Abstract
The Personal OPLC 50 and Personal OSU 50 chromatographs are designed for both on-line or off-line separation, purification and screening of complex samples. Disruptive Technologies’ economical flat column design avoids the tedious sample preparation, necessary with a conventional HPLC column and makes it possible to visualize all compounds retained on the column. These chromatographs are particularly powerful tool for identification of unknown compounds in complex matrices.

Features and Benefits of the Personal OPLC-50 and Personal OSU-50
- High chromatographic efficiency.
- Flexibility in monitoring the progress of the separation by either on-line or off-line detection.
- Simple scale-up from analytical to semi-preparative purification of up to 200 mg.
- Visualization of compounds retained on the stationary phase prevents any loss of information.
- Quick and easy integration of the Personal OSU-50 into any HPLC system.
- The Personal OPLC-50 is a stand alone unit that comes with its own pump.
- Inexpensive, disposable sorbent beds, low solvent consumption (up to 1000x less than other LC techniques) and fast separations (5-20 minutes) make this technique particularly economical.

Purification of a Reaction Mixture
Milligram sized samples of reaction mixtures can be readily separated via OPLC. In a typical series of experiments, 20 mg samples of a mixture of quinoxalilones was chromatographed by a C18 stationary phase using a water:acetonitrile gradient and detected by UV. The first separations (0.2 mg analytical scale) were performed with excellent resolution and selectivity (see below). The sample size was then scaled up with the same chromatographic procedure and column capacity, and the excellent resolution and selectivity was maintained. An additional benefit of the OPLC method is that the volume of each collected fraction was very small (3 mL). The plates were scanned to verify that all samples had eluted properly.

Typical Applications
OPLC is a general separation technique that has been successfully applied to problems such as:

QC of pharmaceutical products: Determination of impurities in drugs and reaction mixtures and cleaning validation of manufacturing vessels.

Natural products: Extraction of compounds of pharmacological interest from natural products.

Drug metabolism: Isolation of metabolites in biological fluids.

Sample preparation: Purification of reaction mixtures to extract the compounds of interest for additional studies (e.g. for NMR or MS).

Optimization of HPLC methods: Determination of optimal solvent system for HPLC to elute all compounds out of the column thanks to the possibility to inspect the flat column for retained compounds.

Oligomers and synthetic polymers: Separation of oligomers of natural (e.g. peptides) and synthetic polymers (e.g. polystyrene).

Toxicology: Determination of toxins in foodstuffs (e.g. aflatoxins in wheat).
What is OPLC?

Over Pressure Layer Chromatography (OPLC) is a powerful separation technique that employs a planar sorbent bed in a pressurized chamber. The flat column is pressurized to 5 MPa (50 bars) and mobile phase is forced through it at constant linear velocity via a pump. Bonded phase and normal phase silica with particles size as low as 5µm are available. OPLC provides superb separations thanks to its high resolution of up to 17000 theoretical plates.

On-Line or Off-Line Detection

When on-line detection is employed, the chromatogram is presented in the same manner as HPLC (OPLC-RD). One can also monitor the separation off-line (OPLC-DAR). With off-line detection, tightly retained compounds can be detected. These might not be observed in on-line mode.

Separation of Complex Mixtures

Many compounds of pharmaceutical interest are derived from plants and are easily isolated from the raw plant material. Similarly, samples from drug metabolism investigations are complex mixtures containing many compounds at low concentrations. The figure below shows the separation of a crude urine sample (injection volume = 800 µL) injected without any prior treatment or solvent extraction.

Specifications

Dimensions: 135 mm (5") H x 296 mm (12") W x 390 mm (15") D
Weight: 19 kg (42 lb.)
Power Requirements: 110/220 V 50/60 Hz, 160 VA

All specifications are subject to change

Ordering Information

Personal OSU-50 (part number POSU-50)
110 V/60 Hz and 220 V/50 Hz

Personal OPLC-50 (part number POPLC-50)
110 V/60 Hz and 220 V/50 Hz

The OPLC planar sorbent beds are available with a broad range of stationary phases including Silica for normal phase separations, C18 for Reverse Phase separations, as well as Amino, Cyano, Diol or Chiral for specialized separations. Stationary phases are available in 5 and 11 µm. For a detailed list of sorbent formats that are available, please contact your local representative.

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