ENVIROLOGIX™

QuickTox™ Kit for QuickScan Ochratoxin-A in Wheat

Catalog Number AQ 113 BG

Intended Use

This Kit is designed to quickly extract and screen wheat for the presence of Ochratoxin-A residues. The QuickTox Kit is designed to provide quantitative results in wheat grain for Ochratoxin-A residues ranging from 1.5 ppb to 30 ppb in the standard assay, and up to 100 ppb with additional dilution.

How the Test Works

A composite wheat sample is collected, ground and then extracted to solubilize any Ochratoxin-A present. Each sample should be ground and extracted with room temperature Grain Buffer. This extract is further diluted with DB3 Buffer for testing with the QuickTox Kit.

Each QuickTox Strip has an absorbent pad at each end. The protective tape with the arrow indicates which end of the strip to insert into the reaction vial. The sample extract travels up the membrane strip and is absorbed into the larger pad at the top of the strip. At ten minutes, the strip is cut off at the top of the arrow tape, the bottom pads are discarded, and the strip is inserted into the QuickScan reader to obtain quantitative results.

Preparation of the Sample

Please note: sample extract should be tested immediately after dilution with DB3 Buffer (Steps 6&7). Make sure strips and DB3 Buffer are at room temperature and ready for use before the dilution step.

Determine size of sample

1. Collect a composite wheat sample according to your own sampling plan or USDA/GIPSA guidelines. Consult USDA/GIPSA reference documents such as **http://archive.gipsa.usda.gov/reference-library/handbooks/grain-insp/grbook1/bk1.pdf** to help design a plan that fits your needs.
2. Grind samples using a grinder or mill which provides a sample with a consistency comparable to the standard setting of "Turkish" on a Bunn grinder. Mix ground material thoroughly before sub-sampling. The ground sample should pass through a 20-mesh sieve.

Prepare Grain Buffer

3. In a clean vessel with a cover, dilute the Grain Buffer Concentrate **1:20** with water and mix to make homogenous. (For example: 25 mL Buffer Concentrate into 475 mL water.). Tap water may be used for dilution, but purified water (distilled and/or deionized) yields optimal results. If prepared with purified water, Grain Buffer can be stored for up to 7 days at room temperature. If prepared with tap water, Buffer should be used the same day, or may be stored refrigerated for longer life (note: bring Buffer to room temperature before testing).

Extract ground wheat with Grain Buffer

4. Weigh 20 to 50 grams of milled sample into a disposable sample cup with lid or other suitable container and add five volumes of room temperature Grain Buffer (5 mL per gram of sample, i.e. 20 grams, add 100 mL).

Highlights:

- *Quantitative and traceable results in QuickScan*
- *Read strips wet – no drying necessary*
- *Simple protocol*
- *No incubation equipment needed*

Contents of Kit:

- *50 QuickTox Strips packed in a moisture-resistant canister*
- *50 reaction vials*
- *100 pipette tips*
- *Grain Buffer Concentrate*
- *DB3 Buffer*
- *Available in 50-strip individual kit format or bulk packaging*

Items Not Provided:

- *Orbital/rotary shaker*
- *Plastic sample cups with lids* or other sample extraction vessels*
- *Water for diluting Grain Buffer Concentrate*
- *Graduated cylinder**
- *Pipette(s) to deliver 50 and 200 µL**
- *Timer*
- *Scissors*
- *QuickScan System**
- *Mini-centrifuge and vials**

**Available as accessories – see list on Page 3*

Measure Grain Buffer, add to ground sample

Shake mechanically or by hand

Remove a portion of extract to centrifuge tube and spin for 3 minutes at 2000 x g

Get a new tip, add Buffer to vial, discard tip. Get another new tip, add extract, mix well, discard tip.

Place strip in vial
Wait 10 minutes for results

5. Cap sample cup tightly and place on shaker at the highest speed, or shake vigorously by hand, for 30 seconds. Samples that are not thoroughly mixed may adversely affect test results due to incomplete extraction.
6. Immediately remove a portion of the sample and centrifuge it for 3 minutes at 2000 x g (not RPM). Consult centrifuge manual for g force calculation, and follow manufacturer's instructions for operation and balancing.

Dilute sample with DB3 Buffer (use 2 separate pipette tips)

7. With a **new** pipette tip, transfer 50 µL of DB3 Buffer into the reaction vial. Discard tip.
8. Using **another new** pipette tip, remove 200 µL from the centrifuged sample and add to the reaction vial containing the DB3 Buffer and mix well with pipette by stirring or drawing liquids up and down in the pipette tip. Discard pipette tip.

NOTE: Samples that are not thoroughly mixed and/or accurately pipetted will adversely affect test results. After adding the sample, the final volume in the reaction vial should be 250 µL. Do not reuse diluted samples. Always use a new reaction vial and two pipette tips for each sample, and discard vials and tips after use.

For testing samples at levels greater than 30 ppb:

If after running and reading the test, the initial result is greater than 30 ppb ("> 30 ppb" on QuickScan), and further knowledge about the level of contamination is desired, samples can be retested by further dilution of the sample extract.

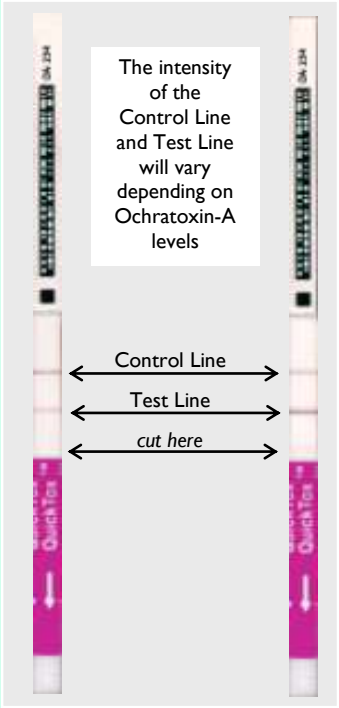
1. In a separate tube (not provided), combine 1 mL of Grain Buffer and 200 µL of the centrifuged sample. **Mix well**.
2. Using a calibrated pipette with a **new tip**, place 50 µL DB3 Buffer into a reaction vial.
3. With a fresh pipette tip, add 200 µL of the newly diluted extract to the reaction vial containing Buffer. Mix thoroughly.
4. Follow the instructions under How to Run. Select 1:6 under the dilution tab on QuickScan Results Screen—the System will calculate and record the Ochratoxin-A level in diluted samples.

How to Run the QuickTox Strip Test

1. Allow refrigerated canisters to come to room temperature before opening. Remove the QuickTox Strips to be used. Avoid bending the strips. Reseal the canister immediately.
2. Place the strip into the reaction vial containing the DB3 Buffer and sample extract. The arrow tape on the end of the strip should point into the reaction vial.
3. Sample extract will travel up the strip (flow may not be visible immediately—this is expected and normal). Reaction vials will stand on their own.
4. Allow the strip to develop for **10** minutes. Immediately cut off and discard the bottom section of the strip covered by the arrow tape. Insert strip into the QuickScan reader for quantitation.

Use of the QuickScan System

Detailed instructions for use of the QuickScan system are supplied with each unit, and can also be found at www.envirologix.com/quickscan. In summary, a strip is inserted face down in the carrier with the barcoded end closest to the handle. The carrier is inserted into the reader and the strips are read by touching or clicking on the "Read Test" area of the screen. Results are then recorded in the DataLog, allowing each user to report and track data easily.



Cut strip and place in QuickScan reader immediately — no drying step!

Place strip in QuickScan carrier

Results are reported in the range of 1.5 to 30 ppb. Results less than 1.5 ppb are reported as "<LOD" (less than Limit of Detection) and results greater than 30 ppb are reported as "> 30 ppb." If quantification is desired above 30 ppb, a further dilution of the sample extract can be performed (see "For testing samples at levels greater than 30 ppb" above).

Kit Storage

This QuickTox Kit should be stored refrigerated. Note the shelf life on the kit box. Prolonged exposure to high temperatures may adversely affect the test results. Do not open the desiccated canister until ready to use the strips.

Cross-reactivity

The following mycotoxins have been tested with this kit and no false positive results occurred at the 100 ppm level:

- Aflatoxin B1
- Fumonisin B_1
- Vomitoxin (deoxynivalenol)
- Zearalenone

Precautions and Notes

- This product is currently not applicable for use in testing any other grains.
- As with all tests, it is recommended that results be confirmed by an alternative method when necessary.
- The assay has been optimized for use with the protocol provided in the kit. Deviation from this protocol may invalidate the results of the test. Proper and thorough mixing, along with accurate pipetting, are essential to accurate results.
- QuickScan has the capability of reading up to 180 ppb. The assay has been validated for samples containing up to 100 ppb Ochratoxin-A.
- The results generated through the proper use of this diagnostic tool reflect the condition of the working sample directly tested. Extrapolation as to the condition of the originating lot, from which the working sample was derived, should be based on sound sampling procedures and statistical calculations which address random sampling effects, non-random seed lot sampling effects and assay system uncertainty. A negative result obtained when properly testing the working sample does not necessarily mean the originating lot is entirely negative for the analyte or protein in question.
- Strips must be read wet promptly at ten minutes.
- Protect all components from hot or cold extremes of temperature when not in use. Do not leave in direct sunlight or in vehicle.
- For convenience, accessories can be ordered from EnviroLogix (see list, below).

Accessories

Available through EnviroLogix:	*Catalog #*	
▪ QuickScan™ System	ACC 131	
▪ Sample cups with lids	ACC 012-50	(50/package)
for samples up to 30 g; larger samples require different mixing vessels		
▪ Graduated cylinder	ACC 023	(100 mL)
▪ MiniPet pipette 50 µL	ACC 051	
MiniPet pipette 200 µL	ACC 067	
▪ Mini-centrifuge	ACC 069	
▪ 1.5 mL vials for centrifuge	ACC 002VI	(100/package)

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License

EnviroLogix has developed this kit using proprietary reagents.