

<p>Validated Matrices</p> <ul style="list-style-type: none"> • Corn • Corn Flour • Corn Germ • Corn Germ Meal • DDGS • Sorghum 	<p>Important Notes:</p> <ul style="list-style-type: none"> • 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 4.7 Update 3 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.
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If only testing matrices that are included in the FM MG1 Group, fold the Multi Matrix Barcode Card in half and only scan the FM MG1 barcode; this allows the software to skip the step which prompts users to select a Matrix Group.

Matrix Group ID	Matrices	Sample Extractant
FM MG1	Corn	Water
FM MG2	Corn flour	Water
	DDGS	1X EB18 (<i>not included, see page 2</i>)
FM MG3	Corn germ	1X EB18 (<i>not included, see page 2</i>)
	Corn germ meal	1X EB18 (<i>not included, see page 2</i>)
FM MG4	Sorghum	1X EB18 (<i>not included, see page 2</i>)

Table A on page 7 is provided as a Summary Guide for testing each matrix. More details for each step in the process are described below, and are important for achieving optimal, accurate results.

Contents of Kit:

- 50 QuickTox Strips packed in a moisture-resistant canister
- 100 reaction vials
- 100 pipette tips
- DB6 Buffer, kit lot specific
- Multi-Matrix Barcode Card, kit lot specific

Items Not Provided:

- QuickScan System*
- Bunn grinder or equivalent
- 20-mesh screen
- Extraction cups with lids (for 20g samples)* or
- Other suitable vessels for sample extraction
- Graduated cylinder*
- Orbital/rotary shaker
- Pipette to deliver 200 μ L*
- Tubes and pipettes for centrifugation*
- Microcentrifuge*
- Vials for additional dilution of high samples*
- Pipette + tips to deliver larger volumes for dilutions*
- Timer
- Scissors
- EB18 Extraction Buffer* for certain matrices
- Distilled, deionized or bottled water

*Available as Accessories

Available Accessories:

<i>Item</i>	<i>Catalog No.</i>	<i>Part #</i>
QuickScan™ System	ACC 331	12721
Sample cups/lids (500/case; for extracting samples up to 30g; extracting larger samples requires different vessels)	ACC 012-CS	10167
Graduated cylinder (100mL)	ACC 068	11207
MiniPet pipette 200 μ L (one/location free)	ACC 067	11206
Centrifugation Set: Disposables for 50 tests	ACC 010	11214
Microcentrifuge	ACC 064 E	11204
EB18 Extraction Buffer 10X Concentrate <i>See instructions under 'Precautions & Notes'</i>	KR 270-530	11930
QuickTox Dilution Set (200 vials, 300 tips)	ACC 080	11219
1 mL adjustable pipette	ACC 1303-PRO-1000	11964
Pipette tips for 1 mL pipette (50)	20-0107	12243

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) = less than 0.20 ppm
- Assay range = up to 3.0 ppm in standard assay, and up to 18 ppm with additional dilution

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 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 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 7 is provided as a Summary Guide for testing each matrix. More details for each step in the process are described below, and are important for achieving optimal, accurate results.

Preparation of the Sample

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

1. 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 $\geq 95\%$ 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 with appropriate Extractant

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 = 100mL (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 fumonisins.
3. The order of addition has been optimized. Please follow this order.
4. Samples that are not thoroughly mixed and fully wetted may adversely affect test results due to inconsistent extraction.

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

1. Centrifugation: Fill a microcentrifuge tube with extract and centrifuge for the specified time at 2000 x g (not rpm). The top layer is the extract that will be used in the testing.
2. 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.

Add reagents to reaction vials

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 the table instructions for Buffer and extract order of addition.
3. Use two pipette tips (one for Buffer, one for extract) for each sample.

4. Mix Buffer and sample extract thoroughly by stirring or drawing the liquids up and down in the pipette tip. Samples that are not thoroughly mixed and/or accurately pipetted will adversely affect test results.
5. Do not reuse diluted samples. Use a new reaction vial for each sample.

For testing samples at levels greater than 3.0 ppm

1. If after running and reading the test, the initial result is greater than 3.0ppm (“>3.0 ppm” on QuickScan), samples can be retested by further dilution of the sample extract.
2. Combine extract with the diluent noted (not with DB6 Buffer) in the summary guide table to create a 1:6 dilution (example: 1 part clarified extract + 5 parts diluent; 100µL + 500µL diluent). Measure carefully and **mix well**.
3. Rerun assay as before, adding DB6 Buffer + diluted extract into the reaction vial, and adding the strip for the time specified. Example: for corn, premix 1.5mL Buffer + 0.200mL diluted extract (extract 1:6 in water), pipette 0.200mL into a reaction vial and add strip for 5 min.
4. Follow the instructions under How to Run. Choose 1:6 under the dilution tab on the QuickScan Results Screen – the System will calculate and record the fumonisin 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 Buffer and sample extract. The arrow tape on the end of the strip should point into the reaction vial.
3. The sample extract will travel up the strip (flow may not be visible immediately—this is normal). Reaction vials will stand on their own.
4. Allow the strip to develop for the time noted in the summary table.
5. 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 envirologix.com/quickscan. The lot-specific Multi-Matrix Barcode Card (MMBC) must be scanned into the system prior to testing. In summary, a strip is inserted into the reader and the strips are read by touching or clicking on the “Read Test” area of the screen. The “Select Matrix Groups” screen will appear if more than one barcode was scanned into the system from the MMBC. Select the group that displays the matrix run. Results are then recorded in an electronic worksheet, allowing each user to report and track data easily.

Results are reported up to 3.0 ppm. The result “<LOD” (less than Limit of Detection) will be reported for results lower than the assay’s LOD (which is less than 0.20 ppm) and results greater than 3.0 ppm are reported as “>3.0 ppm.” If quantification of a sample above 3.0 ppm is desired, a further dilution of the sample extract can be performed (see “For testing samples at levels greater than 3.0 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 200 ppm level: Aflatoxin B1, DON (deoxynivalenol), Ochratoxin A, Zearalenone.

Precautions and Notes

- **IMPORTANT:** If used, the 10X EB18 Extraction Buffer should be considered an irritant (MSDS available at www.envirologix.com/SDS-10XEB18.pdf). Avoid contact with the skin, eyes, or clothing. Wear personal protective equipment including safety glasses, gloves, and a lab coat when handling.
 - **To prepare 1X EB18 Buffer Solution:** Mix 1 part 10X EB18 Extraction Buffer with 9 parts of water. 1X solution expires one week from date of mixing when stored at room temperature, or 4 weeks when stored at 2-8°C
- 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.
- Pipettes lose calibration accuracy over time. Calibrate or replace pipettes at least annually.
- 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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LIMITED WARRANTY

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This Limited Warranty states the entire obligation of EnviroLogix with respect to the Products. If any part of this Limited Warranty is determined to be void or illegal, the remainder shall remain in full force and effect.


License

EnviroLogix has developed this kit using proprietary reagents.

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Safety data sheet

SECTION 1. Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier
Trade name: **DB 6 Dilution Buffer**
Part number: 11151 (KR-268)

1.2 Relevant identified uses of the substance or mixture and uses advised against application of the substance / the preparation :
Laboratory chemicals; kit component. Not to be used for purposes other than those specified in product literature.

1.3 Details of the supplier of the safety data sheet
Manufacturer/Supplier: EnviroLogix Inc., 500 Riverside Industrial Pkwy,
Portland ME 04103, USA
Phone: (207) 797-0300

1.4 Emergency telephone number: (207) 797-0300 Technical Service

SECTION 2. Hazards identification.

2.1 Classification of the substance or mixture
Classification according to 29CFR 1910.1200: Not Classified

2.2 Label elements
Labeling according to 29CFR 1910.1200

Pictogram: None
Signal word: None
Hazard Statements: None

2.3 Other Statements: None

SECTION 3. Composition/information on ingredients.

3.2 Mixture

Chemical name	CAS No	EC No	Classification According to 29CFR 1910.1200	Amount (%)
Sodium Tetraborate Decahydrate	1303-96-4	215-540-4	H360 Rep 1B	<3%

SECTION 4. First aid measures.

4.1 Description of first aid measures

After inhalation: In case of inhalation. Remove to fresh air. If not breathing give artificial respiration. Get medical attention immediately.

After skin contact: In case of skin contact. Remove contaminated clothing and shoes immediately. Wash affected area with mild soap or detergent for at least 10 minutes or until no evidence of chemical remains.

After eye contact: In case of eye contact, immediately flush eyes with plenty of water for at least 15 minutes. Lifting eyelids occasionally, until no evidence of chemical remains. Get medical attention immediately.


After swallowing: In case of ingestion. DO NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Call a physician immediately.

4.2 Most important symptoms and effects, both acute and delayed: None

4.3 Indication of any immediate medical attention and special treatment needed: None

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SECTION 5. Firefighting measures.

5.1 Extinguishing media: CO2, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.

5.2 Special hazards arising from the substance or mixture: None

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 spilled mixture wear gloves to prevent skin contact. In the case of a large spill, additional protection is recommended.

6.2 Environmental precautions: Do not discharge mixture to sewer system or waterways.

6.3 Methods and material for containment and cleanup: Absorb in paper towel or suitable absorbent for larger spills and discard in appropriate waste. Clean with water afterwards.

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

SECTION 7. Handling and storage.


7.1 Precautions for safe handling: Practice good chemical hygiene when handling. Avoid contact with eyes, skin, and clothing.

7.2 Conditions for safe storage, including any incompatibilities: Store in tightly closed, non-metal container, in a corrosive compatible area. Prevent direct sunlight and heat. Store in well aired storage rooms.

7.3 Specific end use(s): Apart from the uses mentioned in section 1.2, no other specific uses are stipulated

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SECTION 8. Exposure controls/personal protection.

8.1 Exposure limits:
Components with limit values that require monitoring at the workplace:

	EH40/2005	OSHA
Sodium Tetraborate Decahydrate	8 Hr TWA = 5mg/m ³	8 Hr TWA = 10 mg/m ³

8.2 Exposure Controls:

8.2.1 Engineering controls
Facilities using this mixture should be equipped with an eyewash and safety shower. Use general or local exhaust ventilation to keep airborne concentrations below permissible exposure limits.

8.2.2 General protective and hygienic measures:
The usual precautionary measures should be adhered to when handling chemicals.

Eye Protection:
Safety glasses with side shields, goggles. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166 (EU). Eye and face protection regulations are described by OSHA (US) in 29CFR1910.133. Do not wear contact lenses when working with chemicals

Hand Protection:
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands. The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

Breathing Equipment:
Appropriate respiratory protection should be determined according to local conditions using risk analysis protocols. An approved disposable air purifying particulate respirator may be used as a backup to engineering controls. Always use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

8.2.3 Environmental exposure controls: Contain spills, do not allow into environment

SECTION 9. Physical and chemical properties.


9.1 Information on basic physical and chemical properties:

a) Appearance:	Clear liquid, colorless to slight yellow.
b) Odor:	None
c) Odor Threshold:	No Data Available
d) pH:	8.6
e) Melting point/freezing point:	No Data Available
f) Boiling point/Boiling range:	No Data Available
g) Flash point:	Not applicable.
h) Evaporation rate:	No Data Available
i) Flammability (solid, gaseous):	No Data Available
j) Upper/lower flammability or explosive limits:	No Data Available
k) Vapor pressure:	No Data Available
l) Vapor density:	No Data Available
m) Relative density:	No Data Available
n) Solubility(ies):	Fully miscible, water.
o) Partition Coefficient: n-Octanol/water:	No Data Available
p) Auto-ignition temperature:	No Data Available
q) Decomposition temperature:	No Data Available
r) Viscosity:	No Data Available
s) Explosive properties:	No Data Available
t) Oxidizing properties:	No Data Available

9.2 Other information: No further relevant information available.

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SECTION 10. Stability and reactivity.

10.1 Reactivity: No data available

10.2 Chemical Stability: Stable under normal temperatures and pressures.

10.3 Possibility of hazardous reactions: Under normal conditions of storage and use, hazardous reactions will not occur.

10.4 Conditions to avoid: No specific data

10.5 Incompatible materials: No Data Available.

10.6 Hazardous decomposition products: Under normal conditions of storage and use, hazardous decompositions products should not be produced.

SECTION 11. Toxicological information.

Information on Toxicological Effects

Acute effects (toxicity tests): No Data Available

Sensitization: No sensitizing effects known

CMR (carcinogenicity, mutagenicity and toxicity for reproduction) effects: No CMR effects.

Additional toxicological information: No Additional Information

SECTION 12. Ecological information.

12.1 Toxicity: No Data Available

12.2 Persistence and degradability : No Data Available

12.3 Bio accumulative potential: No Data Available

12.4 Mobility in soil : No Data Available

12.5 Results of PBT and vPvB assessment: Not available as a chemical safety assessment, not required/not conducted.

12.6 Other adverse effects: No Data Available

SECTION 13. Disposal considerations.

Waste treatment methods: Contact a licensed professional waste disposal service to dispose of this material. Disposal of surplus or waste solutions must be in accordance with applicable local, state, and national laws and regulations.

SECTION 14. Transport information.

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14.1 UN-Number DOT, ADR, ADN, IMDG, IATA : Not Hazardous for Transport
14.2 UN proper shipping name DOT, ADR, ADN, IMDG, IATA : Not Hazardous for Transport
14.3 Transport hazard class(es) DOT, ADR, ADN, IMDG, IATA: Not Hazardous for Transport
14.4 Packing group (DOT, ADR, IMDG, IATA): Not Hazardous for Transport

14.5 Environmental hazards : No environmental hazard.

14.6 Special precautions for user : None

14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC code: No information available.

SECTION 15. Regulatory information.

15.1 Safety, health, and environmental Regulations : Not a hazardous material

US Federal Regulations
OSHA
SARA 313 : Not listed

US State Regulations : Not Listed

European/International Regulations
European labeling in accordance with EC Directives : Not hazardous according to European directives

15.2 Chemical Safety Assessment : Not carried out

SECTION 16. Other information.

This information is true based on our present knowledge. However, EnviroLogix makes no representation of its accuracy or completeness. Persons receiving this information must exercise their independent judgment in determining the product's safety and suitability for its intended use. This document shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship

EHS Department
EnviroLogix Inc.

Codes:
H360 May damage fertility or the unborn child

SDS DRB Dilution Buffer

Table A: Validated Matrices

Table A: Validated Matrices	Matrix Group	Add Grain to Vessel First	Add Extractant	Fully wet sample, then mix	Clarify	Add to reaction vial	Add strip for	For testing >3ppm, dilute extract 1:6 in:
			Add second					
Corn	FM MG1	20g or 50g	5x vol water*	1 minute highest speed on shaker table, or 2 minutes vigorously by hand	Settle	<u>Pre-Mix</u> 1.5mL buffer + 0.200mL extract <u>Run Vol</u> 200 µL	5 min	water
Corn Flour	FM MG2	20g or 50g	5x vol water*	1 minute highest speed on shaker table, or 2 minutes vigorously by hand	Centrifuge 1 min x 2000g	<u>Pre-Mix</u> 1.5mL buffer + 0.200mL extract <u>Run Vol</u> 200 µL	5 min	water
Corn Germ	FM MG3	20g or 50g	5x vol 1X EB18 Buffer†	1 minute highest speed on shaker table, or 2 minutes vigorously by hand	Centrifuge 1 min x 2000g	<u>Pre-Mix</u> 1.5mL buffer + 0.200mL extract <u>Run Vol</u> 200 µL	5 min	1X EB18 Buffer
Corn Germ Meal	FM MG3	20g or 50g	5x vol 1X EB18 Buffer†	1 minute highest speed on shaker table, or 2 minutes vigorously by hand	Centrifuge 1 min x 2000g	<u>Pre-Mix</u> 1.5mL buffer + 0.200mL extract <u>Run Vol</u> 200 µL	5 min	1X EB18 Buffer
DDGS	FM MG2	20g or 50g	5x vol 1X EB18 Buffer†	1 minute highest speed on shaker table, or 2 minutes vigorously by hand	Centrifuge 1 min x 2000g	<u>Pre-Mix</u> 1.5mL buffer + 0.200mL extract <u>Run Vol</u> 200 µL	5 min	1X EB18 Buffer
Sorghum	FM MG4	20g or 50g	5x vol 1X EB18 Buffer†	1 minute highest speed on shaker table, or 2 minutes vigorously by hand	Centrifuge 1 min x 2000g	<u>Pre-Mix</u> 1.5mL buffer + 0.200mL extract <u>Run Vol</u> 200 µL	5 min	1X EB18 Buffer

Notes:

*Use distilled, deionized, or flat (non-carbonated) bottled water.

†See instructions in "Precautions & Notes" for preparation & storage conditions