



February 2016

## Aflatoxins B/G in Peanuts with Shell: fully automated with FREESTYLE ThermELUTE™

*Do you have a special matrix that we should test for mycotoxins? Please let us know and write an e-mail to: [mycotoxins@LCTech.de](mailto:mycotoxins@LCTech.de)*

### Sample Preparation and Analysis

MYCOTOXINS

#### **FREESTYLE ThermELUTE™: ppt instead of ppb**

The combination of the FREESTYLE ThermELUTE™ and an HPLC unit with FLD enables the fully automated analysis from extract to chromatogram of the aflatoxins B1, B2, G1, G2 and M1 as well as Ochratoxin A. Be it food or feed, the FREESTYLE ThermELUTE™ is the only fully automated processing equipment that can analyse mycotoxins using immunoaffinity columns, thermal elution and subsequent HPLC. And it's so easy in daily routine:

#### **Processing protocol with FREESTYLE ThermELUTE™**

Homogenize 20 g of peanuts and add 2 g sodium chloride. Extract the sample material with 100 mL methanol/water (80/20 (v/v)) and 50 mL n-hexane to remove fat and oils. The extraction should be conducted for at least 5 to 10 minutes.

Filtrate the raw extract and dilute 7 mL with 43 mL PBS.

Next place the sample as well as the immunoaffinity column AflaCLEAN SMART into the robotic system FREESTYLE ThermELUTE™. Choose the required method from the FREESTYLE software and start the system.

From now on the FREESTYLE ThermELUTE™ takes over the processing of your sample.

Up to 10 mL of the sample can be cleaned-up by the AflaCLEAN SMART column. The chromatograms on the following page show a sample load of 5 mL, 2.5 mL and 1 mL sample.

The column is washed with 2 mL of deionized water and is eluted via the ThermELUTE™-technology. The eluate is transferred directly and quantitatively as sample loop partial filling into the injection system of the HPLC unit.



Robotic system FREESTYLE ThermELUTE™

## HPLC-Conditions (Aflatoxins B/G)

HPLC:	isocratic
Column Oven:	36°
Separation Column:	RP C-18 (P/N 10544)
Flowrate:	1.2 mL/min
Eluent:	HPLC-water/methanol/ acetonitrile (60/30/15 (v/v/v))
Fluorescence Detection:	with derivatisation (UVE/photochemical)
Excitation Wavelength:	365 nm
Emission Wavelength:	460 nm

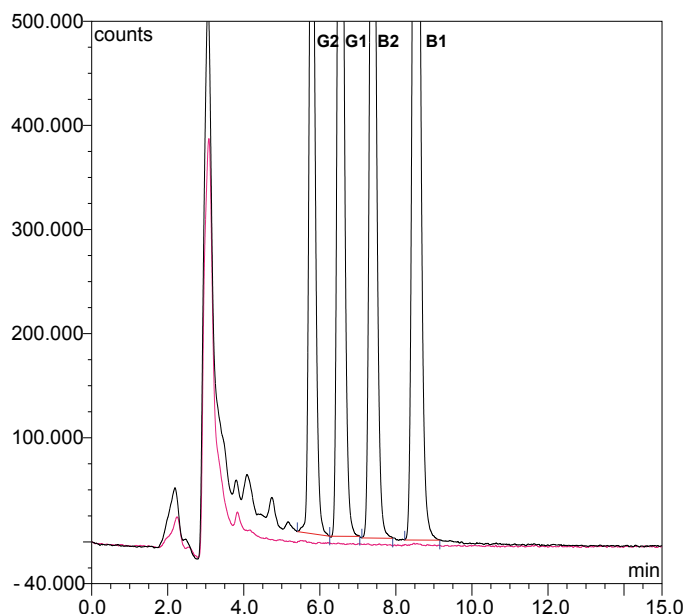
## Recovery Rates

Content of Aflatoxin B1, B2, G1 and G2 in Chestnuts

Aflatoxin	B1	B2	G1	G2
Standard*	100	100	100	100
Recovery Rate** Peanut with Shell, 10 ppb	97	98	103	88

\*Standard is set = 100 %, \*\*Corrected with non-spiked sample/  
The results correspond to the performance specifications of EC 401/2006 (Section 4.3.1)

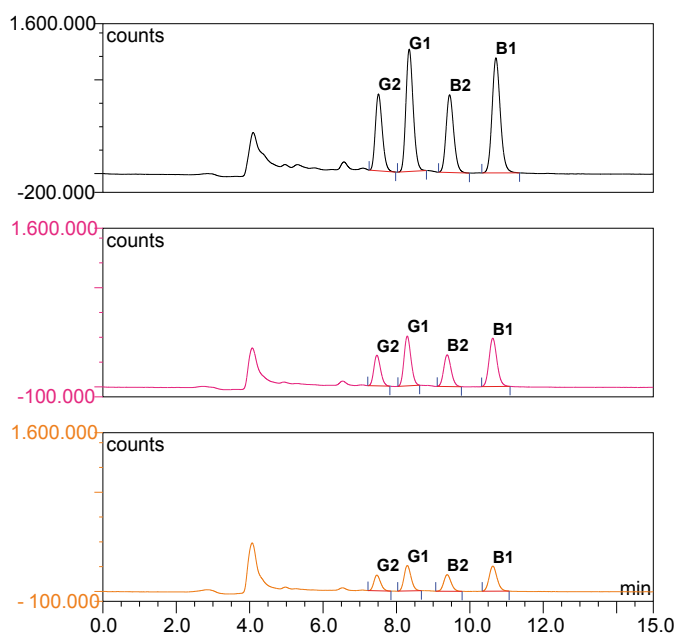
## No cross-contamination



The chromatogram shows the results of a peanut sample, spiked with 15 ppb (black) and thus highly contaminated and a blind sample (only buffer, red) that has been processed directly after the contaminated sample.

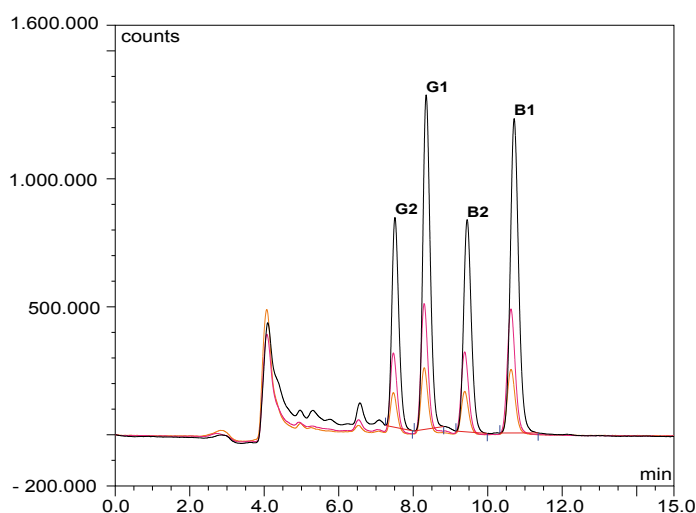
The results that have been achieved with the FREESTYLE ThermELUTE™ don't show any cross-contamination providing at the same time highest sensitivity.

## Chromatograms



Left: 5 mL sample (black), 2.5 mL sample (red), 1 mL sample (orange), each spiked with 5 ppb total aflatoxin; represents 0.14 g, 0.017 g, or 0.035 g matrix equivalent

Right: Overlay of the three chromatograms



## These LCTech products were used:

AflaCLEAN SMART, Immunoaffinity Columns  
for Aflatoxins B1, B2, G1 and G2  
P/N 12862 / 12863

FREESTYLE ThermELUTE™ Robotic System  
for Sample Preparation and Analysis  
P/N 12663 / 12668 / 13691