

U.S. English

Product Number:
8685

Reveal[®] Q+
for Ochratoxin

for use with AccuScan[®] Pro and AccuScan Gold

Revised January 2022



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The Toxin

Ochratoxin, commonly produced by the molds *Aspergillus ochraceus* and *Penicillium viridicatum*, can be found in corn, barley, green coffee, and various dried fruits. Ochratoxin may be present in conjunction with aflatoxin, one of the most potent naturally-occurring carcinogens. In fact, ochratoxin is a suspected carcinogen.

Ochratoxin affects kidneys in animals exposed to naturally-occurring levels of this mycotoxin. Turkeys and other poultry exhibited lower productivity levels during field outbreaks of ochratoxicosis. Symptoms included slowed growth and decreased feed conversion. It also has been known to affect egg production in laying hens.

Although there has been no advisory or regulatory level for ochratoxin issued by the Food and Drug Administration, many agree that levels of at least 10–20 parts per billion (ppb) for commodities destined for human or animal consumption may cause health problems and economic losses. Some foreign markets have set regulation limits ranging from 5–50 ppb.

The best protection against mycotoxins is monitoring for their presence in feeds and foods. That means testing all along the pathway from initial harvest of grains to the finished product.

Assay Principles

Reveal[®] Q+ for Ochratoxin is a single-step lateral flow assay based on a competitive immunoassay format. The extract is wicked through a reagent zone, which contains antibodies specific for ochratoxin conjugated to colloidal gold particles. If ochratoxin is present, it will be captured by the particle-antibody complex. The ochratoxin-antibody-particle complex then is wicked onto a membrane, which contains a zone of ochratoxin conjugated to a protein carrier. This zone captures any uncomplexed ochratoxin antibody, allowing the particles to concentrate and form a visible line. As the level of ochratoxin in a sample increases, free ochratoxin will complex with the antibody-gold particles. This allows less antibody-gold to be captured in the test zone. Therefore, as the concentration of ochratoxin in the sample increases, the test line density decreases. Algorithms programmed into the reader convert these line densities into a quantitative result displayed in ppb. The membrane also contains a control zone where an immune complex present in the reagent zone is captured by an antibody, forming a visible line. The control line will always form regardless of the presence of ochratoxin, ensuring the strip is functioning properly.

Storage Requirements

Store kit components at room temperature (18–30°C, 64–86°F) to ensure full shelf life. Test strips should remain capped in their original tubes until used to ensure optimal performance.

Materials Provided

1. 25 Reveal Q+ for Ochratoxin test strips
2. 25 red conical sample dilution cups
3. 25 clear sample cups
4. 1 bottle of sample diluent

Materials Recommended but Not Provided

1. 70% methanol solution (Neogen® item 8055, 8056)
2. Sample collection cups with lids (Neogen item 9428)
3. Agri-grind grinder or equivalent (Neogen item 9401, 9453)
4. Scale capable of weighing 5–50 g ± 0.1 g (Neogen item 9427)
5. Timer (Neogen item 9426)
6. Reveal sample cup rack (Neogen item 9475)
7. AccuScan® Pro or AccuScan Gold
8. Dispensing pump or graduated cylinder (Neogen item 9448, 9447)
or
Centrifuge, mini (Neogen item 9330)
9. Microcentrifuge tubes (Neogen item 9172)
10. Filter syringe (Neogen item 9420)
11. Sample collection tubes with caps (Neogen item 9421, 9421B)
12. Pipettor, 100 µL (Neogen item 9272, 9278)
13. Pipette tips, 100 µL (Neogen item 9407, 9410, 9417)
14. Pipettor, 200 µL (Neogen item 9488)
15. Pipette tips, 200–1000 µL (Neogen item 9464, 9487)

Precautions

1. The test strips must remain inside the stay-dry tube before use.
2. Methanol is highly flammable. Keep container tightly closed and away from heat, sparks, open flame and those who are smoking. It is toxic if swallowed, or if vapor is inhaled. Avoid contact with skin.
3. Store test kit at room temperature (18–30°C, 64–86°F) when not in use. Do not freeze.
4. Do not use kit components beyond expiration date.
5. Treat all used liquids, including sample extract, and labware as if contaminated with ochratoxin. Gloves and other protective apparel should be worn at all times.
6. To avoid cross-contamination, use clean glassware for each sample, and thoroughly wash all glassware between samples.
7. Ensure the device lot number and the curve details match the lot ID number selected on the reader. Failure to update the lot-specific QR code within the AccuScan Pro and AccuScan Gold reader will cause inaccurate results.
8. Commodities tested should have a pH of 6–8. Excessively acidic or alkaline samples should be adjusted. For instructions on adjusting pH, contact Neogen Technical Services.
9. Please refer to the SDS information available at neogen.com for complete safety information on the assay and components.

AccuScan Reader Set Up

AccuScan Pro reader

1. Enter the lot-specific QR code by selecting the QR code icon on the reader. Place the QR code into the cartridge and insert the cartridge into the reader.
Note: For instructions on manually entering sample IDs, see the AccuScan Pro user manual.
2. Return to the home screen and select the test strip icon. Touch the mycotoxin category, then select the Ochratoxin Q+ test type.

AccuScan Gold reader

1. Enter the lot specific QR code by selecting scan QR from the main screen. Place the lot specific QR code into the white cartridge adapter labeled Cal/QR and place the cartridge into the reader.
2. The valid code will be scanned by the reader and provide information on the lot number and expiry date. Verify this information is correct and then add the lot ID to the reader by pressing add lot ID.
Note: The lot ID for the current lot will now be stored with the test ID (e.g., ochratoxin) and can be selected when running a test.

Sample Preparation

The sample to be tested should be collected according to accepted sampling techniques (see FGIS sampling protocol or contact your Neogen representative). Obtain a representative sample (minimum 100 g). Grind the sample so at least 95% of the ground material passes through a 20- mesh sieve (about the particle size of fine espresso — 600–850 microns).

If not using Neogen's prepared solution, prepare a 70% methanol solution by mixing 7 parts methanol with 3 parts distilled or deionized water for each sample.

Sample Extraction

1. Extract at a ratio of 1 part sample to 4 parts 70% methanol. For example, combine 10 g of ground sample with 40 mL of 70% methanol.
2. Vigorously shake, using hand or mechanical means (250 rpm) for 3 minutes, or blend for 1 minute.
3. Allow the sample to settle, then filter at least 4 mL with a filter syringe, or Whatman No. 1 filter paper. Alternatively, pipette sample into a 2.0 mL microcentrifuge tube and centrifuge for 30 seconds.
4. The sample is now ready for testing.

Test Procedure

1. Place the appropriate number of red sample dilution cups and clear sample cups into a sample cup rack. Label cups if necessary.
2. Add 100 µL of sample extract to the red sample cup.
3. Add 200 µL of sample diluent to the red dilution cup with the sample extract. Mix by pipetting up and down 5 times.
4. Transfer 100 µL of diluted sample extract into a new clear sample cup.
5. Place a new Reveal Q+ for Ochratoxin test strip with the sample end down into the sample cup and set timer for 9 minutes. Ensure the test strip comes into contact with liquid and begins to wick.
6. Remove the strip from the sample cup after it has developed for 9 minutes and read immediately (within 30 seconds).
7. For the AccuScan Gold reader:
 - Select Category: Mycotoxin Q Plus
 - Test Name: Q+ OchratoxinFor the AccuScan Pro reader:
 - Select Category: Mycotoxin
 - Test Name: Ochratoxin Q+



Dilution Procedure

Samples greater than 20 ppb must be diluted and retested.

1. Add 100 µL sample filtrate to a sample collection tube.
2. Add 200 µL 70% methanol solution to the sample collection tube. Mix well.
3. Place the appropriate number of red sample dilution cups and clear sample cups into a sample cup rack. Label cups if necessary.
4. Add 100 µL of diluted sample extract (from step 2) to the red sample cup.
5. Add 200 µL of sample diluent to the red dilution cup with the sample extract. Mix by pipetting up and down 5 times.
6. Transfer 100 µL of diluted sample extract into a new clear sample cup.
7. Place a new Reveal Q+ for Ochratoxin test strip with the sample end down into the sample cup and set timer for 9 minutes. Ensure the test strip comes into contact with liquid and begins to wick.
8. Remove the strip from the sample cup after it has developed for 9 minutes and read immediately (within 30 seconds).
9. For the AccuScan Gold reader:
 - Select Category: Mycotoxin Q+ Plus
 - Test Name: Q+ OchratoxinFor the AccuScan Pro reader:
 - Select Category: Mycotoxin
 - Test Name: Ochratoxin Q+Final result displayed will need to be multiplied by 3.

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Reading Test Results

Note: Test strips should be read within 30 seconds of completion of the 9 minute incubation. Refer to AccuScan reader set up for test selection and set up information.

1. Select the assay type (e.g., ochratoxin) from the menu and ensure the device lot number matches the lot ID number selected on the reader.
Note: Failure to update the lot-specific QR code will cause inaccurate results.
2. Fully insert the Reveal Q+ test strip into the black R-labeled cartridge adapter with the sample end first and results facing out.
3. Insert the cartridge with test strip upside-down into the AccuScan Gold reader (the test lines will face downward into the reader) or test-strip side up for the AccuScan Pro. The reader will automatically begin analyzing the cartridge.
Caution: Removing cartridge prior to completion can result in invalid readings.
4. The AccuScan reader will analyze the test strip and results will be displayed and stored in the reader.

Notes

1. Ensure device is fully inserted into cartridge.
2. Readings should be made within 30 seconds of the 9 minute incubation time. Readings after 9.5 minutes may be inaccurate due to over-development of the device.
3. The strips must be read using AccuScan Pro or AccuScan Gold readers.

Performance Characteristics

1. Limit of detection: 2 ppb
2. Range of quantitation: 2–20 ppb
Note: Samples greater than 20 ppb must be diluted and re-tested. Results below the range of quantitation should be reported as less than 2 ppb.

Validated and Verified Matrices

Neogen continues to validate new commodities. Please contact a representative for the latest validated commodity list.

Customer Service

Neogen Customer and Technical Services can be contacted through neogen.com and product training is available by request.

Safety Data Sheets (SDS) Information Available

SDS are available for all test kits at neogen.com or by calling 800.234.5333 or 517.372.9200.

Terms and Conditions

Neogen's full terms and conditions are available online.

Warranty

Neogen makes no warranty of any kind, either expressed or implied, except that the materials from which its products are made are of standard quality. If any materials are defective, Neogen will provide a replacement of the product. Buyer assumes all risk and liability resulting from the use of this product. There is no warranty of merchantability of this product, or of the fitness of the product for any purpose. Neogen shall not be liable for any damages, including special or consequential damage, or expense arising directly or indirectly from the use of this product.

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