

Instruction sheet

AFFINIMIP® SPE DEOXYNIVALENOL cartridges

Format: 6mL

CLEAN-UP PROCEDURE OF DEOXYNIVALENOL

Users should read all instructions before using this kit.

For laboratory use only

AFFINIMIP® SPE Deoxynivalenol is:

- **Developed and manufactured by AFFINISEP**

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Method for Selective Phase Extraction of Deoxynivalenol (DON) using Molecularly Imprinted Polymers

1 INTRODUCTION

AFFINIMIP®SPE Deoxynivalenol has been developed to selectively extract Deoxynivalenol (DON) in cereals, cereals based food and meat.

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

Two different methods of extraction of Deoxynivalenol from cereals are proposed:

- with water extraction
- with 50-50 Acetonitrile – Water extraction

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 Deoxynivalenol** contains 100mg of sorbent in a 6mL cartridge.

Information and storage

Storage: Room temperature.

Each cartridge is for a single use.

4 PRECAUTIONS FOR USE

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

5 GENERAL INSTRUCTIONS FOR SPE

5.1 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

5.2 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.

5.3 Preparation process

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

6 EXTRACTION PROTOCOL OF DEOXYNIVALENOL FROM CEREALS AND MEAT:

Two different methods of Deoxynivalenol extraction from cereals and meat are proposed:

- with hydro organic solvent mixture (50-50 Acetonitrile – Water extraction)
- with water extraction

Pay attention that users developing their own extraction method must take into considerations that the composition of an Acetonitrile – Water **loading solution must contains a maximum of 5% Acetonitrile.**

6.1 Preparation of the loading solution with 50/50 Acetonitrile/Water Extraction solution for cereals

20g of ground cereals are mixed during 2 minutes with 80mL of a solution of deionized water/ acetonitrile (50/50). Some cereals (wheat...) can swell and absorb a large amount of extraction solution prohibiting the next stirring step of the mixture. *For this reason, 40mL of additional water/acetonitrile extraction solution can be added to obtain a mixture which is more fluid and therefore be stirred.*

After the mixture is placed in a beaker and left stir under magnetic agitation for 30 minutes. Then centrifuge at 2500g for 15min.

After centrifugation, the supernatant is filtered through filter paper (20-25µm).

This solution was then diluted 10 times with deionized water to obtain the loading solution used for the clean-up protocol with AFFINIMIP®SPE DEOXYNIVALENOL (§ 7).

6.2 Preparation of the loading solution with Water Extraction solution for cereals

20g of ground cereals are mixed during 2 minutes with 80mL of deionized water.

Some cereals can swell and absorb a large amount of extraction solution prohibiting the next stirring step of the mixture. *For this reason, 40mL of additional water extraction solution can be added to obtain a mixture which is more fluid and therefore be stirred.*

After the mixture is placed in a beaker and left stirred under magnetic agitation for 30 minutes. Then centrifuge at 2500g for 15min.

After centrifugation, the supernatant is filtered through filter paper (20-25µm).

This solution was then diluted 5 times using deionized water to obtain the loading solution used for the clean-up protocol with AFFINIMIP®SPE DEOXYNIVALENOL (§ 7).

6.3 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 (4-7µm).

This solution was then diluted 10 times with deionized water to obtain the loading solution used for the clean-up protocol with AFFINIMIP®SPE DEOXYNIVALENOL (§ 7).

7 CLEAN-UP PROCEDURE OF DEOXYNIVALENOL WITH AFFINIMIP®SPE DEOXYNIVALENOL:

7.1 Preparation of solutions for the clean-up procedure

- Solution NaHCO₃ 1% (w/v)

In a 100mL-volumetric flask, weigh 1g of NaHCO₃ and complete with water.

7.2 Protocol for clean-up

Step	AFFINIMIP® SPE Deoxynivalenol (100mg/6mL)	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 (2 drops/s)
Loading (L)	<ul style="list-style-type: none"> ▪ Up to 6mL of the loading solution 	0.5mL/min (1 drop/ 2s)
Washing of interferences (W)	<ul style="list-style-type: none"> ▪ 3mL NaHCO₃ 1% solution 	1mL/min (1 drop/s)
Drying :	Force the water down into the cartridge and out the bottom or apply vacuum 30 seconds	
Washing of interferences (W)	<ul style="list-style-type: none"> ▪ 1mL Diethyl Ether 	1mL/min (1 drop/s)
Elution (E)	<ul style="list-style-type: none"> ▪ 4mL Ethyl acetate 	1mL/min (1 drop/s)

The elution (E) is evaporated until dryness under nitrogen with a mini-vap evaporator at room temperature (or a vacuum concentrator). The residue is dissolved in mobile phase 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