

CHAPTER 18

ENVIROLOGIX QUICKTOX DON TEST KIT

PART NUMBER AS 104 BG and AS 204 BG

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18.1 GENERAL INFORMATION

The EnviroLogix QuickTox DON (part number AS 104 BG and AS 204 BG) test kit approved for wheat, barley and corn uses lateral flow test strip technology to provide qualitative results at a thresholds of **0.5 ppm** (barley only), **1 ppm** (wheat & barley only), or **2 ppm** (wheat & corn only). Test samples are considered negative when the result is less than the requested threshold (< 0.5 ppm, < 1 ppm, < 2 ppm). Test samples are considered positive when the result is equal to or greater than the requested threshold (≥ 0.5 ppm, ≥ 1 ppm, ≥ 2 ppm).

18.2 PREPARATION OF EXTRACTION SOLUTION

The extraction solution used in the EnviroLogix QuickTox DON test method does not necessitate the use of a separate FGIS approved laboratory space. FGIS personnel may perform the testing in an FGIS approved laboratory space (i.e., table-top in an inspection lab) upon approval of the field office manager. FGIS employees must comply with all applicable safety and sanitation requirements as listed in the handbook to ensure a safe and efficient work environment.

18.3 EXTRACTION PROCEDURES

- a. Thoroughly mix ground sample and weigh a 50 gram portion.
- b. Place the ground 50 gram portion into an extraction mixing jar.
- c. Add 250 ml of **tap water** at room temperature.
- d. Cover the extraction jar and shake (by hand or mechanically) for 3 minutes. Ensure that entire sample appears completely wet and thoroughly mixed.
- e. Allow the sample to settle until 2 distinct layers are visible and fine particles are mostly settled (1 to 3 minutes). The top layer containing the DON residues will be used for testing.

18.4 TEST PROCEDURES

- a. Reaction Vial.
 - (1) Dilute sample extract with sample diluent for the requested test level.

Threshold Levels		
Barley only	Wheat, and Barley	Wheat, and Corn
0.5 ppm	1.0 ppm	2.0 ppm
Using s transfer pipette, place 0.25 ml Diluent into a reaction vial.	Using s transfer pipette, place 0.5 ml Diluent into a reaction vial	Using s transfer pipette, place 1.0 ml Diluent into a reaction vial

- (a) Using the disposable transfer pipette included in the test kit, place the correct amount of sample diluent (at room temperature) into each reaction vial.

Note: The transfer pipettes included in each test kit has marks showing (0.25, 0.5, and 1 ml) to ensure correct volumes are used for each requested test level.

- (b) Squeeze the bulb tightly and insert the tip into the sample diluent, release pressure to draw liquid up past the 1 ml mark.
- (c) Squeeze carefully to expel excess diluent back into the bottle so that the liquid left in the pipette is at the required mark (0.25, 0.5, or 1 ml).
- (d) Move the pipette over to the reaction vial and completely expel diluent.
- (2) Using a new pipette tip or new disposable transfer pipette for each reaction vial, transfer 150 μ l from the top (tan) layer of the sample extract into the reaction vial containing sample diluent.
- (3) Mix sample diluent and sample extraction solution by stirring with the tip of the pipette.
- (4) Test sample extract is now diluted and ready for test analysis.

b. Test Strips.

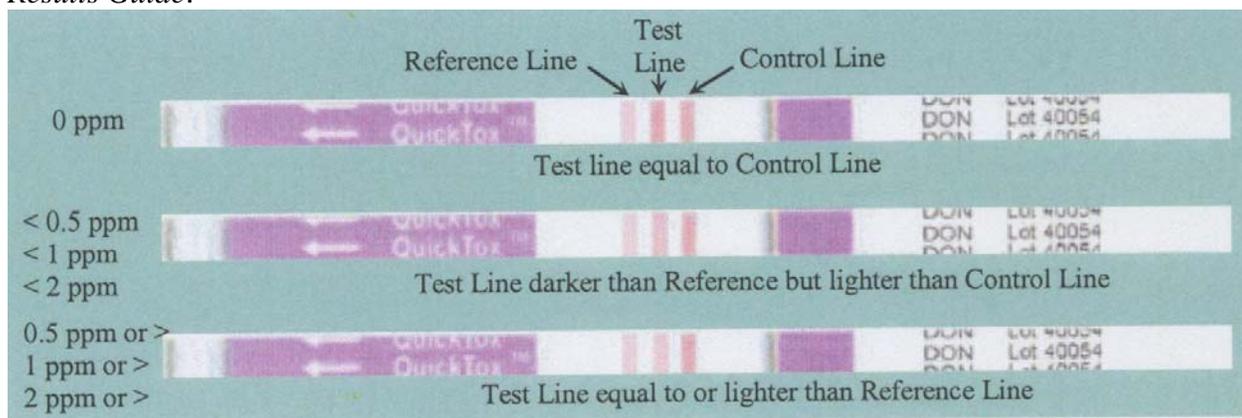
- (1) Allow refrigerated canisters to reach room temperature before opening. Remove the QuickTox strips to be used then immediately reseal the canister. Avoid bending the strips. Use care not to dislodge the arrow tape on the end of the strip.
- (2) Place the strip into the reaction vial containing the diluted sample extract, and start timed reaction period (5 minutes). The arrow tape on the end of the strip should point into the reaction vial.

- (3) The sample extract will travel up the strip. Reaction vials will stand on their own, or may be inserted into the cardboard racks provided.
- (4) Allow the strip to develop for 5 minutes before making final assay interpretations. Strips should be read **promptly at 5 minutes while wet**.
- (5) If the strips are to be retained, cut off the strip immediately below the bottom section of the strip covered by the arrow tape. Discard the bottom section of the strip and all used reaction vials.

18.5 INTERPRETING TEST RESULTS

The QuickTox Strip for DON has three lines. The top line is a Control Line that develops a signal similar to a Negative DON sample. The bottom line is a Reference Line that should appear at the desired testing level. The middle line is the Test Line and is compared to the bottom Reference Line. Results are invalid if either the Reference Line or Control Line fails to develop.

Results Guide:



If the middle Test line color intensity is	Screening at 0.5 ppm	Screening at 1.0 ppm	Screening at 2.0 ppm
Darker than the (Bottom) Reference Line	less than 0.5 ppm	less than 1 ppm	less than 2 ppm
Equal to or lighter than the (Bottom) Reference Line	0.5 ppm or greater	1 ppm or greater	2 ppm or greater

a. Negative Result.

For sample containing DON residue less than the requested test level (0.5, 1, or 2 ppm), the middle test line will be **darker than the bottom Reference Line**.

b. Positive Result.

A sample containing DON residue greater than the requested test level (0.5 ppm, 1 ppm, or 2 ppm); the middle test line will be **equal to or lighter than the bottom Reference Line.**

18.6 REPORTING AND CERTIFYING TEST RESULTS

- a. Report results on the pan ticket and certify as being less than the requested threshold (0.5 ppm, < 1 pm, < 2 ppm), or as equal to or greater than the requested threshold (≥ 0.5 ppm, ≥ 1 ppm, ≥ 2 ppm).

NOTE: Under the CuSum Loading Plan samples reported as equal to or greater than the load order limits will be reported as exceeding the threshold and designated as a material portion.

- b. Refer to the DON Handbook Chapter 4 for more detailed certification procedures when using this test kit.

18.7 CLEANING LABWARE

Clean any reusable labware (e.g., glass collection jars) in a soapy water solution, rinse with clean water, and dry before reusing.

18.8 WASTE DISPOSAL

After the test has been completed, the remaining sample extracts and sample solutions may be poured down the drain. Discard solid material in the trash for routine disposal.

18.9 EQUIPMENT AND SUPPLIES

a. Materials Supplied in Test Kits.

- (1) 50 QuickTox strips packed in a moisture-resistant container.
- (2) 50 large transfer pipettes marked 1 ml.
- (3) 50 small fixed-volume pipettes, 150 μ l.
- (4) 50 reaction vials.
- (5) Sample diluent.

b. Materials Required but not Provided:

- (1) Timer (5 minute capacity).
- (2) Graduated cylinders.
- (3) Disposable plastic cups with tops.
- (4) Balance.
- (5) Sample grinder.
- (6) Sample extraction jars.
- (7) Tap water.

18.10 STORAGE CONDITIONS AND PRECAUTIONS

a. Storage Conditions.

Test kits should be refrigerated between 36°- 48°F.

b. Precautions.

- (1) Do not use the test kits beyond the noted expiration date.
- (2) Prolonged exposure to high or low extreme temperatures may adversely affect the test results. Do not leave in direct sunlight or in a vehicle.
- (3) Do not open the desiccated canister until ready to use the strips.
- (4) Use a new disposable transfer pipette, fixed volume pipette, and reaction vial for each sample.
- (5) To use large disposable transfer pipettes:
 - (a) Squeeze bulb tightly and insert tip in the Sample Diluent.
 - (b) Release pressure to draw liquid up past the 1 ml mark.
 - (c) Squeeze carefully to expel excess Diluent back into the bottle so that the liquid left in the pipette is at the required mark (1.0 ml, 0.5 ml, 0.25 ml).

- (d) Move the pipette over to the reaction vial and expel the Diluent.
- (6) To use small fixed-volume pipettes:
 - (a) Holding the top bulb, insert the tip into the liquid, pinch tightly, and released. This will draw up liquid. Be sure it fills the straw end –any excess will be retained in the lower bulb.
 - (b) Squeeze top bulb again to expel the liquid—exactly 150 μL will expelled into the reaction vial.
- (7) Do not reuse diluted samples.