



Catalog AQ 311 BG Part # 12210, 12239

Matrices and Detection Ranges:

Matrix Group ID	Protocol	*Results reported in the range of:	Limit of Detection (LOD)*	Highest Approved Level*
	High Sensitivity 0.2 - 1.5 ppm	0 - 1.5 ppm	0.2 ppm	1.5 ppm
FM MG1 - Corn	Base Range 1.5 - 7 ppm	0 - 9 ppm	1.5 ppm	7.0 ppm
	High Positive 7 - 30 ppm	0 - 41 ppm	7.0 ppm	30 ppm

^{*}Do not assume accuracy for results reported below the protocol's LOD or above the protocol's highest approved level

Important Notes:

- Before testing, the enclosed Multi-Matrix Barcode Card (MMBC) must be scanned just once for each kit lot to upload information to the QuickScan
- Fold MMBC and scan only the MG1 barcode if you want QuickScan to skip the matrix selection and default to only MG1 matrices
- QuickScan Software Version 4.9.4 Update 1 or later is required
- DB6 Buffer is matched with specific Fumonisin Flex kit lot numbers. Be sure to use DB6 with the kit it is provided with. There is a "use with" label on the DB6 that will indicate the matching Fumonisin Flex Lot Number.

Table A on page 9 is provided as a Summary Guide for testing. More details for each step in the process are described below, and are important for achieving optimal, accurate results.

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Contents of Kit:

- 50 QuickTox Strips packed in a moisture-resistant canister
- 50 clear Reaction tubes
- 50 blue Dilution tubes
- 100 pipette tips (1-200 μL)
- 50 pipette tips (100-1000 μL)
- DB6 Buffer, kit lot specific
- Multi-Matrix Barcode Card, kit lot specific

Items Not Provided:

- QuickScan System*
- Incubator base*
- Incubator block*
- Bunn grinder or equivalent
- 20-mesh screen
- Digital scale for weighing samples
- Extraction cups with lids* or other suitable vessels for sample extraction
- Graduated cylinder*
- Orbital/rotary shaker
- Pipette to deliver 200 μL*
- Pipette to deliver 50 μL*
- Pipette to deliver larger volumes (>200µL to 1 mL) for dilutions*
- Timer
- Scissors
- Distilled, deionized or bottled water

*Available as Accessories

Available Accessories:							
Catalog No.	Part #						
ACC 131	10050 + 10198						
ACC 012-50	11224						
ACC 068	11207						
ACC 067	11206						
ACC 051	11203						
ACC 1303-PRO-1000	11964						
20-0127	12243						
ACC BSH300	12458						
	Catalog No. ACC 131 ACC 012-50 ACC 068 ACC 067 ACC 051 ACC 1303-PRO-1000 20-0127						

Intended Use

The QuickTox Kit for QuickScan Fumonisin Flex is designed to quickly provide quantitative results for the presence of total fumonisins.

- Limit of detection (LOD) = **0.20 ppm (high sensitivity protocol)**
- Assay range = 0.2 30 ppm, following three different protocols for the sub-ranges defined below.
 - 0.2 1.5 ppm ("High Sensitivity") 1.5 7.0 ppm 7.0 30 ppm ("High Positive")

How the Test Works

A composite sample is first collected, then extracted to solubilize any fumonisin present. Each sample should be ground to a fineness of 20 mesh and extracted using the specified extractant. This extract is further diluted for testing with the OuickTox 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 the end of the test time, 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.

Assay Preparation

Table A on page 9 is provided as a Summary Guide for testing. More details for each step in the process are described below, and are important for achieving optimal, accurate results.

Preparation of the Sample

Turn on the incubator and set to 22°C for a minimum of 10 minutes before testing. Ensure that the temperature display has stabilized and indicates "OK" before starting the assay. Make sure all reagents including samples, strips, buffer, and sample extractant are at room temperature and ready for use before starting the assay. The sample extract should be tested shortly after dilution with buffer.

Determine number and size of sub-samples and weigh out

- Collect a composite sample according to your own sampling plan or USDA/GIPSA guidelines. Consult USDA/GIPSA
 reference documents to help design a plan that fits your needs.
- 2. Grind samples using a Bunn grinder or mill which provides a sample such that ≥95% passes through a 20-mesh sieve. Mix ground material thoroughly before sub-sampling.
- 3. Weigh samples into containers that will allow enough head room for the liquid to move forcefully when shaken vigorously.

Extract samples

- 1. Consult the Summary Guide Table A to determine the volume and type of Extractant that has been validated for the matrix. To calculate the volume of liquid to add, multiply the sample weight (in grams) x ratio (in milliliters, mLs)
 - For example, 20 grams x 5 = 100 mL (water) to add to corn
- 2. Make sure the grain is completely wet, and then mix thoroughly as stated in the table. Liquid should be moving forcefully through the matrix to extract the fumonisin.
- 3. The order of addition has been optimized. Please follow this order.
- 4. Samples that are not thoroughly mixed and <u>fully wetted</u> may adversely affect test results due to inconsistent extraction.

Clarify extracts (again, adhere to the Summary Guide table for optimal performance)

1. Settling: Allow the sample to sit undisturbed until a top layer forms that can easily be pipetted. This top layer is the extract that will be used in the testing.

Protocol Selection Relative To Your Level(s) of Interest:

If your Level of Interest falls within the range of a single protocol, run only that protocol. If your level of interest spans the full quantitation range (0.2-30 ppm); it is recommended that you start with the Base Range followed by either the High Sensitivity or High Positive protocol depending on the results—this run order will minimize the time and number of strips required to get to the final result.

Protocol	*Results reported in the range of:	Limit of Detection (LOD)*	Highest Approved Level*	Sample Dilution 1	Sample Dilution 2	Transfer run volume to a clear Reaction tube and add to Incubator
High Sensitivity 0.2 - 1.5 ppm	0 - 1.5 ppm	0.2 ppm	1.5 ppm	350 μL DB6 buffer + 50 μL extract in blue Dilution tube	NA	Transfer 200 µL into clear Reaction tube
Base Range 1.5 - 7 ppm	0 - 9 ppm	1.5 ppm	7.0 ppm	2.5 mL DB6 buffer + 50 µL extract in blue Dilution tube	NA	Transfer 200 µL into clear Reaction tube
High Positive 7 - 30 ppm	0 - 41 ppm	7.0 ppm	30 ppm	2.5 mL DB6 buffer + 50 µL extract in blue Dilution tube		offer + 50 µL Sample In clear Reaction tube

^{*}Do not assume accuracy for results reported below the protocol's LOD or above the protocol's highest approved level Refer to Table A on p. 9 for the complete extraction and run instructions.

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Add reagents to the blue Dilution Tube, followed by transfer to the clear Reaction Tube.

Reference Table A for protocol-specific dilutions based on the quantitation level desired.

- 1. **Take care not to contaminate the DB6 Buffer**. Keep Buffer covered when not in use, and use a new pipette tip for each test. **Please note**: DB6 Buffer is matched with specific Fumonisin Flex kit lot numbers; be sure to use the DB6 that is provided with the kit (do not mix and match buffers with different kit lots). There is a "use with" label on the DB6 that will indicate the matching Fumonisin Flex lot number.
- 2. Follow Table A instructions for Buffer and extract order of addition.
- 3. Use three pipette tips (large tip for Buffer, small tip for extract and another small tip to transfer the mixture to the Reaction tube) for each sample. *Retain the large pipette tip after buffer addition to be used for mixing purposes.
- 4. While adding the extract to the buffer in the Dilution Tube make sure to rinse the small tip by drawing it up and down a few times.
- 5. Mix Buffer and sample extract thoroughly by drawing the liquids up and down in the pipette tip (always use the larger volume pipette for this purpose). Samples that are not thoroughly mixed and/or accurately pipetted will adversely affect test results.
- 6. Transfer 200 µL of the diluted sample to the Reaction Tube.
- 7. Use a new Dilution Tube and Reaction Tube for each sample.
- 8. Follow the instructions under How to Run.

How to Run the QuickTox Strip Test

A minimum of 10 minutes before testing is to start, turn on the incubator and set to 22°C (follow manufacturer's instructions for setting temperature); ensure that the temperature display has stabilized and indicates "OK" before starting the assay. If testing is planned throughout the day it recommended to turn the incubator on in the morning and leave it on throughout the day.

- 1. Allow refrigerated canisters to come to room temperature before opening.
- 2. Add the reaction tube containing the diluted sample to the incubator (be sure it has reached 22°C). If the temperature of the testing environment is unknown or outside of the range of 20-24°C (68-75°F), allow the sample to acclimate in the incubator for 2 minutes before proceeding.
- 3. Remove the QuickTox Strips to be used. Avoid bending the strips. Reseal the canister immediately.
- 4. Place the strip into the reaction tube containing the Buffer and sample extract. The arrow tape on the end of the strip should point into the reaction tube.
- 5. Allow the strip to develop for the time noted in Table A (e.g., 5 minutes for corn).
- 6. 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 http://www.envirologix.com/support/quickscan. QuickScan Software Version 4.9.0 Update 1 or later is required and the lot-specific Multi-Matrix Barcode Card must be scanned into the system prior to testing.

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. If the "Select Matrix Group" screen appears, select the group that displays the matrix run for each device. Refer to the Summary Guide Table A to determine if an alternative selection under the Dilution Tab is required based on the protocol that was run. Results are then recorded in an electronic worksheet, allowing each user to report and track data easily.

Based on the protocol run, ensure the appropriate selection is made under the Dilution tab on the results screen.

	Protocol Run					
	High Sensitivity		High Positive			
	0.2 - 1.5 ppm	1.5 - 7 ppm	7 - 30 ppm			
Dilution tab	1:1	1:A	1:B			
drop down menu selection	(this is the software default)	(this must be selected)	(this must be selected)			

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 200 ppm level: Aflatoxin B1, DON (deoxynivalenol), Ochratoxin A, Zearalenone.

Precautions and Notes

- Strips must be read wet promptly at the specified time for the matrix run to ensure accurate results.
- This product is currently not applicable for use in testing any other crops beyond those specified in this Product Insert.
- The corn assay is calibrated against samples with Fumonisin levels determined by a 3rd party using UHPLC/MS/MS with 13C isotopic internal Fumonisin standards (Biopure ILM003, ILM004 and ILM005, Romer Labs). Performance in other sample matrices has been validated using fortified samples.
- As with all screening tests, it is recommended that results be confirmed by an alternate method when necessary.
- The assay has been optimized for use with the protocols provided in the kit. Deviation from these protocols may invalidate the results of the test. Room-temperature components, proper and thorough mixing, accurate pipetting, and using the correct corresponding DB6 Buffer provided in the kit 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 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 in question.
- Protect all components from hot or cold extremes of temperature when not in use. Do not leave in direct sunlight or in vehicle.
- Observe any applicable regulations when disposing of samples and extracts.

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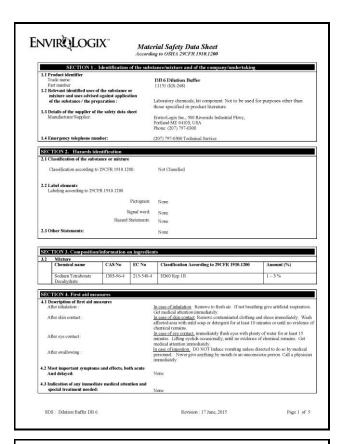
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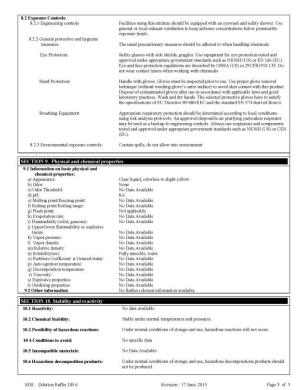
EnviroLogix has developed this kit using proprietary reagents.

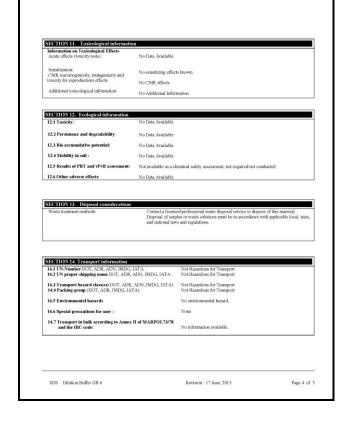
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SECTION 5. Firefighting measures					
5.1 Extinguishing media:	CO2, extinguish resistant foam.	hing powder or water spray. F	ight larger fires with water spray or ale		
5.2 Special hazards arising from the substance o mixture:					
5.3 Advice for firefighters:	Wear protective gear appropriate for fire conditions including respiratory protective gear.				
SECTION 6. Accidental release measures					
6.1 Personal precautions, protective equipment and emergency procedures:	In the case of spi spill, additional p	lled mixture wear gloves to p protection is recommended.	revent skin contact. In the case of a lar		
6.2 Environmental precautions:	Do not discharge	mixture to sewer system or v	valerways.		
6.3 Methods and material for containment and cleanup:	Absorb in paper waste. Clean with	towel or suitable absorbent fo h water afterwards.	r larger spills and discard in appropriat		
6.4 References to other sections:	For safe handling refer to Section 7. For information on PPE refer to Section 8. For disposal refer to Section 13				
7.2 Conditions for safe storage, including any	clothing.				
Incompatibilities: 7.3 Specific end uss(s):	Store in tightly clc surlight and heat. Apart from the use	Store in well aired storage ro	n corrosive computible area. Prevent dis exts. o other specific uses are stipulated		
Incompatibilities:	Store in tightly clc surlight and heat. Apart from the use	Store in well aired storage ro	oms.		
Incompatibilities: 7.3 Specific and use(s): SECTION S. Exposure controls/personal pu SI Exposure limits: Components with limit values that require	Store in tightly clc surlight and heat. Apart from the use	Store in well aired storage ro	oms.		
Incompatibilities: 7.3 Specific end use(s): SECTION 8, Exposure control/personal pt 8.1 Exposure limits:	Store in tightly clc surlight and heat. Apart from the use	Store in well aired storage roes mentioned in section 1.2, n	conter specific uses are stipulated		
Incompatibilities: 7.3 Specific and use(s): SECTION S. Exposure controls/personal pu SI Exposure limits: Components with limit values that require	Store in tightly elc sunlight and heat. Apart from the use	Store in well aired storage ro- es mentioned in section 1.2, n	OSHA		





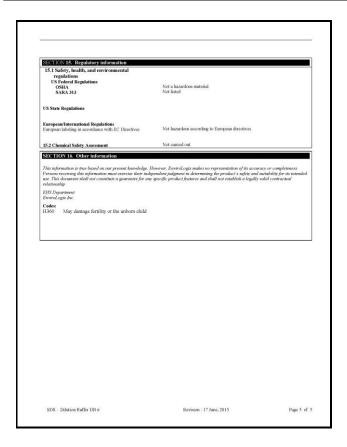


Table A: Summary Guide for Approved Matrices

Approved Matrices (associated assay range)	Matrix Group	Add Grain to Vessel First	Add Extractant Second	Fully wet sample, then mix	Clarify	Run the Base Range protocol first followed by either the High Positive or High Sensitivity protocols if necessary#	Pre-Mix sample in blue Dilution Tube followed by transfer to clear Reaction Tube	Add Reaction Tube to Incubator set at 22°C	Add strip for	Read in QuickScan: Dilution tab on the result page should display
			5x vol water*	1 minute highest		1.5 to 7.0 ppm (Base Range)	Pre-Mix 2.5 mL buffer + 50 μL extract† Transfer 200 μL	Acclimate tube for 2 min^	5 min.	1:A (this must be selected)
Corn	FM MG1	20g to 50g	5 mL per gram of sample, e.g. 250 mL to a	speed on shaker table, or 2 minutes vigorously	Settle	7.0 to 30 ppm (High Positive)	Transfer 150 μL buffer + 50 μL of the Pre- Mix extract from the 1.5 - 7 ppm protocol, Mix	Acclimate tube for 2 min^	5 min.	1:B (this must be selected)
				by hand		0.2 to 1.5 ppm (High Sensitivity)	Pre-Mix 375 μL buffer + 50 μL extract Transfer 200 μL	Acclimate tube for 2 min^	5 min	1:1 (this is the software default)

Notes:

- * Use distilled, deionized, or flat (non-carbonated) bottled water.
- ^ The tube acclimation step is only required if the temperature of the testing environment is unknown or outside of 20-24°C (68-75°F)
- † Retain this Pre-Mix extract in case High Positive testing is necessary
- # If your Level of Interest falls within a single protocol range, run only that protocol (see Instructions and table on p. 3-4)