Product Instructions

Reveal Q+ for T-2/HT-2

The Toxin

T-2/HT-2 toxins are trichothecene mycotoxins produced by several species of *Fusarium* molds. Since T-2 toxin is readily metabolized to HT-2 toxin and the toxins have been shown to produce numerous adverse effects on many animals, these two mycotoxins are frequently evaluated together.

Animals affected by the toxins include swine, dairy cattle, poultry, dogs, cats and horses. Effects of the toxins include digestive disorders, hemorrhage, edema, oral lesions, dermatitis, and blood disorders. Damage caused by the toxins to the digestive track is irreversible. In the most severe cases, these toxins will cause death. T-2 toxin is the principal causal toxin in the human disease alimentary toxic aleukia.

Poultry studies have shown T-2 intoxication has led to a reduction in weight gain and other problems such as beak lesions, poor feathering, motor function impairment and increased susceptibility to *Salmonella* spp.

The best protection against these 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.

Intended Use/User

Reveal® Q+ for T-2/HT-2 is intended for the quantitative analysis of corn and corn products for T-2/HT-2 toxins. The test kit is designed for use by quality control personnel and others familiar with commodities possibly contaminated with T-2/HT-2 toxins.

User Responsibility

- Users are responsible for familiarizing themselves with product instructions and information. Visit our website at neogen.com, or contact your local Neogen representative or authorized distributor for more information.
- When selecting a test method, it is important to recognize that external factors such as sampling methods, testing protocols, sample preparation, handling, laboratory technique and the sample itself may influence results.
- It is the user's responsibility in selecting any test method or product to evaluate a sufficient number of samples with the appropriate matrices and challenges to satisfy the user that the chosen test method meets the user's criteria.
- It is also the user's responsibility to determine that any test methods and results meet its customers' and suppliers' requirements.
- As with any test method, results obtained from use of any Neogen Food Safety product do not constitute a guarantee of the quality of the matrices or processes tested.

Assay Principles

Reveal Q+ for T-2/HT-2 is a single-step lateral flow immunochromatographic assay based on a competitive immunoassay format. The extract is wicked through a reagent zone, which contains antibodies specific for T-2/HT-2 toxins conjugated to colloidal gold particles. If T-2/HT-2 toxins are present, they will be captured by the particle-antibody complex. The T-2/HT-2 toxins-antibody-particle complex then is wicked onto a membrane, which contains a zone of T-2/HT-2 toxins conjugated to a protein carrier. This zone captures any uncomplexed T-2/HT-2 toxins antibody, allowing the particles to concentrate and form a visible line. As the level of T-2/HT-2 toxins in a sample increases, free T-2/HT-2 toxins will complex with the antibody-gold particles. This allows less antibody-gold to be captured in the test zone. Therefore, as the concentration of T-2/HT-2 toxins in the sample increases, the test

line density decreases. Algorithms programmed into the reader convert these line densities into a quantitative result displayed in parts per billion (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 T-2/HT-2 toxins, ensuring the strip is functioning properly.

Storage Requirements

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

Materials Provided

1. 25 Reveal Q+ for T-2/HT-2 test strips
2. 25 red sample dilution cups
3. 25 clear sample cups
4. 1 bottle of sample diluent
5. Instructions for use

Materials Recommended But Not Provided

1. Sample collection cups with lids (700004011 | 9428, 700004012 | 9428B)
2. Agri-Grind grinder or equivalent (100001350 | 9401, 700004021 | 9453)
3. Microcentrifuge tubes (700003932 | 9172)
4. Mini centrifuge (700003963 | 9330)
5. Filter syringes (700002724 | 9420)
6. Sample collection tubes with caps (700002726 | 9421, 700002727 | 9421B)
7. Whatman #4 filter paper or equivalent (700004035 | 9519, 700006493 | 9429)
8. Pipettor, 500 µL (100001339 | 9336)
9. Pipette tips, 100–1000 µL (100001373 | 9464, 10001378 | 9487)
10. Pipettor, 100 µL (100001422 | 9860, 100001330 | 9272)
11. Pipette tips, 1–200 µL (100001352 | 9407, 100001353 | 9410, 700004099 | 9417)
12. Scale capable of weighing 5–50 g ±0.1 g (700004010 | 9427)
13. Timer (100001358 | 9426)
14. Reveal sample cup rack (700002734 | 9475)
15. Dispensing pump or graduated cylinder (700004020 | 9448, 100001367 | 9447)

Precautions

1. The test strips must remain inside the stay-dry tube before use.
2. Store test kit at room temperature (18–30°C, 64–86°F) when not in use. Do not freeze.
3. Do not use kit components beyond expiration date.
4. Treat all used liquids, including sample extract, and labware as if contaminated with T-2/HT-2 toxins. Gloves and other protective apparel should be worn at all times.
5. To avoid cross-contamination, use clean glassware for each sample, and thoroughly wash all glassware between samples.
6. Ensure the device lot number and the curve details match the lot ID number selected on the reader. Failure to update the lot-specifc QR code within the reader will cause inaccurate results.

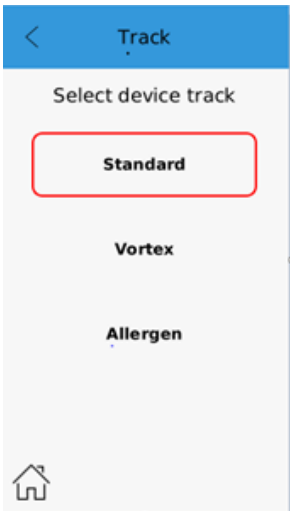
AccuScan® Reader Set Up

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., T-2/HT-2) and can be selected when running a test.

Raptor® Solo Reader Set Up

The Solo reader must be in standard mode to read the Reveal Q+ for T-2/HT-2 test strips.

1. From the main menu, select the ⚙ in the upper left hand corner
2. Select track replacement
3. Return to the home screen by pressing the ⌂ in the lower left hand corner
4. Insert the track replacement tool with the arrow facing towards you into the track in the unit
5. Gently pull up to remove the track
6. Insert the standard Endpoint testing track into the unit (track with the blue dot on the right hand side)



Testing track removal tool

Testing Track — EndPoint

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).

Sample Extraction

1. Extract at a ratio of 1 part sample to 10 parts distilled or deionized water. For example, combine 10 g of ground sample with 100 mL of distilled or deionized water.
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 500 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 T-2/HT-2 test strip with the sample end down into the sample cup and set timer for 6 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 6 minutes and read immediately (within 30 seconds).
7. Final results will be displayed on unit. Samples greater than 300 ppb must be diluted and retested.

Dilution Procedure

Samples greater than 300 ppb must be diluted and re-tested.

1. Add 100 µL sample filtrate to a sample collection tube.
2. Add 200 µL distilled or deionized water 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 500 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 T-2/HT-2 test strip with the sample end down into the sample cup and set timer for **6 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 6 minutes and read immediately (within 30 seconds). Final result displayed will need to be multiplied by 3.

Reading Test Results

Note: Test strips should be read within 30 seconds of completion of the 6 minute incubation. Refer to reader set up for test selection and set up information.
Select the assay type 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.

Fully insert the Reveal Q+ test strip into the black R-labeled cartridge adapter with the sample end first and results facing out.

Insert the cartridge with test strip upside-down into the AccuScan Gold reader (the test lines will face downward into the reader), test-strip side up for the AccuScan Pro, or test strip facing outwards for Raptor Solo. The reader will automatically begin analyzing the cartridge.

Caution: Removing cartridge prior to completion can result in invalid readings.
The 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 6 minute incubation time. Readings after 6.5 minutes may be inaccurate due to over-development of the device.
3. The strips must be read using AccuScan Gold or Raptor Solo in Standard mode.

Performance Characteristics

1. Range of detection: 50-600 ppb

Note: Samples greater than 600 ppb must be diluted and retested. Results below the range of quantitation should be reported as less than 50 ppb.

Validated/Verified Matrices

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

Customer Service

Neogen Customer Assistance and Technical Services can be reached at neogen.com. Training on this product, and all Neogen test kits, is available.

SDS Information Available

Safety data sheets (SDS) are available for this test kit on Neogen's website at neogen.com, or by calling Neogen at 800.234.5333 or 517.372.9200.

Terms and conditions

Neogen's full terms and conditions are available online.

Warranty

Neogen Corporation 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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