

POST-COLUMN DERIVATIZATION

PINNACLE PCX



POST-COLUMN DERIVATIZATION INSTRUMENT

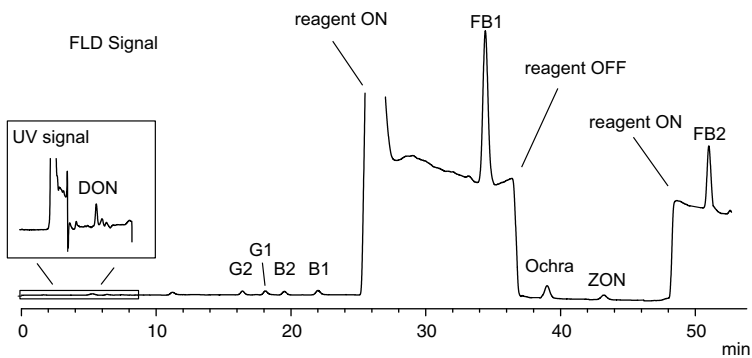
Part of the complete integrated system of instruments, chemicals, columns, methods and support from Pickering Laboratories.

Pinnacle PCX is custom designed for post-column applications matching chemistry, columns and application to optimize sensitivity and reliability of the results.

MULTI-RESIDUE ANALYSIS OF DEOXYNIVALENOL, AFLATOXINS, OCHRATOXIN A, ZEARALENONE AND FUMONISIN BY HPLC AND POST-COLUMN DERIVATIZATION

Although Aspergillus (Aflatoxins, Ochratoxin A) are generally associated with peanuts and Fusarium (Deoxynivalenol, Zearalenone) with wheat, these fungi and those that produce other toxins are not host selective and so can cross plant species. When infected grains are processed, any visible mold is lost but the toxic metabolites carry over into the finished products. Thus, multi-residue analytical screens for toxins in grain and finished goods are a wiser choice than single-family protocols.

We present a single screen to cover five families of toxins. This method is suitable for analyzing beverages, grains and feeds. The results of a single laboratory validation study of this method for corn grain were published in the Journal of AOAC International (Vol. 92, No. 1, 2009).



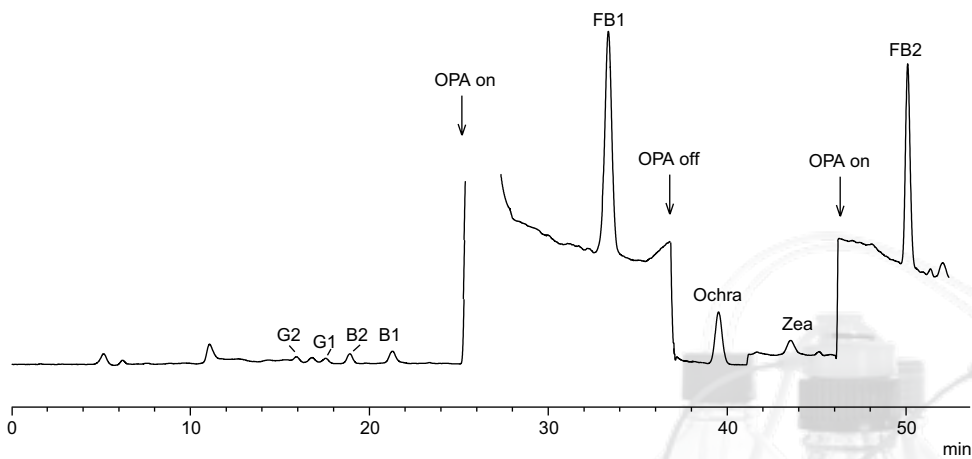
Corn Sample Spiked with Mycotoxins

DATA FOR SPIKED CORN SAMPLE				
MYCOTOXIN	SPIKE CONC, ppb	NATURAL CONTAMINATION LEVEL, ppb	RECOVERIES %	% RSD N=10
Aflatoxin B1	5.0	-	74	19.4
Aflatoxin B2	1.7	-	88	15.4
Aflatoxin G1	5.1	-	84	12.9
Aflatoxin G2	2.2	-	95	13.2
Ochratoxin A	521	-	82	5.5
Zearalenone	690	205	86	10.8
Fumonisin B1	529	3540	113	8.9
Fumonisin B2	102	1109	84	11.6
Deoxynivalenol	930	-	92	7.7

MULTI-RESIDUE MYCOTOXIN ANALYSIS OF DRIED DISTILLERS GRAINS

Distillers grains (DG) are the still residues after the ethanol has been collected. Approximately 90% of US production is used in domestic animal feed. Any Mycotoxins present in the fresh corn can be concentrated by a factor of three. Contamination can also occur during storage. This raises concern about the potential animal and human health hazards from the use of Mycotoxin-contaminated distillers grains.

Corn entering the ethanol processing plant as well as distillers grains should be routinely tested for Mycotoxin contaminations to ensure compliance with guidelines set by FDA. We present a single screen method to cover 4 families of toxins that could be present in dried distillers grains (DDG).



DDG Sample Spiked with Mycotoxins

DATA FOR DRIED DISTILLERS GRAIN				
MYCOTOXIN	SPIKE CONC, ppb	NATURAL CONTAMINATION LEVEL, ppb	RECOVERIES %	% RSD N=4
Aflatoxin B1	10.0		65	7.6
Aflatoxin B2	3.4		79	6.3
Aflatoxin G1	10.2		75	9.4
Aflatoxin G2	4.4		82	9.1
Ochratoxin A	203		89	7.1
Zearalenone	1057	231	75	8.8
Fumonisin B1	1042	801	109	5.8
Fumonisin B2	1379	223	104	6.8