Solutions for Mycotoxin Testing

Comprehensive · Innovative · Reliable

NEOGEN®

nirco

Diagnóstico & Investigación

Trusted Results from Your Trusted Partner

For more than 30 years, Neogen® Europe Ltd. have been developing testing solutions for the analysis of mycotoxins.

Neogen Europe Ltd. offers the most comprehensive range of testing methods for mycotoxin analysis to detect aflatoxin, deoxynivalenol (DON), fumonisin, ochratoxin, T-2 / HT-2 toxin and zearalenone. Test kits compare samples against known levels of toxin, provide results in minutes and require only a minimal amount of training and equipment.

Neogen Europe Ltd. offer a contract laboratory service for those without onsite capabilities for the detection of mycotoxins of concern to the food and feed industry.

Test Formats and Kits

Agri-Screen® for Mycotoxins

Neogen's Agri-Screen for Mycotoxins are screening microwell tests that compare up to 5 samples at a time against a known level of toxin. The tests provide visible results that clearly show whether a sample contains more or less of a toxin than the control provided.

- Visual interpretation within 15 minutes or less
- Easy-to-use test format
- Onsite test

8010	Agri-Screen for Aflatoxin	Qualitative microwell test that visually screens at 20 ppb	Up to 18 Samples
8310	Agri-Screen for DON	Qualitative microwell test that visually screens at 1.0 ppm	Up to 20 Samples
8810	Agri-Screen for Fumonisin	Qualitative microwell test that visually screens at 5 ppm	Up to 20 Samples

Veratox® for Mycotoxins

Neogen's Veratox for Mycotoxins are quantitative microwell tests that compare up to 19 samples at a time against test controls. Through the use of a microwell reader, the tests provide accurate sample results in parts per million or parts per billion.

- Fully quantitative
- Low cost set up
- Minimal training required

8030	Veratox for Aflatoxin	Quantitative range of 5–50 ppb	Up to 40 Samples
8031	Veratox for Aflatoxin HS	Quantitative range of 1–8 ppb	Up to 38 Samples
8019	Veratox for Aflatoxin M_1	Quantitative range of 5–100 ppt	Up to 38 Samples
8331NE	Veratox for DON 5/5 NE	Quantitative range of 250–2000 ppb*	Up to 38 Samples
8332	Veratox for DON HS	Quantitative range of 25–250 ppb	Up to 38 Samples
8830	Veratox for Fumonisin	Quantitative range of 1000–6000 ppb	Up to 38 Samples
8835	Veratox for Fumonisin 5/10	Quantitative range of 500–6000 ppb	Up to 38 Samples
8832	Veratox for Fumonisin HS	Quantitative range of 50–600 ppb	Up to 38 Samples
8610	Veratox for Ochratoxin	Quantitative range of 2–25 ppb	Up to 38 Samples
8630	Veratox for Ochratoxin Grain	Quantitative range of 2–25 ppb	Up to 38 Samples
8230	Veratox for T-2/HT-2	Quantitative range of 25–250 ppb	Up to 38 Samples
8110	Veratox for Zearalenone	Quantitative range of 25–500 ppb	Up to 38 Samples

*Capacity to increase the quantitative range to 250-6000 ppb. Please contact your Neogen representative for more information.

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NeoColumn™ for Mycotoxins

Neogen's NeoColumn for Aflatoxin, DON, Ochratoxin, T-2 / HT-2 and Zearalenone are immunoaffinity columns that efficiently clean and concentrate the toxins prior to analysis by HPLC, fluorometric reader, or Neogen's Veratox test kits.

- Custom isocratic HPLC assay – highly sensitive limit of quantification
- Exceeds EU performance criteria
- Automated production system significantly reduces column-to-column variation

8040	NeoColumn for Aflatoxin (NB)	Limit of detection 0.1 ppb	Recovery > 90% for each of B_1, B_2, G_1, G_2	50 Columns per kit
8043	NeoColumn for Aflatoxin (WB)	Limit of detection 1 ppb	Recovery > 90% B_1 > 80% B_2, G_1, G_2	50 Columns per kit
8340	NeoColumn for DON (WB)	Lower limit of detection 0.1 ppm	Recovery > 85%*	50 Columns per kit
8640	NeoColumn for Ochratoxin (WB)	Limit of detection <0.1 ppb	Recovery > 95%*	50 Columns per kit
8240	NeoColumn for T-2 / HT-2 (WB)	Limit of detection 12.5 ppb to 1000 ppb T-2 or HT-2	Recovery > 95%*	50 Columns per kit
8140	NeoColumn for Zearalenone (WB)	Limit of detection 5 ppb	Recovery >90%*	50 Columns per kit

*Conditions may vary depending on commodity

Reveal® Q+ for Mycotoxins

Reveal Q+ for Mycotoxins are easy-to-use, rapid, fully quantitative lateral flow tests that provides unparalleled accuracy in only 9 minutes or less. The new Reveal Q+ product line adds to Neogen's unmatched range of simple and accurate lateral flow, microwell, immunoaffinity column mycotoxin testing options.

- GIPSA Approved
- Faster Time to Result
- Simple Safe Extraction
- Minimum Training Required

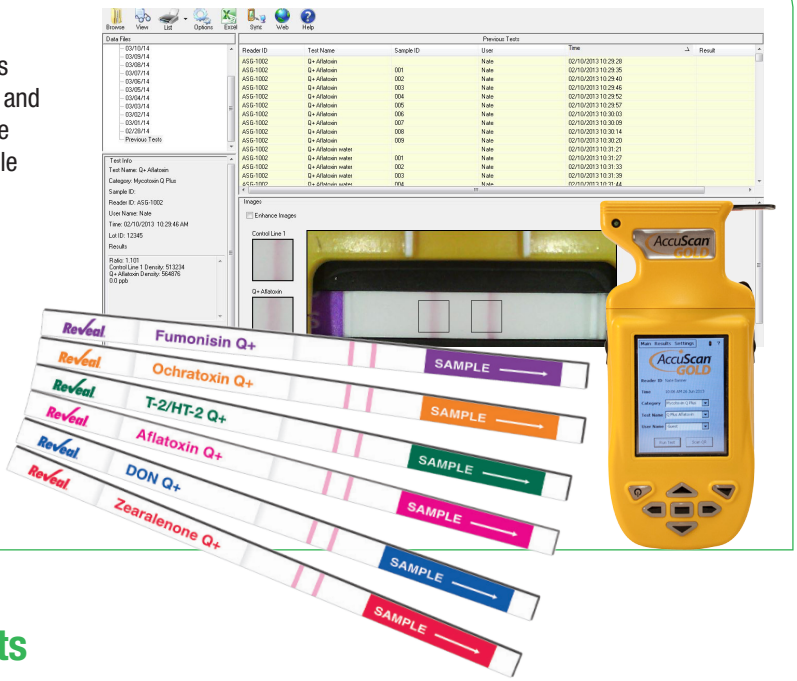
8085	Reveal Q+ for Aflatoxin	Quantitative range of 2 to 150 ppb	25 Samples per kit
8385	Reveal Q+ for DON	Quantitative range of 300 to 6000 ppb	25 Samples per kit
8185	Reveal Q+ for Zearalenone	Quantitative range of 25 to 1200 ppb	25 Samples per kit
8885	Reveal Q+ for Fumonisin	Quantitative range of 300 to 6000 ppb	25 Samples per kit
8086	Reveal Q+ for Aflatoxin Green	Quantitative range of 2 to 150 ppb	25 Samples per kit
8285	Reveal Q+ for T-2/HT-2	Quantitative range of 50 to 600 ppb	25 Samples per kit
8685	Reveal Q+ for Ochratoxin	Quantitative range of 2 to 20 ppb	25 Samples per kit
8015	Reveal for Aflatoxin	Screens at 20 ppb	25 Samples per kit

AccuScan® Gold and Data Manager

AccuScan Gold removes subjectivity from reading Neogen's lateral flow devices, and provides consistent interpretation and the permanent records to back it up. Reveal Q+ tests utilise the AccuScan Gold reader to interpret and document sample results.

At a Glance

- Handheld compact and lightweight design
- HACCP / GMP Compatible
- Provides an easy interpretation of results
- Test results can be exported to the AccuScan Gold Data Manager Software for powerful, permanent reporting, tracking and trend analysis.
- Provides traceability and date storage



Equipment Needed to Perform Tests

Product No.	Product	Reveal	Reveal Q+	Agri-Screen	Veratox	NeoColumn
9401	**Grinder**	•	•	•	•	•
9427	**Scale**	•	•	•	•	
9428	**Extraction container**	•	•	•	•	•
9447 / 9368	**Graduated cylinder**	•	•	•	•	•
NA	**DI or distilled water**	•	•	•	•	•
9420	**Filter syringe or equivalent**	•	•	•	•	•
9421	**Sample collection tube**		•	•	•	•
9475	**Sample cup rack**	•	•			•
9402	**Well holder**			•	•	
9400	**Wash bottle**			•	•	
9426	**Timer**	•	•	•	•	•
9278 / 9272	**100 µl pipettor**	•	•	•	•	
9273	**12-channel pipettor**				•	
9407 / 9410	**Pipette tips**	•	•	•	•	
9595	**AccuScan Gold Reader**	optional	•			
9303	**Neogen 4700 Microwell Reader**				•	
N/A	**Plate rotary shaker**				•*	
N/A	**Vortex**				•*	
N/A	**Centrifuge**				•*	

*Veratox Aflatoxin M_1 only

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Why Choose Neogen?

Neogen Mycotoxin Reference Material

Neogen's Mycotoxin Reference Material (MRM) gives quality assurance personnel and supervisors a way to internally evaluate mycotoxin testing procedures. Neogen's MRM is naturally-contaminated with toxins such as aflatoxin, DON or fumonisin to provide the most realistic testing scenario possible. You can choose from low, medium, high and undetectable contamination levels. Use Neogen's MRM as part of a training or internal certification program to quickly and confidently evaluate sampling, extraction and testing techniques. These techniques are crucial in preventing false positives or negatives in mycotoxin testing.

Ring Trials

We offer regular proficiency testing for the most common mycotoxins. Proficiency testing permits you to validate the efficiency of your testing procedure and the precision of your results. It allows you to comply with customer demands, certifications and regulatory requirements.

Validation

For unique commodities, we have an expert team dedicated to validating new matrices on our rapid methods compared to reference methods.

Training and Technical Service

We will ensure you select the right testing solution for your needs and provide your team with comprehensive training and support on the usage of Neogen kits and equipment. Depending on the complexity of your requirements, number of employees to train or their current expertise we are able to create a training package customised to your needs. We have an on-site team of highly skilled technicians to help in providing you with the most efficient, world class technical support.

Contract Services

Neogen Europe Ltd. provides a contract laboratory service for the detection of natural toxins of concern to the food and feed industry. A variety of techniques are available to suit testing requirements and timescales, including competitive direct enzyme linked immunosorbent assays (CD-ELISA) methods which are available for a comprehensive range of sample matrices. All of our food and feed testing services are carried out by highly trained scientific analysts using sophisticated state-of-the-art equipment.

Mycotoxins at a Glance

Mycotoxin	Aflatoxin	Deoxynivalenol (DON)	Ochratoxin A	Zearalenone	Fumonisin	T-2 / HT-2 toxin
Affected crops	Corn, milo, nuts, cotton	Wheat, barley, corn, oats in cool (<70°F), wet climate	Coffee, cocoa, raisins, apricots, figs and wheat in warm climate	Corn, wheat and barley in cool (<70°F), wet climate	Corn and rough rice in warm (>70°F), humid climate	Cold (<45°F), wet conditions
Toxicity	Cancer, decreased disease resistance (immuno-suppression), loss of appetite, hepatotoxicity, bileduct hyperplasia, hemorrhage in intestinal tract / kidney, liver tumor	Possible apoptosis inducer (programmed cell death), vomiting, feed refusal, diarrhea	Decreased dis-ease resistance (immunosup-pression), air sacculitis, acute kidney damage, carcinogenesis	Reproductive problems, atrophy of testicles, estrogenic disorder, uterine enlargement, edema of vulva, prolapsed vagina, atrophy of ovaries, enlargement of mammary glands, abortion	Promoter of esophageal can-cer, pulmonary edema in hogs, equine leukoen-cephalomalacia (ELEM), death	Lowered feed intake, motor function impairment, skin necrosis, hemorrhaging, growth depression, death, oral, esophageal and digestive tract lesions Potential biochemical warfare agent
Affected animals	Affects dairy animals, pig, poultry, dogs, cats, humans	Affects pig, dogs, cats, poultry, beef cattle, feedlot beef	Affects poultry, humans	Affects pig, poultry, humans	Affects horses, pig, humans	Affects pig, dairy cattle, poultry, dogs, cats, horses, humans

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EU Legislative Limits

Aflatoxin B_1 (Total)*	PPB (B_1)	PPB (sum of B_1, B_2, G_1 and G_2)	PPB (M_1)
Cereals, processed	2	4	-
Dried fruit to be processed	5	10	-
Groundnuts and nuts to be processed	8	15	-
Groundnuts, nuts and dried fruit for direct human consumption	2	4	-
Maize to be processed	5	10	-
Spices	5	10	-
Almonds, pistachios and apricots for direct human consumption	8	10	-
Almonds, pistachios and apricots to be processed	12	15	-
Dietary foods for special medical purposes intended specifically for infants	0,10	-	-
Dried fruit for direct human consumption	2	4	-
Hazelnuts and Brazil nuts for direct human consumption	5	10	-
Hazelnuts and Brazil nuts to be processed	8	15	-
Infant formulae and follow-on formulae, including infant milk and follow-on milk	-	-	0,025
Processed cereal-based foods and baby foods for infants and young children	0,10	-	-
Raw milk, heat-treated milk and milk for the manufacture of milk-based products	-	-	0,050
Tree nuts for direct human consumption	2	4	-
Tree nuts to be processed	5	10	-

DON†	PPB
Bread, pastries, biscuits, cereal snacks and breakfast cereals	500
Cereals for human consumption - cereal flour, bran, and germ	750
Pasta (dried)	750
Milling fractions of maize with particle size > 500 micron	750
Milling fractions of maize with particle size < 500 micron	1,250
Processed cereal-based food for babies	200
Unprocessed cereals other than wheat durum, oats and maize	1,250
Unprocessed durum wheat, oats and maize not intended for wet milling	1,750

Fumonisins B_1 & B_2†	PPB
Milling fractions of maize with particle size > 500 micron	1,400
Milling fractions of maize with particle size < 500 micron	2,000
Maize intended for human consumption	1,000
Maize snacks, maize based breakfast cereals	800
Processed maize-based foods for babies	200
Unprocessed maize not intended for wet milling	4,000

Ochratoxin A**	PPB
Dried vine fruits	10
Processed cereals and cereal products	3
Roasted coffee beans	5
Soluble coffee	10
Unprocessed cereals	5

Ochratoxin A, continued**	PPB
Wine, grape juice and grape must	2
Dietary foods for special medical purposes intended specifically for infants	0,50
Liquorice	20
Liquorice for use in food	80
Nutmeg, ginger, turmeric	15
Processed cereal-based foods and baby foods for infants and young children	0,50
Spices - Capsicum, Piper	30

Zearalenone†	PPB
Bread, pastries and biscuits	50
Cereals for human consumption - cereal flour, bran, and germ	75
Refined maize oil	400
Milling fractions of maize with particle size > 500 micron	200
Milling fractions of maize with particle size < 500 micron	300
Processed cereal and maize-based food for babies	20
Unprocessed cereals other than maize	100
Unprocessed maize not intended for wet milling	350
Maize intended for human consumption, maize snacks, maize based breakfast cereals	100

T-2 and HT-2 ***	PPB
Barley (including malting barley) and maize	200
Oats (with husk)	1 000
Wheat, rye and other cereals	100
Oats for direct human consumption	200
Maize for direct human consumption	100
Other cereals for direct human consumption	50
Oat bran and flaked oats for human consumption	200
Cereal bran except oat bran, oat milling products other than oat bran and flaked oats, and maize milling products for human consumption	100
Other cereal milling products for human consumption	50
Breakfast cereals including formed cereal flakes	75
Bread (including small bakery wares), pastries, biscuits, cereal snacks, pasta	25
Cereal-based foods for infants and young children	15

Animal Feed	PPB
Aflatoxin B_1‡	5–50
Ochratoxin A§	50–250
Zearalenone§	100–3,000
Fumonisins B_1 & B_2§	5,000–60,000
DON§	900–12,000
T-2 and HT-2***	50–2,000

* - As stated in EC 165/2010

** - As stated in EC 1881/2006 & EC 105/2010

† - As stated in EC 1126/2007

‡ - As stated in 2002/32/EC - Actual legislation for Aflatoxin B_1

§ - As stated in 2006/576/EC - Recommended

*** - As stated in 2013/165/EU - Recommended

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