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[Pesticides, PCB and PAH](#)

# Pesticides, PCB and PAH

## Pesticides in Food or Feed

Pesticides are chemical substances, which are used to prevent damage on e.g. arables caused by insects, fungi or nematodes. These are used by farmers and growers in conventional agriculture and horticulture. Consequently, the amount of pesticide residues on food and animal feed are regulated by law in order to protect the consumer and livestock or pets from any possible damage.

Unfortunately in both food and feed, maximum permissible residue limits are found to be regularly exceeded. This may be due to lack of application of the rules of "Good Agricultural Praxis" for pesticide application, the usage of banned pesticides, or the deliberate evasion of rules. In order to guarantee to the consumer safe and healthy food, comprehensive and strict controls are essential.



For this area of application, especially when looking at compliance with the revised DFG S19 (L 00.00-34), the AOAC methods 984.21, EN 12393 or EN 1528 and other analytical methods, LCTech offers a comprehensive product range. In particular their FREESTYLE system, with its modular design, caters for all aspects of residue analysis at any required level of automation.



*FREESTYLE system equipped with GPC and EVAporation module and a selection of racks for the automated sample preparation of pesticides*

## Automated Sample Preparation with FREESTYLE

### Recommended configuration

- for clean-up with GPC column: FREESTYLE with **GPC module** and corresponding racks for sample processing via GPC (Gel permeation chromatography).
- for evaporation to a defined endvolume and solvent exchange: additional **EVAporation module** (can be updated).
- for the automated QuEChERS method, FREESTYLE is equipped with the **SPE module** and equipped with the **HPLC Direct Injection module** for the additional on-line connection to your LC-MS/MS system.

We are happy to assist you with the configuration of an LCTech **FREESTYLE system** - exactly tailored to your applications and your need for automatisation.



## Automated Sample Preparation for Residue Analysis

User video of the Robotic System FREESTYLE GPC/EVaporation in Action

### Automated GPC

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#### FREESTYLE GPC module

Flexible, suitable for large series, easy to handle and highly efficient: ideal for automatic processing in the field of pesticide analysis.

[Read more ...](#)

### Automated EVaporation

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#### FREESTYLE EVaporation module

The combination of the FREESTYLE GPC with the EVaporation module prepares the samples with or without solvent exchange in GC vials ready for analysis.

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### Automated Sample Preparation

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#### FREESTYLE SPE

The FREESTYLE robotic system with SPE module assumes routine laboratory tasks: around the clock, unattended and reliably.

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### Complete Automation in Sample Preparation

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#### FREESTYLE HPLC Direct Injection Module

Fully automated sample preparation from raw extract to chromatogram without any manual working step.

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## Automated QuEChERS Method

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### FREESTYLE QuEChERS

A automated QuEChERS method for difficult dried matrices, like tea or spices, and standard matrices, like fruits or vegetables. This non-dispersive procedure stands out due to its fastness, simplicity, and competitive pricing.

[Read more ...](#)

## Semi-automated GPC

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### GPC uno

Simple, universal, and inexpensive system for gel permeation. After manual injection, the GPC uno processes your samples automatically.

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## Semi-automated GPC for Quadruple Throughput

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### GPC quattro

System for the gel permeation chromatography for the clean-up of samples. You can run up to four columns in parallel and thus quadruple the sample throughput.

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## Accessories

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### GPC Columns

With its robustness they they are designed for everyday analysis in laboratories.

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## Accessories

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### UV Detector

The UV detector can be ideally used in combination with the FREESTYLE GPC.

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