

AFFINIMIP® SPE ZEARALENONE cartridges

Instruction sheet

CLEAN-UP PROCEDURE OF ZEARALENONE

Users should read all instructions before using this kit.

For laboratory use only

AFFINIMIP® SPE Zearalenone is:

- **Developed and manufactured by AFFINISEP**

E-mail: contact@affinisep.com

Technical support: tech.support@affinisep.com

www.polyintell.com

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Method for Selective Phase Extraction of Zearalenone using Molecularly Imprinted Polymers

1 INTRODUCTION

AFFINIMIP® SPE Zearalenone has been developed to selectively extract Zearalenone in cereals based food, wheat, corn and barley flour.

By using AFFINIMIP® SPE, the expected result is a clean-up and a pre-concentration of the sample at trace levels.

2 PRINCIPLE OF AFFINIMIP® SPE

AFFINIMIP® SPE is a solid phase obtained by a polymerisation process to create a three-dimensional network that recognizes the shape and functional group positions of a template molecule. The **AFFINIMIP® SPE** selectivity comes from the technology of molecularly imprinted polymer (MIP) used during the synthesis.

3 PRODUCT INFORMATION

Description of the kit

Each solid phase extraction (SPE) cartridge **AFFINIMIP® SPE Zearalenone** contains 100mg of sorbent in a 3mL cartridge.

Information and storage

Storage: Room temperature.

Each cartridge has a single use.

4 PRECAUTIONS FOR USE

SPE methods developed for C18 or other sorbents are not appropriate for **AFFINIMIP® SPE Zearalenone. *The extraction procedure described below has been optimized for the extraction of Zearalenone from wheat and corn samples. For the treatment of another matrices, please contact us to adapt the extraction procedure.***

5 RECOMMENDATIONS FOR HPLC ANALYSIS

For an optimal resolution (R_s), we recommend a retention time of Zearalenone higher than 8 min.

6 GENERAL INSTRUCTIONS FOR SPE

6.1 Equipments required

In addition to standard laboratory materials, the following equipments are required for the use of AFFINIMIP® SPE cartridges:

- SPE automate or SPE vacuum Manifold
- Nitrogen Mini-vap evaporator or a vacuum concentrator to dry the collected sample

6.2 Flow rate

It is very important to follow the flow rate given in the protocol.

Most especially for the loading, if the sample flow rate is too high, components may not interact sufficiently with the sorbent and the analyte recovery yield will be lower.

6.3 Preparation process

For the MIP preparation, a template is required. Zearalenone analogues were used instead of Zearalenone to prevent false positive signal in case of bleeding.

7 CLEAN-UP PROCEDURE OF ZEARELENONE FROM WHEAT OR CORN 75/25 ACETONITRILE/WATER EXTRACTION SOLUTION:

7.1 Preparation of solutions

- Extraction solvent: Solution 75/25 Acetonitrile/ deionized water (v/v)

In a 100mL-volumetric flask, add 25mL of deionized water and complete with Acetonitrile.

- Solution 40/2/58 Acetonitrile/Acetic acid/ deionized water (v/v/v)

In a 20mL-volumetric flask, add 8mL of ACN, 0.4mL acetic acid and complete with deionized water. **The proportion of acetic acid must be accurate.**

- Solution 2/98 Acetic acid/Methanol (v/v)

In a 10mL-volumetric flask, add 0.2mL of Acetic Acid and complete with Methanol.

7.2 Preparation of the loading solution from wheat or corn with 75/25 Acetonitrile/Water

25g of matrix are mixed during 3 minutes in a blender with 100mL of extraction solvent (75/25 Acetonitrile/deionized Water). The extract is filtered through a filter paper.

In a 20 mL-volumetric flask, add 10mL of the extract sample and complete with deionized water. The solution is filtered through filter paper. This solution is used as the loading solution.

Users developing their own extraction method must take into considerations that the composition of the Acetonitrile – Water loading solution must contains a maximum of 35% Acetonitrile

7.3 Protocol for clean-up

Step	AFFINIMIP® SPE Zearalenone (100mg/3mL)	Flow (mL/min)
Equilibration with	<ul style="list-style-type: none"> ▪ 3 mL acetonitrile (ACN) ▪ 3 mL deionized water ▪ Do not allow the cartridge to dry during conditioning 	2mL/min (2drops/s)
Loading (L)	12mL of the loading solution	1mL/min (1drop/s)
Washing of interferents (W1)	3mL 40/2/58 Acetonitrile/Acetic acid/ deionized water (v/v/v)	1mL/min (1drop/s)
Drying :	<p>Apply vacuum 3 to 5 minutes in order to remove remaining water residues to decrease the evaporation time of the elution solution</p> <p><i>This step is ONLY necessary if you evaporate elution solution</i></p>	
Elution (E)	2mL 2/98 Acetic acid/Methanol (v/v)	1mL/min (1drop/s)

The elution (E) is evaporated until dryness under nitrogen with a mini-vap evaporator at room temperature (or a centrifugal evaporator). The residue is dissolved in 0.5mL of mobile phase for further analysis. Alternatively, the elution may be diluted to a known volume by addition of water for further analysis.

8 CLEAN-UP PROCEDURE OF ZEARALENONE FROM MEAT:

8.1 Preparation of solutions

- Extraction solvent: Solution 25/25/50 Methanol/Acetonitrile/ deionized Water (v/v)

In a 100mL-volumetric flask, add 25mL of Acetonitrile, 25mL of Methanol and complete with deionized Water.

- Solution 40/60 Acetonitrile/ deionized Water (v/v/v)

In a 20mL-volumetric flask, add 8mL of ACN and complete with deionized Water.

- Solution 2/98 Acetic acid/Methanol (v/v)

In a 10mL-volumetric flask, add 0.2mL of Acetic Acid and complete with Methanol.

8.2 Preparation of the loading solution with 50/50 Acetonitrile/Water Extraction solution for meat

25g of meat are mixed during 2 minutes with 100mL of a solution of deionized water/ acetonitrile (50/50). Then the mixture is filtered through filter paper (4-7 μ m).

This solution was then diluted 2 times with deionized water to obtain the loading solution used for the clean-up protocol with AFFINIMIP[®]SPE ZEARALENONE.

Users developing their own extraction method must take into considerations that the composition of the Organic solvents – Water loading solution must contains a maximum of 25% of organic solvents.

8.3 Protocol for clean-up

Step	AFFINIMIP® SPE Zearalenone (100mg/3mL)	Flow (mL/min)
Equilibration with	<ul style="list-style-type: none"> ▪ 2 mL Acetonitrile (ACN) ▪ 2 mL deionized Water ▪ Do not allow the cartridge to dry during conditioning 	2mL/min (2drops/s)
Loading (L)	6mL of the loading solution	0.5mL/min (1 drop every 2s)
Washing of interferences (W)	6mL 40/60 Acetonitrile/deionized Water (v/v)	1mL/min (1drop/s)
Drying :	<p>Apply vacuum 3 to 5 minutes in order to remove remaining water residues to decrease the evaporation time of the elution solution</p> <p><i>This step is ONLY necessary if you evaporate elution solution</i></p>	
Elution (E)	2mL 2/98 Acetic Acid/Methanol (v/v)	1mL/min (1drop/s)

The elution (E) is evaporated until dryness under nitrogen with a mini-vap evaporator at room temperature (or a centrifugal concentrator). The residue is dissolved in the mobile phase for further analysis. If the residue is cloudy, you can use a syringe-filter: 0.45µm in regenerated cellulose. Alternatively, the elution may be diluted to a known volume by addition of water for further analysis.

PRODUCTS LIST

AFFINIMIP® SPE Products	Designation	Description
Multimycos10	AFFINIMIP® SPE Multimycos10	selective SPE cartridges 3mL for ZON, OTA, HT-2, T-2, Aflatoxins and Fumonisin
Zearalenone	AFFINIMIP® SPE Zearalenone	selective SPE cartridges 3mL for ZON
Ochratoxin A	AFFINIMIP® SPE Ochratoxin A	selective SPE cartridges 3mL for OTA
Patulin	AFFINIMIP® SPE Patulin	selective SPE cartridges for Patulin
	AFFINIMIP® SPE Patulin & Pectinase kit	kit of selective SPE cartridges for Patulin + 50mL pectinase enzyme solution
Deoxynivalenol	AFFINIMIP® SPE Deoxynivalenol	selective SPE cartridges 6mL for DON
Phenolics	AFFINIMIP® SPE Phenolics	selective SPE cartridges for Phenolic compounds
Estrogens	AFFINIMIP® SPE Estrogens	selective SPE cartridges for Estrogens
Zeranol Residues	AFFINIMIP® SPE Zeranol Residues	selective SPE cartridges for Zeranol Residues
Bisphenol A	AFFINIMIP® SPE Bisphenol A	selective (PP or Glass) SPE cartridges for Bisphenol A
FumoZON	AFFINIMIP® SPE FumoZON	selective SPE cartridges for Fumonisin and Zearalenone
Chloramphenicol	AFFINIMIP® SPE Chloramphenicol	selective SPE cartridges for Chloramphenicol
Tamoxifen	AFFINIMIP® SPE Tamoxifen	selective SPE cartridges for Tamoxifen
Catecholamines	AFFINIMIP® SPE Catecholamines	selective SPE cartridges for Catecholamines
	AFFINIMIP® SPE Catecholamines	selective SPE cartridges for Catecholamines
Metanephrines	AFFINIMIP® SPE Metanephrines	selective SPE cartridges for Metanephrines
Amphetamines	AFFINIMIP® SPE Amphetamines	selective SPE cartridges for Amphetamines
PECTINASE	Pectinase solution	50 mL pectinase enzyme solution
AttractSPE™ Products	Designation	Description
W/O	AttractSPE™ W/O	HLB SPE cartridges sorbent
SCX	AttractSPE™ SCX	Strong Cation Exchange SPE cartridges sorbent
WCX	AttractSPE™ WCX	Weak Cation Exchange SPE cartridges sorbent
SAX	AttractSPE™ SAX	Strong Anion Exchange SPE cartridges sorbent
WAX	AttractSPE™ WAX	Weak Anion Exchange SPE cartridges sorbent
DVB	AttractSPE™ DVB	Reversed Phase Copolymer SPE cartridges sorbent
Anionic & Cationic AttractSPE polymeric cartridges	AttractSPE™ KIT	Kit of 10 cartridges of each sorbent (SAX, WAX, WCX, SCX)

For more information:

For more information on our products & services, please visit www.polyintell.com