing unit: 100 pieces (= 1 selling unit)
  Order Number V-0025-D

- **Screw-thread vials**, 16 mL,
  flat bottom, open without seal suitable for all racks P-...-16
  Packing unit 100 pcs (= 1 selling unit)
  Order Number V-0016

- **Screw cap with hole,** black
  for 16 mL-vials (Part-No.: V-0016),
  Packing unit 100 pcs (=1 selling unit)
  Order Number V-0016-SL

- **Seal G18** for 16 mL-vials
  PTFE/silicone, red/white, for 16 mL-vials (Part-No.: V-0016),
  Packing unit 100 pcs (=1 selling unit)
  Order Number V-0016-D

- **Screw cap without hole,** black
  for 16 mL-vials (Part-No.: V-0016),
  Packing unit 100 pcs (=1 selling unit)
  Order Number V-0016-S

- **Injection vials,** clear glass, 1,5 mL for GC-systems
  Crimp-top vials 11 x 4 mm
  Dimensions 32 x 11, 5 x 0,9 mm
  Packing unit 100 pcs (=1 selling unit)
  Order Number V-0001

- **Crimp seals,** R11, with inert seal washer PTFE/Silicone/PTFE, red
  Packing unit 100 pcs (=1 selling unit)
  Order Number V-0001-B

Bottle for solvent recovery

- **Laboratory bottle** made of glass, 10.000 mL,
  screw thread GL 45 with special sealing cap;
  connectable to **waste-line**
  Order Number F10000-D

Accessories

- **Stable, mobile table** with 4 lockable castors
  Order Number Tisch-0

- **Modem for distance support,**
  for **ISDN** telephone connections
  incl. software supplements
  Order Number MODEM-ISDN

- **Circulating Cooler;** operational range - 20 °C bis 40 °C;
  especially designed for the applications of the EVAIII; 230 V;
  Order Number COOL

Would you like a quotation?

We are pleased to offer you the new and innovative LCTech analytical preparation system.
General, technical or sales enquiries may be directed as follows:

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FAX: 08081-9368-10 Internet: www.Lctech.de