

# DETERMINATION OF FUMONISINS B1 / B2 AND ZEARALENONE IN MAIZE-BASED BABY FOOD

## Regulations for maize-based baby food:

### Zearalenone

Europe (EC 1126/2007) : 20µg/Kg

### Fumonisin

Europe (EC 1126/2007) : 200µg/Kg

## PROTOCOL OF PURIFICATION

### Sample preparation

#### Purification with a 3mL/100mg AFFINIMIP® SPE FumoZON cartridge

25g of ground samples were extracted with 100 mL of Acetonitrile/Methanol/deionized Water (25/25/50, v/v/v) for 3 min using a blender. The extract was filtered through a folded filter paper and 10 mL of the filtrate were diluted with 10 mL of deionized water. Then, this solution was filtered through a filter paper.

This solution was used as the loading solution.

#### Equilibration

- 2mL Acetonitrile
- 2mL Water

#### Loading

- 8mL of loading solution

#### Washing of interferences

- 8mL 60/40 Water/ACN

#### Elution (E)

- 2mL Methanol – 2% Acetic Acid

The elution fraction was then evaporated and dissolved in water before HPLC analysis.

#### HPLC Method with MS detection

Column: Hypersil Gold C18 column 50mm x 2.1mm  
Mobile phase ZON AND FB1: Water-Formic Acid 0.1%/ACN (73/27)

Mobile phase FB2: Water-Formic Acid 0.1%/ACN (65/35)

Flow rate: 0.2mL/min

MS detection: m/z 722 for Fumonisin B1 (ESI<sup>+</sup>)

m/z 705 for Fumonisin B2 (ESI<sup>+</sup>)

m/z 317 for Zearalenone (ESI<sup>-</sup>)

Injection volume: 20µL.

## RESULTS

Recovery of Zearalenone, Fumonisin B1 and B2 in maize-based baby food after AFFINIMIP® SPE FumoZON clean-up and relative standard deviation calculated from results generated under reproducibility conditions.

Sample	C° µg/kg	Mean µg/kg	Recoveries %	% RSD <sub>R</sub>
Zearalenone	20	16.9	84.4	1.6 (n=4)
Fumonisin B1	200	168.6	84.3	1.4 (n=3)
Fumonisin B2	200	185.6	92.8	1.9 (n=3)

## ION SUPPRESSION EVALUATION

Ion suppression phenomenon can induce an erroneous quantification. To evaluate the ion-suppression, blank maize-based baby food samples were cleaned up with AFFINIMIP® SPE FumoZON. The SPE extracts were spiked with a mixture of Fumonisin B1 and Zearalenone at 2 different concentrations. The standard calibration curves were compared to the matrix SPE extracts. The use of AFFINIMIP® SPE FumoZON strongly reduces ion-suppression phenomena with a maximum of 15% observed for Fumonisin.

Ion suppression percentage obtained in Maize-based baby food (tested twice).

Analyte	C° µg/kg	Ion suppression %
Zearalenone	10	1% and 5%
Zearalenone	50	0% and 5%
Fumonisin B1	100	8% and 11%
Fumonisin B1	500	12% and 14%

#### Catalog number:

**3mL-100mg sorbent**

FS109-02 for 25 cartridges

FS109-03 for 50 cartridges