

PRODUCT INFORMATION SHEET

Aflatoxins, Ochratoxin A, Deoxynivalenol, Zearalenone and Fumonisin in Breakfast Cereals PT originated REFERENCE MATERIAL (RM)

Description of the RM

Name / Material of related PT	DLA ptMYS1 (2025) – Mycotoxin Screening: Aflatoxins, Ochratoxin A, Deoxynivalenol, Zearalenone and Fumonisin in Breakfast Cereals – Sample A
Identifier / LOT	RM 2025-MYS1 A
Expiry date	October 2026
Matrix	Breakfast Cereals (Muesli)
Physical description	Powder
Packaging / weight	Sealed foil pouches / 100 g
Storage conditions	2 - 10°C (dry and dark)
Name and address manufacturer	DLA - Proficiency Tests GmbH Hauptstr. 80, 23845 Oering, Germany Tel. ++49-(0)4532-9183358, Fax. ++49(0)4102-9944976 eMail. pt@dla-lvu.de, website. www.dla-lvu.de

Composition of Material

Ingredients	Sample A * present sample	Sample B *
Cereal muesli with Fruits Ingredients: Wholemeal oat flakes, cane sugar, glucose syrup, wheat flakes, spelled flakes, sunflower oil, puffed rice, rice extrudate, wholemeal oat flour, freeze-dried fruits, dried fruits, linseed, tigernuts, amaranth puffed, rice flour, dried carrot juice concentrate, strawberry extract, hazelnuts, vanilla, sea salt, vitamin B1 and other ingredients from corn, almonds, pistachios and plant powder and other ingredients from corn, almonds, pistachios and plant powder	71,7 g/100 g	68,3 g/100g
Maize, ground	12,7 g/100g	27,2 g/100g
Almonds, ground	-	4,55 g/100g
Almond flour, partially de-oiled	7,88 g/100g	-
Plant powder mixture	4,30 g/100g	-
Pistachio-almond mixture, ground	3,12 g/100g	-

* Contents according to gravimetric mixture

Note: The metrological traceability of temperature, mass and volume during production of the PT samples is ensured by DAkkS-compliant calibrated reference materials.

Minimum Sample Size / Homogeneity

A minimum sample size of 5 g is recommended for sample preparation.

The homogeneity tests were performed with sample sizes of 5 g (Microtracer analysis).

The mixture homogeneity before bottling was examined 10-fold by microtracer analysis. Homogeneity was sufficient with a probability of $\geq 25\%$ (excellent mixture) and a HorRat value in the range of acceptance (0,3 to 1,3) (for more details see final report of PT).

The calculation of the repeatability standard deviations S_r of the participants was also used as an indicator of homogeneity. The coefficient of variation (CV_r) for the analytes were approx. 9-16%. Thus they were similar to the repeatability standard deviations of the corresponding official methods (e.g. ASU methods).

Reference Values

All reference values were derived from the related PT round (for more details see final report).

Reference Values quantitative in $\mu\text{g/kg}$

Parameter	Aflatoxin B1 (AF B1)	
	All Methods*	LC-Methods*
Number of results	6	5
Number of outliers	0	0
Assigned Value (X_{pt})	4,84	4,75
Robust standard deviation	1,46	1,61
Standard uncertainty	0,747	0,901
Target standard deviation σ_{pt}	1,07	1,04
Target range	2,71 – 6,97	2,66 – 6,84

* results of divers methods

Parameter	Aflatoxin Sum (AF Sum)		
	All Methods*	ELISA Methods*	LC-Methods*
Number of results	15	7	5
Number of outliers	0	0	0
Assigned Value (X_{pt})	5,41	4,59	5,53
Robust standard deviation	2,04	1,16	2,07
Standard uncertainty	0,659	0,550	1,16
Target standard deviation σ_{pt}	1,49	1,26	1,52
Target range	2,44 – 8,39	2,06 – 7,11	2,49 – 8,57

* results of divers methods

Parameter	Ochratoxin A (OTA)		
	All Methods*	ELISA Methods*	LC-Methods*
Number of results	14	7	5
Number of outliers	-	-	-
Assigned Value (X_{pt})	9,46	9,05	8,45
Robust standard deviation	3,80	4,26	2,77
Standard uncertainty	1,27	2,01	1,55
Target standard deviation σ_{pt}	2,33	2,23	2,08
Target range	4,81 – 14,1	4,60 – 13,5	4,29 – 12,6

* results of diverse methods

Reference values qualitative for other mycotoxins

Parameter	Deoxynivalenol (DON)*	Fumonisin B1 (FUMO B1)*	Fumonisin B2 (FUMO B2)*
"negative"	< 250 µg/kg	< 75 µg/kg	< 25 µg/kg
Number positive	1	1	1
Number negative	15	3	1
Percent positive	6	25	50
Percent negative	94	75	50
Consensus value	negative	negative	none**

* Results of diverse Methods

** no consensus value ≥ 75% negative or positive results was obtained

Parameter	Fumonisin Sum (FUMO Sum)*	Zeralenone (ZON)*
"negative"	< 100 µg/kg	< 25 µg/kg
Number positive	6	2
Number negative	5	13
Percent positive	55	13
Percent negative	45	87
Consensus value	none**	negative

* Results of diverse Methods

** no consensus value ≥ 75% negative or positive results was obtained

Intended Use

- for laboratory use only, no food!
- validation of analytical methods
- control sample for quality control charts
- test material for inter-laboratory comparisons
- no medical use

Storage Instructions and Handling Information

The material should be stored as stated on page 1. Before use of the material should be warmed up to room temperature. The content should be mixed thoroughly prior to subsampling (see minimum sample size above). The material should be weighed immediately after opening of the foil poche/bottle and closed again afterwards in order to avoid uptake of moisture. Frequent freezing and thawing should be avoided as this can lead to changes in the properties of the material. The expiry date of this RM is based on the current knowledge and applies only for proper storage conditions in the originally closed foil poche/bottle.

Safety Precautions

The usual laboratory safety precautions should be applied when working with the RM considering the type of ingredients, parameters and its concentration.

Data Source

The material was analyzed by 13 laboratories within the related proficiency test (PT). Different analytical methods have been used.

Various

The user must determine the suitability of this RM for its particular purpose. DLA makes no warranty of any kind, expressed or implied, other than its products meet all quality control standards set by DLA. We do not guarantee this product can be used for a special application.



created	approved (PT-Coordinator)	updated
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<i>signed U. Vorreiter</i>	<i>signed M. Besler-Scharf</i>	-
8 December 2025	13 January 2026	-