



# Mycotoxin analysis in food and feed

**Mycotoxins are toxic secondary metabolites produced by fungi (moulds). Mycotoxins can be formed in agricultural products, such as cereals, and can also occur in related food, meat and dairy products originating from farm animals.**

Due to the frequent occurrence of mycotoxins and their severe toxic effects on animals and humans, maximum levels (MLs) for the major mycotoxins have been set by legislative bodies. In accordance with these guidelines specific sample preparation and detection methods were developed. These include enzyme immunoassays, lateral flow devices or immunoaffinity columns, etc.

## **R-Biopharm assays for the screening of mycotoxins in food and feed**

- RIDASCREEN® enzyme immunoassays (ELISAs) use the high specificity of antigen and antibody interaction to determine and quantify mycotoxins by photometric measurement.
- RIDA®QUICK lateral flow tests are immunochromatographic tests for the determination of mycotoxins, semi-quantitative (visual evaluation) or quantitative (evaluation with RIDA®QUICK SCAN reader or RIDA®SMART APP software).
- Test cards, AFLACARD and OCHRACARD, allow a qualitative screening of mycotoxins at various levels in food and feed commodities.
- Immunoaffinity columns (RIDA®, EASI-EXTRACT®, PREP®) use the high specificity of antigen and antibody interaction to isolate, purify and concentrate mycotoxins from many complex matrices prior to ELISA or chromatographic analysis.
- Clean-up columns (PuriTox) are solid phase columns for the purification of mycotoxin contaminated samples prior to chromatographic analysis.



### RIDA® QUICK

Lateral flow assay

- Semi-quantitative or quantitative analysis
- Fast and reliable

Smartphone-based evaluation of all quantitative tests with RIDA® SMART APP is available



### RIDASCREEN®

ELISA tests for up to 96 determinations

- Highly sensitive
- Specific

### RIDASCREEN® FAST

ELISA for up to 48/96 determinations

- Specific
- Fast and reliable



### PREP®, EASI-EXTRACT®, RIDA®

Immunoaffinity columns

- Single or multi-toxin analysis in conjunction with HPLC, LC-MS/MS or ELISA
- For a wide range of matrices

### PuriTox

Solid phase columns

- Rapid purification prior to HPLC, GC or LC-MS/MS



## Mycotoxins

### Aflatoxins

Product	Description	No. of tests/amount	Art. No.
<b>ELISA microtiter plates</b>			
RIDASCREEN® Aflatoxin M1	Enzyme immunoassay for quantitative determination of aflatoxin M1 in milk and milk powder* Detection limit: 5 ng/L (milk/milk powder), 50 ng/L (milk powder)	96 determinations Incubation time: 1 hr 15 min	R1121
RIDASCREEN®FAST Aflatoxin M1	Enzyme immunoassay for quantitative determination of aflatoxin M1 in milk and milk powder Detection limit: < 125 ng/kg	48 determinations Incubation time: 15 min	R5812
RIDASCREEN® Aflatoxin B1 30/15	Enzyme immunoassay for quantitative determination of aflatoxin B1 in cereals and feed Detection limit: 1 µg/kg (cereals), 1.7 µg/kg (soy), 2 µg/kg (dry cat food), 4 µg/kg (feed)	96 determinations Incubation time: 45 min	R1211
RIDASCREEN® Aflatoxin Total	Enzyme immunoassay for quantitative determination of aflatoxin in cereals and feed* Detection limit: 1.75 µg/kg	96 determinations Incubation time: 45 min	R4701
RIDASCREEN®FAST Aflatoxin ECO FGIS/GIPSA 2017-098	Enzyme immunoassay with aqueous extraction for the quantitative analysis of aflatoxin in corn Measurement range: 5 - 300 µg/kg	48 determinations Incubation time: 8 min	R5201
RIDASCREEN®FAST Aflatoxin	Enzyme immunoassay for quantitative determination of aflatoxins in cereals and feed* Detection limit: 1.7 µg/kg	48 determinations Incubation time: 15 min	R5202
RIDASCREEN®FAST Aflatoxin SC	Enzyme immunoassay for quantitative determination of aflatoxins in cereals and feed Detection limit: 2 µg/kg	48 determinations Incubation time: 15 min	R9002
<b>Immunoaffinity columns</b>			
AFLAPREP®	Immunoaffinity columns for sample clean-up prior to the analysis of aflatoxins B1, B2, G1 and G2 using HPLC or LC-MS/MS	10 columns (1 ml format) 50 columns (1 ml format)	RBRDP07 RBRP07
AFLAPREP® M	Immunoaffinity columns for sample clean-up prior to the analysis of aflatoxin M1 using HPLC or LC-MS/MS	10 columns (1 ml format) 25 columns (1 ml format)	RBRDP04 RBRP04
AFLAPREP® M WIDE	Immunoaffinity columns for sample clean-up prior to the analysis of aflatoxin M1 using HPLC or LC-MS/MS	10 columns (3 ml format) 50 columns (3 ml format)	RBRP124 RBRP124B
EASI-EXTRACT® AFLATOXIN	Immunoaffinity columns for sample clean-up prior to the analysis of aflatoxins B1, B2, G1 and G2 using HPLC or LC-MS/MS	10 columns (3 ml format) 50 columns (3 ml format)	RBRRP71 RBRRP70N
RIDA® Aflatoxin column	Immunoaffinity columns for sample clean-up prior to ELISA	10 columns (1 ml format) 50 columns (1 ml format)	R5001 R5002
<b>Solid phase columns</b>			
PuriTox Aflatoxin	Solid phase column for sample clean-up prior to the analysis of total aflatoxins using HPLC or LC-MS/MS	50 columns (syringe format)	RBRP25

\* Further applications on request.



## Mycotoxins

### Aflatoxins

Product	Description	No. of tests/amount	Art. No.
<b>Test strips</b>			
RIDA®QUICK Aflatoxin RQS	Immunochromatographic test for the quantitative determination of aflatoxin in corn in combination with RIDA®QUICK SCAN reader or RIDA®SMART APP software (see Equipment/Accessories) Detection limit: 2 µg/kg	20 strips Incubation time: 3 min	R5208
RIDA®QUICK Aflatoxin RQS ECO	Immunochromatographic test with aqueous extraction for the quantitative determination of aflatoxin in corn in combination with RIDA®QUICK SCAN reader or RIDA®SMART APP software (see Equipment/Accessories) Detection limit: 2 µg/kg	20 strips Incubation time: 5 min	R5209
<b>Test cards</b>			
AFLACARD B1	Qualitative detection of aflatoxin B1 at various screening levels	20 determinations	RBRP27
AFLACARD TOTAL	Qualitative detection of total aflatoxins at various screening levels	20 determinations	RBRP38



### Ochratoxin A

<b>ELISA microtiter plates</b>			
RIDASCREEN® Ochratoxin A 30/15	Enzyme immunoassay for quantitative determination of ochratoxin A in cereals, feed, beer and pig serum* Detection limit: 1.25 µg/kg (cereals/feed), approx. 50 ng/kg (beer/pig serum)	96 determinations Incubation time: 45 min	R1311
RIDASCREEN®FAST Ochratoxin A	Enzyme immunoassay for quantitative determination of ochratoxin A in cereals and feed*	48 determinations	R5402
<b>Immunoaffinity columns</b>			
OCHRAPREP®	Immunoaffinity columns for sample clean-up prior to the analysis of ochratoxin A using HPLC or LC-MS/MS	10 columns (3 ml format) 50 columns (3 ml format)	RBRP14 RBRP14B
RIDA® Ochratoxin A column	Immunoaffinity columns for sample clean-up prior to ELISA	10 columns (1 ml format)	R1303
<b>Test cards</b>			
OCHRACARD	Qualitative detection of ochratoxin A at various screening levels	20 determinations + 20 Immunoaffinity columns	RBRP48



\* Further applications on request.



## Mycotoxins

### Zearalenone

Product	Description	No. of tests/amount	Art. No.
<b>ELISA microtiter plates</b>			
RIDASCREEN® Zearalenon	Enzyme immunoassay for quantitative determination of zearalenone in cereals, feed, beer, serum and urine* Detection limits: 50 ng/L (serum/urine), 250 ng/L (beer), 1750 ng/kg (cereals/feed)	96 determinations Incubation time: 2 hrs 30 min	R1401
RIDASCREEN®FAST Zearalenon	Enzyme immunoassay for quantitative determination of zearalenone in cereals and feed Detection limit: 17 - 41 µg/kg	48 determinations Incubation time: 15 min	R5502
RIDASCREEN®FAST Zearalenon SC	Enzyme immunoassay for quantitative determination of zearalenone in cereals Detection limit: 5 µg/kg	48 determinations Incubation time: 15 min	R5505
<b>Immunoaffinity columns</b>			
EASI-EXTRACT® ZEARELENONE	Immunoaffinity columns for sample clean-up prior to the analysis of zearalenone using HPLC or LC-MS/MS	10 columns (3 ml format) 50 columns (3 ml format)	RBRRP91 RBRRP90
<b>Test strips</b>			
RIDA®QUICK Zearalenon RQS	Immunochromatographic test for the quantitative determination of zearalenone in corn in combination with RIDA®QUICK SCAN reader or RIDA®SMART APP software (see section Equipment/ Accessories) Detection limit: 75 µg/kg (RIDA®QUICK SCAN), 50 µg/kg (RIDA®SMART APP)	20 strips Incubation time: 5 min	R5504



### DON (Vomitoxin)

<b>ELISA microtiter plates</b>			
RIDASCREEN® DON	Enzyme immunoassay for quantitative determination of deoxynivalenol in cereals, malt, feed, beer and wort Detection limits: 18.5 µg/kg (cereals/malt/feed) and 3.7 µg/kg (beer/wort)	96 determinations Incubation time: 45 min	R5906
RIDASCREEN®FAST DON AOAC RI 000701	Enzyme immunoassay for quantitative determination of DON in cereals, malt and feed Detection limit: < 0.2 mg/kg	96 determinations 48 determinations Incubation time: 8 min	R5901 R5902
RIDASCREEN®FAST DON SC GIPSA/FGIS 2014-052	Enzyme immunoassay for quantitative determination of DON in cereals, malt and feed Detection limit: 0.074 mg/kg	48 determinations Incubation time: 8 min	R5905
<b>Immunoaffinity columns</b>			
DONPREP®	Immunoaffinity columns for sample clean-up prior to the analysis of deoxynivalenol using HPLC or LC-MS/MS	10 columns (3 ml format) 50 columns (3 ml format)	RBPRP50 RBPRP50B
<b>Test strips</b>			
RIDA®QUICK DON RQS ECO	Immunochromatographic test for the quantitative determination of DON in grain in combination with RIDA®QUICK SCAN reader or RIDA®SMART APP software (see Equipment/Accessories) Detection limit: 0.25 mg/kg	20 strips Incubation time: 3 min	R5911
RIDA®QUICK DON	Immunochromatographic test for the semi-quantitative determination (visual evaluation) of DON in grain Cut off levels: 0.5 mg/kg, 1.25 mg/kg	20 strips Incubation time: 5 min	R5909



\* Further applications on request.



## Mycotoxins

### Fumonisin

Product	Description	No. of tests/amount	Art. No.
<b>ELISA microtiter plates</b>			
RIDASCREEN® Fumonisin	Enzyme immunoassay for quantitative analysis of fumonisins in corn and corn products Detection limit: 25 µg/kg	96 determinations Incubation time: 45 min	R3401
RIDASCREEN®FAST Fumonisin GIPSA/FGIS 2016-081	Enzyme immunoassay for quantitative determination of fumonisins in cereals and feed Detection limit: 0.222 mg/kg	48 determinations Incubation time: 15 min	R5602
<b>Immunoaffinity columns</b>			
FUMONIPREP®	Immunoaffinity columns for sample clean-up prior to the analysis of fumonisins B1, B2 and B3 using HPLC or LC-MS/MS	10 columns (3 ml format) 50 columns (3 ml format)	RBRDP31 RBRP31B
<b>Test strips</b>			
RIDA®QUICK Fumonisin RQS ECO	Immunochromatographic test for the quantitative determination of fumonisin in corn in combination with RIDA®QUICK SCAN reader or RIDA®SMART APP software (see section Equipment/ Accessories) Detection limit: 0.3 mg/kg	20 strips Incubation time: 5 min	R5606



### T-2 Toxin

<b>ELISA microtiter plates</b>			
RIDASCREEN® T-2 Toxin	Enzyme immunoassay for quantitative determination of T-2 toxin in cereals and feed Detection limit: approx. 7 µg/kg (barley, rye, corn, wheat), approx. 11 µg/kg (oats)	96 determinations Incubation time: 1 hr 30 min	R3801
RIDASCREEN®FAST T-2 Toxin	Enzyme immunoassay for quantitative determination of T-2 toxin in cereals and feed Detection limit: < 20 µg/kg	48 determinations Incubation time: 15 min	R5302



### T-2/HT-2 Toxin

<b>ELISA microtiter plates</b>			
RIDASCREEN® T-2/HT-2 Toxin	Enzyme immunoassay for quantitative determination of T-2/HT-2 toxin in oats, corn, barley and wheat Detection limit: 16 µg/kg (oats), 12 µg/kg (corn), 21 µg/kg (wheat), 33 µg/kg (barley)	96 determinations Incubation time: 45 min	R3805
<b>Immunoaffinity columns</b>			
EASI-EXTRACT® T-2 & HT-2 Toxin	Immunoaffinity columns for sample clean-up prior to the analysis of T-2 and HT-2 using HPLC or LC-MS/MS	10 columns (3 ml format) 50 columns (3 ml format)	RBRP43 RBRP43B
<b>Test strips</b>			
RIDA®QUICK T-2/HT-2 RQS ECO	Immunochromatographic test for or quantitative determination of T-2/HT-2 toxin in oats, corn, and wheat in combination with RIDA®QUICK SCAN reader or RIDA®SMART APP software (see Equipment/Accessories) Detection limit: 50 µg/kg	20 strips Incubation time: 5 min	R5304





## Mycotoxins

### Citrinin

Product	Description	No. of tests/amount	Art. No.
<b>ELISA microtiter plates</b>			
RIDASCREEN®FAST Citrinin	Enzyme immunoassay for quantitative determination of citrinin in cereals and feed Detection limit: 15 µg/kg	48 determinations Incubation time: 25 min	R6302
<b>Immunoaffinity columns</b>			
EASI-EXTRACT® CITRININ	Immunoaffinity columns for sample clean-up prior to the analysis of citrinin using HPLC or LC-MS/MS	10 columns (3 ml format) 25 columns (3 ml format)	RBRDP126 RBRP126



### Multi Toxin

<b>Immunoaffinity columns</b>			
DZT MS-PREP®	Immunoaffinity columns for sample clean-up prior to the analysis of deoxynivalenol, zearalenone, T-2 and HT-2 using LC-MS/MS	10 columns (1 ml format) 50 columns (1 ml format)	RBRP73 RBRP73B
AFLAOCHRA PREP®	Immunoaffinity columns for sample clean-up prior to the analysis of total aflatoxins and ochratoxin A using HPLC or LC-MS/MS	10 columns (1 ml format) 50 columns (1 ml format)	RBRP89 RBRP89B
AOF MS-PREP®	Immunoaffinity columns for sample clean-up prior to the analysis of total aflatoxins, ochratoxin A and fumonisin using LC-MS/MS	10 columns (3 ml format) 50 columns (3 ml format)	RBRP115 RBRP115B
AO ZON PREP®	Immunoaffinity columns for sample clean-up prior to the analysis of total aflatoxins, ochratoxin A and zearalenone using HPLC or LC-MS/MS	10 columns (3 ml format) 50 columns (3 ml format)	RBRP112 RBRP112B
<b>Solid phase columns</b>			
11+Myco MS-PREP®	Immunoaffinity columns for the sample clean-up prior to the analysis of total aflatoxins, deoxynivalenol, fumonisin, ochratoxin A, T-2, HT-2 and zearalenone using LC-MS/MS	10 columns 3 ml (format) 50 columns 3 ml (format)	RBRP128 RBRP128B
PuriTox AflaZON	Solid phase column for sample clean-up prior to the analysis of total aflatoxins and zearalenone using HPLC or LC-MS/MS	25 columns (syringe format)	TC-M160
PuriTox Total Myco-MS	Solid phase column for sample clean-up prior to the analysis of total aflatoxins, ochratoxin A, DON, 3-acetyl DON, 15-acetyl DON, ZON, T-2, HT-2, FB1, FB2 and FB3 using LC-MS/MS	25 columns (syringe format)	TC-MT3000



### Trichothecene

<b>Solid phase columns</b>			
Trichothecene P columns	Solid phase column for sample clean-up prior to the analysis of trichothecenes using GC or LC-MS/MS	30 columns (test tube format)	RBRP51
Puritox Trichothecene	Solid phase column for clean-up prior to the analysis of trichothecenes using GC or LC-MS/MS	25 columns (syringe format)	TC-T220
Puritox DON/NIV	Solid phase column for clean-up prior to the analysis of deoxynivalenol and nivalenol using GC or LC-MS/MS	25 columns (gravity flow format)	TC-C210





## Mycotoxins

### Patulin

Product	Description	No. of tests/amount	Art. No.
<b>Enzyme</b>			
Pectinase	An enzyme for the clarification of cloudy apple juice and apple purée prior to patulin analysis	100 determinations	RBRP129
<b>Molecularly imprinted columns</b>			
EASIMIP™ PATULIN	Molecularly imprinted columns for sample clean-up prior to the analysis of patulin using HPLC or LC-MS/MS	10 columns (3 ml format) 50 columns (3 ml format)	RBRP250 RBRP250B



### Sterigmatocystin

<b>Immunoaffinity columns</b>			
EASI-EXTRACT® STERIGMATOCYSTIN	Immunoaffinity columns for sample clean-up prior to the analysis of sterigmatocystin using HPLC or LC-MS/MS	10 columns (3 ml format) 50 columns (3 ml format)	RBRP125 RBRP125B



	RIDASCREEN®	RIDA®QUICK	Rhône	RIDA® EASI-EXTRACT® PREP® IMMUNOPREP®	PuriTox EASIMIP®	Rhône TRILOGY®	TRILOGY®
	ELISA	Lateral Flow	Test cards	Immunoaffinity columns	Clean-up columns	Standards	Reference material
<b>Mycotoxins</b>							
Aflatoxins	•	•	•	•	•	•	•
• Total	•		•	•		•	
• B1	•		•	•		•	
• M1	•			•		•	
Citrinin	•			•		•	
DON	•	•		•	•	•	•
Fumonisin	•	•		•	•	•	•
Multi Toxin				•	•	•	•
Ochratoxin A	•		•	•	•	•	•
Patulin					•	•	
Sterigmatocystin				•			
T-2 Toxin	•			•	•	•	•
T-2 & HT-2 Toxin	•	•		•	•	•	•
Trichothecenes					•	•	•
Zearalenone	•	•		•	•	•	•