



# Freestyle GPC

**Fully Automated System**

**Sample Clean-Up with  
Gel Permeation Chromatography (GPC)**

**Extendable to System  
for Solid Phase Extraction (SPE)**

## Gel Permeation Chromatography for Sample Clean-Up

*Avocados*

*Celery*

*Chili*

*Chocolate*

*Cocoa butter*

*Eggs*

*Feedstuff*

*Fennel oil*

*Fish*

*Hazelnut*

*Lanolin*

*Milk powder*

*Nut creme*

*Oranges*

*Popcorn*

*Quinoa*

*Sausages*

*Sediments*

*Sewage sludge*

*Soils*

*Sunflower oil*

*Tea*

*Thyme*

*and many more samples*

*Antimicrobial Substances*

*Antioxidants*

*Aromatic Amines*

*Azo dyes*

*Bisphenol A*

*Chlorinated Aromatics*

*Dioxin-like Polychlorinated Biphenyls*

*Persistent Organic Pollutants*

*Nitro and Nitroso Aromatics*

*Nonylphenols*

*Organochlorine Pesticides*

*Organonitrogen Pesticides*

*Organophosphate Plasticizers*

*Organophosphorous Pesticides*

*Polycyclic Aromatic Hydrocarbons*

*Phthalates*

*Polybrominated Diphenyl Ethers*

*Polychlorinated Biphenyls*

*Polychlorinated Dibenzodioxins*

*Polychlorinated Dibenzofuranes*

*Pyrethroids*

*Synthetic Musk Fragrances*

*Toxaphenes*

*Zearalenone*

*and many more analytes*

*have already been cleaned up with LCTech GPC systems.*

*And what is your challenge?*

# Freestyle GPC

Due to Unique Mechanics and Software  
it is More Flexible than any other System



More about the **mechanics** on pages 4 - 5



More about the **software** on pages 6 - 7

# Freestyle GPC

Do you want to use 100 mL vials? 250 mL or TurboVap flasks?

Or rotary evaporator flasks? Or combine different vials?

You are the one to choose - any time, even when the system is already running.

## Efficient Sample Clean-Up

The Freestyle GPC automatically cleans up raw extracts and removes disturbing matrix components like lipids, pigments, sugars or humic acids.

The system is universally used - for the analysis of food and feed as well as for soil samples.

Gel permeation chromatography (GPC) is defined as the clean-up step in many official methods. This robust procedure is still the best solution for fatty food, spices, teas and sediments.



**The Freestyle GPC fulfills the requirements of these guidelines:**

*USEPA SW-846 Method 3640A, USFDA, USDA/FSIS CLG-CHC3, EN 1528, EN12393, L00.0034, AOAC 984.21, DFG S19 and more*



*Whether food, feed or environmental sample - GPC is suitable for clean-up*

## Flexibility at Highest Level

Due to unique mechanics and intelligent software the Freestyle GPC is very flexible and can be adapted to changing requirements at any time.

It allows arbitrarily combining different glass sizes from 1 mL to 1000 mL. The sample vials can be added or removed even during a current run.

Using the system all classical injection procedures from sample loop overflow to quantitative transfer to several glasses are possible.

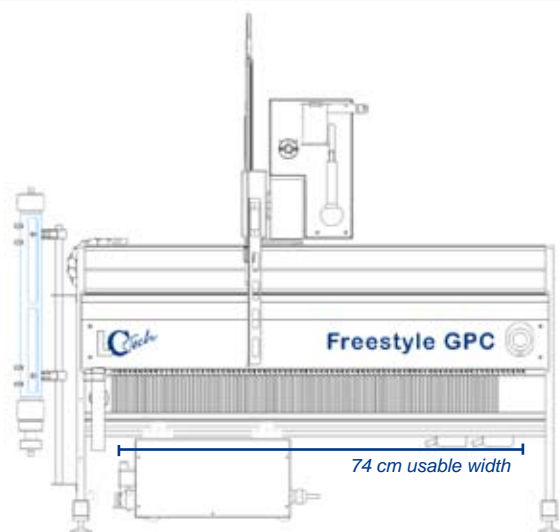
Additionally samples can be fractionated according to most individual requirements, even into different glass types and sizes.

## Configuration According to Requirements

The system is available in three versions with differing usable space - according to sample quantity and space conditions in the laboratory.

Thus, it is suitable for a high quantity of samples, e.g.

- up to 84 samples in the classical GPC application with sample presentation in 16 mL and uptake in 100 mL vials
- up to 84 samples with presentation in 16 mL and uptake in 50 mL TurboVap vials
- up to 60 samples with presentation in 16 mL and uptake in 250 mL vials
- up to 60 samples with presentation in 16 mL and uptake in 100 mL round bottom flasks
- up to 180 samples with presentation in 16 mL and uptake in test tubes



## Safety and Proven Quality

The foundation for Freestyle GPC is a proven and thousand fold tested robotic system with an accordingly high level of performance.

Only high quality components are used, the need for maintenance and repair is extremely low.

Freestyle GPC fulfills the requirements of VDE and low voltage directives and is CE certified. It complies with the high standards of the German Machinery Directive with safety features like emergency switch, stop at collision of the robotic arm and protection against injuries by the needle.



**Up to 180 samples  
within one sequence!**



**Designed for no limitation**

*Competitors advertise with more than 50 platforms. Sorry, we only have one. But you can do whatever you want to do, anytime.*



**Your direct line to LCTech**

*Whenever you have further questions or remarks*

*- we are in reach for you.*

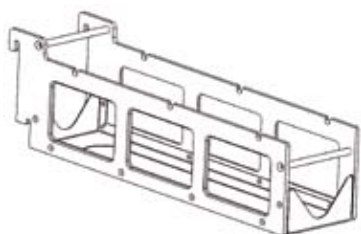
*Please call us at +49 8081 93680  
or write an e-mail to [info@Lctech.de](mailto:info@Lctech.de)*

## Feel Free - Any Combination, at Any Time

The mechanism for positioning the sample racks into the system is unique on the market (patent registered) and in combination with the intelligent software allows for flexibility, which has never been possible before.

## The system is emission free ...

*... and does not need a fume cupboard.  
The vials remain closed.*



The **frame** is available in two versions (10 or 12 cm wide).

It can be used for different glass types.

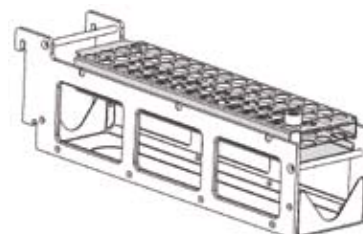
+



The samples are positioned into the **tray**.

The sample numbers are etched into it.

=



By simply putting the tray into the frame the **rack** is completed.

It can directly be positioned into the GPC system.



## Equipping the System - Easy

The racks are quickly and easily assembled on the system. No tools necessary!

Then the user simply informs the software about the rack positions and handling instructions. The system automatically handles the rest.

In case there is an urgent sample, it can easily be given top priority.



### The direct advantage:

The Freestyle GPC can operate glass sizes from 1 mL to 1000 mL in any combination.



This number of rack position (15 in this example) corresponds to the one in the software

These racks are available for the Freestyle GPC right now:

	Glass type and size	Max. vials / rack	Product N° of the rack	Frame needed?
<b>Racks for sample vials</b>				
	1 mL (GC)	60	11920	Type 10 cm (11915)
	4 mL	30	11926	Type 10 cm (11915)
	5 mL round bottom	30	11933 with adapter 10430	Type 10 cm (11915)
	16 mL	30	11933	Type 10 cm (11915)
<b>Racks for test tubes</b>				
	75 x 12 mm	30	12117	Type 10 cm (11915)
	100 x 16 mm	30	12116	Type 10 cm (11915)
<b>Racks for Turbo-Vap flasks</b>				
	50 mL	14	12104	Type 12 cm (12103)
	200 mL	5	12105	Type 12 cm (12103)
<b>Racks for laboratory bottles</b>				
	60 mL (Dionex ASE)	30	12106	Type 12 cm (12103)
	100 mL	14	12107	Type 12 cm (12103)
	250 mL	10	11962	-
	500 mL	3	12000	-
	1000 mL	3	11994	-
<b>Racks for rotary evaporator flasks</b>				
	100 mL with NS 14/23	10	11963	-
	100 mL with NS 29/32	10	11970	-
	250 mL with NS 29/32	8	11976	-
	500 mL with NS 29/32	6	11979	-
	1000 mL with NS 29/32	6	11988	-

**Do you want to work with another glass type or size?**

*We are able to produce new racks according to your requirements - simply contact us.*

## The Software - Very Easy in Daily Routine

For daily work the Freestyle GPC can easily be controlled with the intuitive software. Also less experienced laboratory staff can handle it after a short introduction.

Diverse **safety features** and inquiries ensure a trouble-free operation in routine, avoiding the loss of a sample or the waste of solvents.

The parameters which are important to routine work can all be found in the main window of the software. There the user has a clear overview over rack positions and sample list.

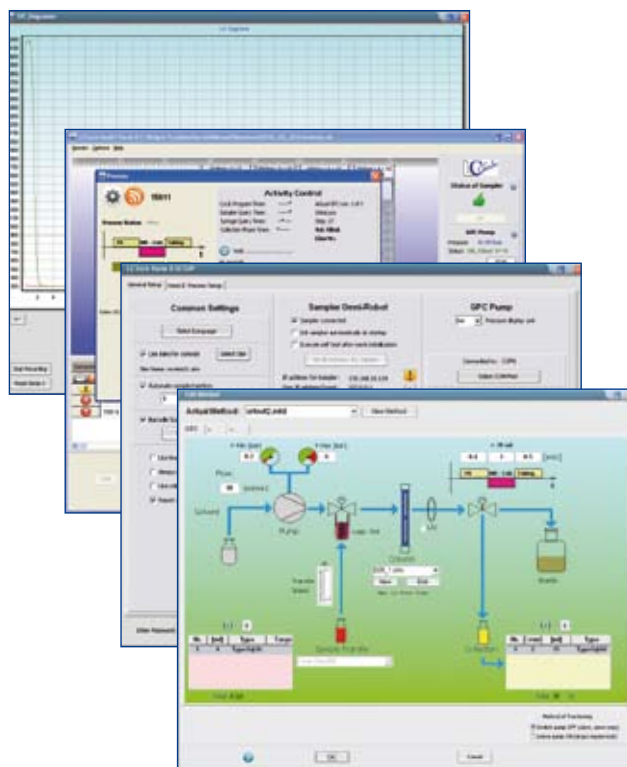


*A software for the user*

## The Software - Unlimited Possibilities

The software of the Freestyle GPC is the most flexible one available for GPC systems. It offers comprehensive possibilities for all requirements in gel permeation chromatography.

- ✓ In **Editing the method** an individual method can be defined for each sample of the sequence, shown directly in the flow scheme and with immediate plausibility checks.
- ✓ **UV chromatograms can be displayed**, enlarged and overlaid.
- ✓ A **report generation** allows exporting pdf files for methods, columns and samples.
- ✓ All previously run samples are traceable over the long term in compliance with Good Manufacturing and Laboratory Practices. Data is stored in **detailed log files** which can be exported with the reports.
- ✓ and much more.



*Diverse views of the software*

## The Main Window of the Software

A well-arranged **navigation** leads through the software.

It can intuitively be operated from the left side to the right one.

This number of rack position corresponds to the one on the system.

With one click a comprehensive **help function** can be called up.

The screenshot shows the main window of the LCTech software. At the top, there is a menu bar with 'Session', 'Options', and 'Help'. Below it is a toolbar with icons for 'Methods', 'Arrange Racks', 'Add New Sample', 'Edit Item', 'START', and 'Quit'. The main area displays a rack layout with five racks labeled '0016ml x 3 x 10 Type1@18', '0100ml x 2 x 7 Type1@100', '0004ml x 4 x 15 Type1@4', '0200ml x 2 x 5 Type1@200', and '0500ml x 1 x 3 Type2@500'. Below the rack layout is a table with the following data:

N°	Status	Number	Name	Method	Code	Status	In.Time	Proc. Time
1	✓	1559	Name	B4.mtd	LCTech	..finished	15:28:13 06.10.2010	11:12:36 07.10.2010
2	✓	1560		Cleaning Step	Cyc=0C	..finished	15:33:07 06.10.2010	11:16:03 07.10.2010
3	✗	1559	Name	B4.mtd	LCTech	OK - waiting	15:28:20 06.10.2010	
4	✗	1560	Name	B4.mtd	LCTech	OK - waiting	11:05:06 07.10.2010	
5	✗	1560	Name	C553-2.mtd	LCTech	OK - waiting	11:11:50 07.10.2010	
6	✗	1560		Cleaning Step	Cyc=1C	OK - waiting	11:12:26 07.10.2010	

At the bottom of the window, it says 'Total Items in list: 5 , ready for process: 4'. On the right side, there are several control panels: 'Status of Sampler' with a green thumbs up icon and an 'Ink' button; 'GPC Pump' with 'Pressure: 0.00 bar' and 'Status: OK, STOPPED', and a 'START' button; 'UV Recording' with 'UV D. Value:', 'Start Time:', and 'Duration:' fields, and a 'Chromatogram' button; a 'SETUP' button; and 'Actually Processing:' with a green arrow icon, a 'Report' button, and a 'Reset Sample Status' button.

The **position of the racks** precisely corresponds to the one on the system. The racks are simply chosen from a list and positioned by drag and drop.

The samples are marked with colors.

The **sample list** is clearly shown with all decisive parameters.

Prioritization of an urgent sample? Simply put it to another position per drag & drop.

Telling **symbols** additionally provide overview.



For the Freestyle GPC an **extension for processes in solid phase extraction (SPE)** is available. This additional module can easily be added by connecting it to the provided interface.

The SPE module allows combining steps of conditioning, draining, loading, washing, drying and eluting. For each step parameters can be defined individually.

Thus, all normal SPE columns with 1, 3 and 6 mL can be handled.

Why not automate time-consuming working steps with this solution?



Moreover the system can be upgraded with a **vacuum chamber** and used as **concentrator**.



The LCTech **GPC columns** are available filled with bio-beads or unfilled in various lengths and filling heights.

They can be used with diverse solvents and refilled with no effort, even in the laboratory.



The **barcode reader** is highly recommended by LCTech for tracking the samples, which thus becomes much faster and with fewer errors.



The **UV detector** with fixed wave length is suitable for quality assurance of the GPC column.

Not shown here: A **column shift valve** for up 5 columns allows choosing different GPC columns in the software.

And to save solvents ...



The **Distillation Device SR6/Fully Automated** allows recycling or upgrading solvents from technical to analytical grade.

The device has an input volume of about five litres and is designed for average solvent consumption in a laboratory. Its use is safe and maintenance is low.

It is operated by a comfortable touch-screen control, allowing a full automation of distillation processes.

Essential savings can be obtained. Cost for purchase, storage and disposal of solvents can decrease significantly.



Visit us on [www.LCTech.de](http://www.LCTech.de)

Additional details and updated information about our products can be obtained from our website.

## About LCTech



LCTech GmbH is based in Dorfen, Germany. Since 1998, we have been developing and supplying products and methods for the preparation and analysis of food, animal feed and environmental samples.

Our product range includes both semi and fully automated sample preparation systems as well as consumables utilised in the analysis of contaminants and residues.



„Customer satisfaction is our top priority“

A handwritten signature in blue ink that reads "L. Baumann".

Michael Baumann, Managing Director



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## And a distributor nearby

### Ordering Information

Description	Product N°
Freestyle GPC with 74 cm usable space	12582
Technical data: 110 - 220 VAC, 50 / 60 Hz The system consists of robotic system, GPC pump, syringe pump, different valves and software. Trays & GPC columns have to be ordered additionally, a computer is needed to run the system.	

We reserve the right for technical changes.  
LC Tech assumes no liability for the above  
and the illustrated application examples.

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P/N 12299, as of March 2011