



July 2016

Zearalenone in Chicken Feed

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

Sample Preparation and Analysis

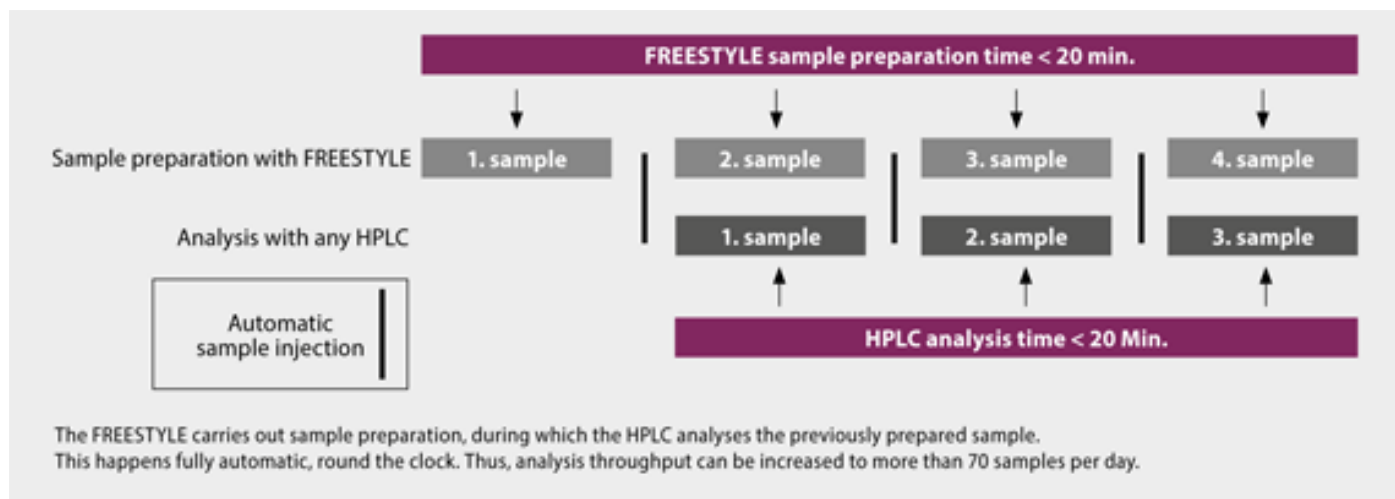
MYCOTOXINS

Affinity Columns ZeaCLEAN SMART

The affinity columns ZeaCLEAN SMART are available in a small 3 cm polypropylene format, which is especially developed for high sample throughput in food and feed analysis by HPLC with fluorescence detection and LC-MS. With their use in extraction, dilution, rinsing, sample loading and elution, more than 80 % of the solvents can be saved. The affinity columns ZeaCLEAN SMART, are designed for sample clean-up of cereal and oil samples for subsequent mycotoxin analysis. The clean-up can be done either manually or automatically.

Fully Automated Processing via FREESTYLE ThermELUTE™

The optimal combination of FREESTYLE and SMART columns enables a fully automated processing of samples from raw extract to chromatogram with excellent recovery rates for all matrices. The robotic system FREESTYLE, equipped with the SPE and the ThermELUTE™ module, leads to a very sensitive measurement, reproducible results and a high sample throughput of up to 500 samples per week.



Protocol of Manual Processing

Extract 20 g of homogenised chicken feed through 100 mL methanol/water (80/20 (v/v)) for 10 minutes. Filtrate the raw extract and dilute 5 mL with 35 mL PBS. In order to remove turbidity, filtrate the sample afterwards with a GF/A whatman filter.

Load 20 mL of the sample onto the ZeaCLEAN SMART column (represents 0.5 g). Wash the column and the guard-column with 4 mL (20 %) acetonitrile in HPLC-water.

Eluate by adding 400 µL of acetonitrile and dilute into fluidic conditions. Keep in mind that the column bed is incubated with methanol for at least 5 minutes before the eluate will be collected.

Inject the sample afterwards into the HPLC.

HPLC-Conditions (Zearalone)

Column Oven	38 °C
HPLC-Column	150 x 4.6 mm; RP C18 (P/N 10522) Gard Column 8 x 4 mm (P/N 10523) + Gard Column Holder (P/N 10750)
Flow Rates	1.0 mL/min (75% A, 25% B); 0-18 min 1.0 mL/min (100% A, 0% B); 18-21 min 1.0 mL/min (75% A, 25% B); 21-26 min
Eluent A	Water/Acetonitrile 45/55 (contents 2% acetic acid (v/v))
Eluent B	Water/Acetonitrile 95/5 (v/v)
Fluorescence Detection	without Derivatisation
Excitation Wavelength	274 nm
Emission Wavelength	440 nm
Injection Volumina	10-100 µL

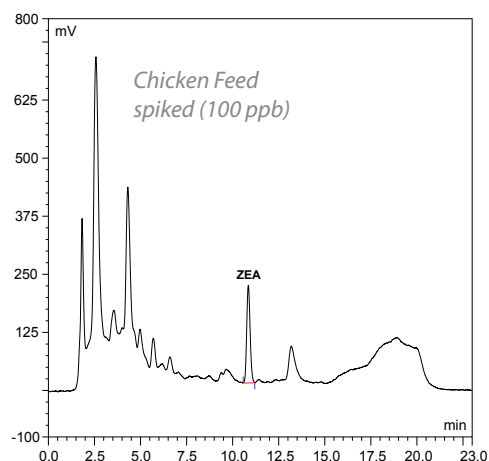
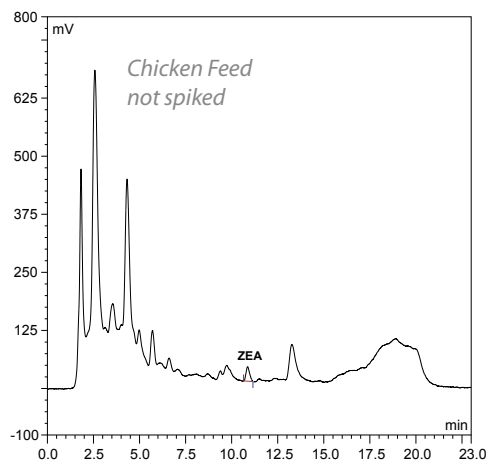
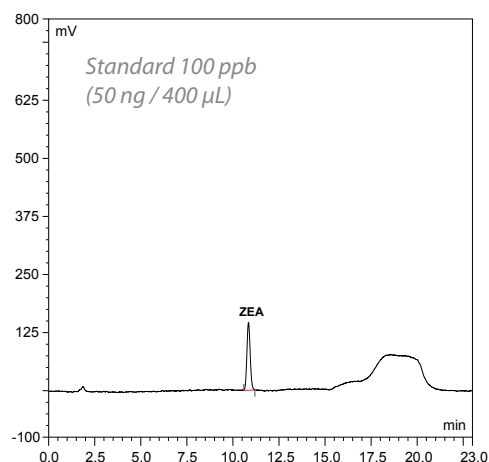
Recovery Rates

Content of Zearalenone in Chicken Feed

Mycotoxin	Zearalenone
Standard*	100
Recovery Rates** Chicken Feed, 100 ppb	93

*Standard is set = 100 %, **Corrected with non-spiked sample/
The results correspond to the performance specifications of EC 519 / 2014 (Section 4.3.1.1)

Chromatograms



These LCTech products were used:

ZeaCLEAN SMART, Affinity Columns
for Zearalenone P/N 14741
HPLC Column, RP C18 P/N 10522
Gard Column, 8 x 4 mm P/N 10523
Gard Column Holder P/N 10750
FREESTYLE ThermELUTE™, Robotic System for
Fully Automated Sample Preparation P/N 12663, 13691