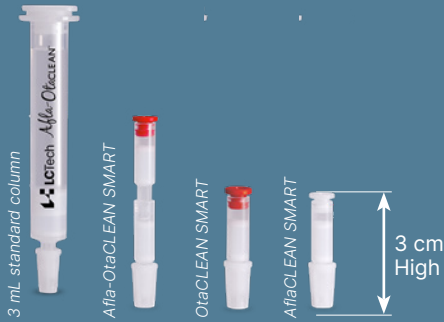




# Small + Fast + Economical

With the SMART column you upgrade your mycotoxin analysis for *Aflatoxin B/G or M1, Ochratoxin A - Zearalenone*



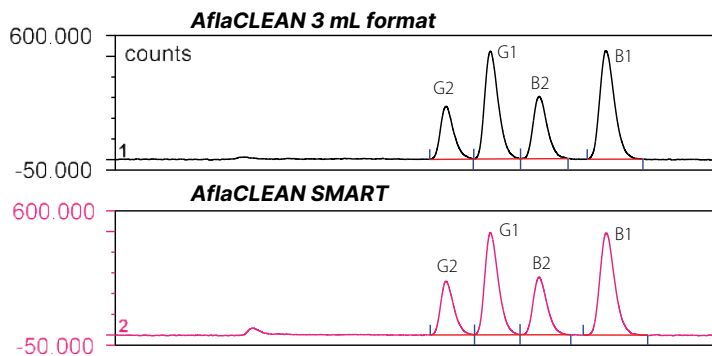
**Why is it beneficial using SMART columns vs 3 mL Standard columns with equal sensitivity?**

- Same concentration of toxins in the eluate
- Same matrix equivalent injected
- Using only 1/5 of matrix, solvent and dilution buffer
- Reduction of processtime
- Reduction of waste
- Much faster than 3 mL

## Process Parameters

| Process                    | 1 or 3 mL Standard format  | SMART format  |
|----------------------------|--|---|
| Loading                    | up to 50 mL (1.4 gram)   | Up to 10 mL (0.28 gram)   |
| Washing                    | 10 mL  | 2 mL  |
| Elution volume             | 2 mL (methanol)  | 0.4 mL (methanol)   |
| Injection in LC            | 100 µL   | 100 µL  |
| Matrix equivalent injected | 0.021 gram   | 0.021 gram  |
| Gain of sensitivity        | 1  | 1   |
| Saving time                | 0%   | up to <b>80%</b>  |
|                            | Flow rate: 1 - 2 mL/min;<br>loading + washing: 30 - 60 min<br>+ 5 min waiting time for elution step<br><b>Total time ~40 min</b> | Flow rate: 3 mL/min;<br>loading + washing: 4 min<br>+ 5 min waiting time for elution step<br><b>Total time ~9 min</b> |

## Chromatographical Comparison



- Same chromatographical quality and recovery could be achieved
- High matrix compatibility of AflaCLEAN SMART allows analysis of all kind of food and feed samples

■ **Black:** Rice, 20 ppb clean-up with AflaCLEAN 3 mL format  
 ■ **RED:** Rice, 20 ppb clean-up with AflaCLEAN SMART

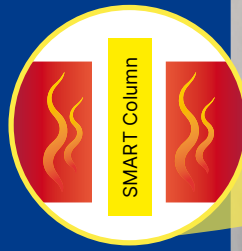
**Be smart - Save time and money using SMART columns**



## Automated analysis of highly regulated mycotoxins with outstanding sensitivity *Aflatoxins B/G or M1 - Ochratoxin A - Zearalenone*

### Advantages:

- ✓ Clever automation - from extract to chromatogram
- ✓ High sample throughput up to 70 samples/day
- ✓ Remarkable sensitivity in the lower ppt range:
  - Aflatoxine B/G < 10 ppt
  - Aflatoxin M1 < 1 ppt
  - Ochratoxin A < 30 ppt
  - Zearalenone < 2 ppb
- ✓ Aqueous elution allows chromatographical focussing

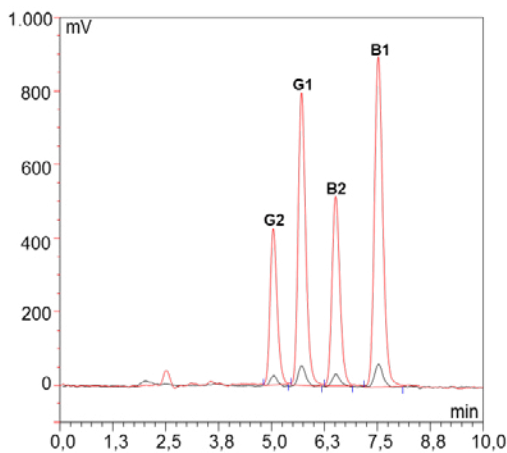


FREESTYLE SPE + ThermELUTE™ + SMART columns  
(miniaturised immunoaffinity columns) + HPLC - FLD (any supplier)

| Process  | FREESTYLE ThermELUTE™                                     |
|--|---|
| Loading  | Up to 10 mL (0.28 gram)                                   |
| Washing  | 2 mL  |
| Elution volume                                   | Up to 0.625 mL (aqueous)                                  |
| Adaptation to LC eluent (H2O/MeOH/ACN: 60/30/15) | 100% of eluted toxins are transferred to LC automatically |
| Injection in LC                                  | 625 µL (total eluate injected)                            |
| Matrix equivalent injected                       | 0.28 gram   |
| Gain of sensitivity                              | <b>14</b>   |

Saving time up to **80%**

### Sensitivity



■ **RED** represents a 3 ppb standard directly injected by FREESTYLE ThermELUTE™

■ **BLACK** represents a 3 ppb standard injected with standard procedure

### Elution with heat + water instead of MeOH

- Column heated for about 5 minutes at > 90 °C in heating element
- Heating breaks toxin-antibody bond
- Toxin is quantitatively transferred into HPLC sample loop

” You need *SIGNIFICANT* less sample (solvent) to achieve same result. Your analysis is *MUCH MORE* sensitive!

Be clever - Use a FREESTYLE ThermELUTE™ with SMART columns!

*LC Tech's mycotoxin expert  
Dr. Frederik Wuppermann*

### ppt instead of ppb

- No losses through evaporation or adsorption effects
- Enormous increase of sensitivity due to complete injection of eluate
- Approved limits can be reliably measured, even in baby food
- Flexibility in process parameters allows adaption of individual parameters according to sample prep SOP