

Catalog Number AQ 204 BG3

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
- 10X EB13 Extraction Buffer
- DB1 Dilution Buffer
- Available in 50-strip individual kit format or bulk packaging

Items Not Provided:

- Orbital/rotary shaker
- Plastic sample cups with lids*
- Centrifuge* and vials/tubes*
- 20 mesh screen
- Graduated cylinder*
- Pipette to deliver 100 µL*
- Tubes for additional dilution of high samples (optional)
- Timer
- Scissors
- QuickScan System*

*Available as accessories – see list on Page 4



Collect a composite sample and grind DDGS to 20 mesh

Intended Use

This EnviroLogix QuickTox Kit for QuickScan DON is designed to quickly extract and screen Distiller's Dried Grains with Solubles (DDGS) for the presence of Deoxynivalenol (DON) residues. The QuickTox Kit is designed to provide quantitative results in DDGS for DON residues ranging from 0.2 ppm to 5 ppm in the standard assay, and up to 10 ppm with additional dilution.

How the Test Works

A composite DDGS sample is first collected, then extracted to solubilize any DON present. Each sample should be ground to a fineness of 20 mesh and extracted with room temperature Extraction Buffer. This extract is further diluted 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 DB1 Buffer (Step 8). Make sure strips, EB13 Extraction Buffer, and DB1 Buffer are at room temperature and ready for use.

Prepare solutions

1. Prepare 1X EB13: Dilute the 10X EB13 by adding 10 mL of concentrated buffer to 90 mL of tap water. A larger working solution can be made, but if it is to be kept longer than 1 day, it must be stored at 2-8° C and allowed to come to room temperature before using.

Determine number and size of sub-samples

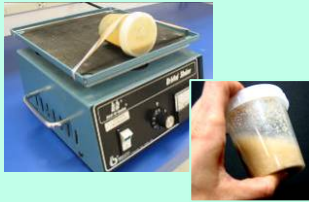
2. Collect a composite DDGS sample according to your own sampling plan or USDA/GIPSA guidelines. Consult USDA/GIPSA reference documents such as <http://archive.gipsa.usda.gov/reference-library/handbooks/grain-insp/grbook1/bk1.pdf> to help design a plan that fits your needs.
3. Grind samples using a mill which provides a sample that passes through a 20 mesh sieve. Mix ground material thoroughly before sub-sampling.

Extract DDGS sample

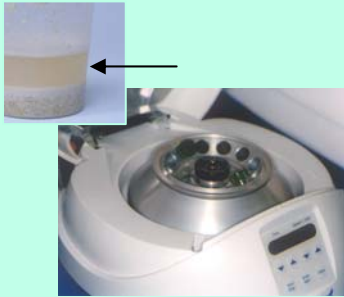
4. Weigh 20 grams of milled sample into a disposable sample cup with lid or other suitable container and add 100 mL of room temperature 1X EB13. It is possible to test larger sample sizes by adding five volumes of 1X EB13 per gram of DDGS; however, additional 10X EB13 would need to be purchased.



Measure 1X EB13, add to ground sample



Shake mechanically or by hand



Remove top layer of extract to centrifuge tube and spin for 3 minutes at 2000 x g



Add DB1 Buffer to vial first, then add centrifuged extract; mix well with pipette tip



Place strip in vial
Wait 10 minutes for results

- Cap sample cup tightly and place on shaker for 1 minute, or alternatively shake vigorously by hand. Shaker should be operated at the highest speed. Samples that are not thoroughly mixed may adversely affect test results due to incomplete extraction.
- Extract will immediately begin to separate into 2 layers (a more finely ground beginning sample may take a few minutes to settle). Remove about 1 mL of the top layer and centrifuge it for 3 minutes at 2000 x g (not RPM). Consult centrifuge manual for g force calculation.
- Using a calibrated pipette with a **new tip**, place 100 microliters (100 μ L) DB1 Buffer into a reaction vial. Take care not to contaminate DB1 Buffer—use a new tip for each test and keep covered when not in use.
- With **another new** pipette tip, remove 100 μ L from the centrifuged extract, avoiding particulates. Add extract to reaction vial containing DB1 Buffer.
- Mix DB1 Buffer and sample extract thoroughly** by stirring or drawing the liquids up and down in the pipette tip until the mixture is uniformly light tan.

NOTE: Samples that are not thoroughly mixed and/or accurately pipetted will adversely affect test results. **Avoid foam and particulates during pipetting, and ensure that the pipette tip does not become clogged with particulate.** After diluting the sample, the final volume in the reaction vial should be 200 μ L. Do not reuse diluted samples. Use a new reaction vial for each sample. Use two pipette tips (one for DB1 Buffer, one for extract) for each sample.

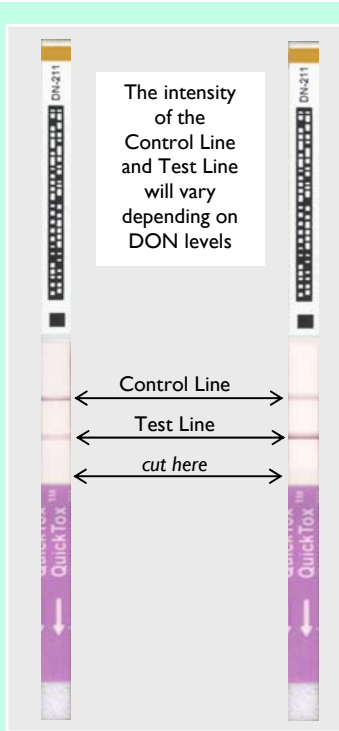
For testing samples at levels greater than 5 ppm (up to 10 ppm):

If after running and reading the test, the initial result is greater than 5 ppm (" >5 ppm" on QuickScan), and further knowledge about the level of contamination is desired, samples can be retested by further dilution of the sample extract.

- In a separate tube (not provided), combine one part of room temperature 1X EB13 with one part centrifuged extract (measure carefully). Mix well.
- Using a calibrated pipette with a new tip, place 100 μ L DB1 Buffer into a reaction vial.
- With a fresh pipette tip, add 100 μ L of the newly diluted extract to the reaction vial containing DB1 Buffer. Mix thoroughly. Because the extract is diluted two-fold, its addition to the buffer may not turn the mixture tan.
- Follow the instructions under How to Run. Choose 1:2 under the dilution tab on QuickScan Results Screen—the System will calculate and record the DON level in diluted samples.
- If QuickScan again returns a result of ">5 ppm" after this dilution step, the level is greater than 10 ppm.

How to Run the QuickTox Strip Test

- 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.
- Place the strip into the reaction vial containing the DB1 Buffer and sample extract. The arrow tape on the end of the strip should point into the reaction vial.
- The 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.



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



Place strip in QuickScan carrier

- 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 an electronic worksheet, allowing each user to report and track data easily.

Results are reported in the range of 0.2 to 5 ppm. Results less than 0.2 ppm are reported as “<LOD” (less than Limit of Detection) and results greater than 5 ppm are reported as “>5 ppm.” If quantification is desired above 5 ppm, a further dilution of the sample extract can be performed (see “For testing samples at levels greater than 5 ppm” 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 B₁
- Ochratoxin A
- Zearalenone

Precautions and Notes

- This product is currently not applicable for use in testing any other grains.
- This assay is calibrated against reference samples supplied by Trilogy Analytical Laboratory, Washington, MO, and other vendors and associated HPLC data.
- As with all screening 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.
- 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)
- Graduated cylinder ACC 068 (100 mL)
- MiniPet pipette ACC 041 (one/location free)
- Quinn Spin Microcentrifuge ACC 064
- Extraction Vials for centrifuge ACC 002 VI (100/pkg)
- 10X EB13 Extraction Buffer KR 033 600 (optional, if testing sub-samples larger than 20g each)





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