ENVIROLOGIX™

QuickTox™ Kit for QuickScan T-2 / HT-2 Flex

Catalog AQ 314 BG *Part #12206, 12240*

Matrices and Detection Ranges:

Matrix Group ID	Matrices	Limit of Detection (LOD)^	Assay Range	Range with Dilution*
T-2 MG3	Corn	50 ppb	50 - 900 ppb	900 - 2500 ppb
T-2 MG4	Corn- High Sensitivity	25 ppb	25 - 600 ppb	-----

^Do not assume accuracy for results reported below the protocol's LOD.
**Do not assume accuracy for results reported below 900 or above 2500 ppb.*

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
- QuickScan Software Version 4.9.4 Update 1 or later is required
- DB6 Buffer is matched with specific T-2/HT-2 Flex kit lot numbers. Be sure to use DB6 with its matched kit. There is a "use with" label on the DB6 that will indicate the matching T-2/HT-2 Flex Lot Number.

Table A on page 9 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
- 50 Reaction tubes
- 100 pipette tips
- DB6 Buffer, kit lot specific
- Multi-Matrix Barcode Card, kit lot specific

Items Not Provided:

- QuickScan System*
- Incubator base and block*
- Bunn grinder or equivalent
- 20-mesh screen
- Digital scale for weighing samples
- Extraction cups with lids (for 20g samples)* or other suitable vessels for sample extraction
- Graduated cylinder*
- Orbital/rotary shaker
- Pipette to deliver 100 µL*
- Tubes and pipettes for centrifugation*
- Microcentrifuge*
- Tubes for additional dilution of high samples*
- Pipette + tips to deliver larger volumes (>200µL to 1 mL) for dilutions*
- Timer
- Scissors
- Distilled, deionized or bottled water

***Available as Accessories**

Available Accessories:

Item	*Catalog No.*	*Part #*
QuickScan™ System	ACC 131	10050 + 10198
Sample cups w/lids (500/case) *For extracting samples up to 30g; extracting larger samples requires different vessels. Sample cups may also be used to collect filtrate.*	ACC 012-CS	10167
Graduated cylinder (100 mL)	ACC 068	11207
Coffee filters (100)	ACC 083	11434
MiniPet pipette 100 µL (one/location free)	ACC 041	11202
Centrifugation Set: Disposables for 50 tests	ACC 010	11214
Microcentrifuge	ACC 064 E	11204
Incubator (2 pcs):		
• Base	ACC BSH300	12195
• Block	ACC BSH1000-1213	12196
1 mL adjustable pipette	ACC 1303-PRO-1000	11964
Pipette tips for 1 mL pipette (50)	20-0127	12243
Dilution tubes (blue) (50) 12 x 75mm	ACC 098	12236

Intended Use

The QuickTox Kit for QuickScan T-2/HT-2 Flex is designed to quickly provide quantitative results for the presence of T-2/HT-2 toxin. Results below the LOD or outside the ranges validated may not be accurate.

Standard format:

- Limit of detection (LOD) = 50 ppb
- Assay range = 50 - 900 ppb
- Range with Dilution = 900 - 2500 ppb

High Sensitivity format:

- Limit of detection (LOD) = 25 ppb
- Assay range = 25 - 600 ppb

How the Test Works

A composite sample is first collected, then extracted to solubilize any T-2/HT-2 toxin 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 tube. 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.

Matrix specific extractions and analysis protocols are chosen for accuracy and precision. Each matrix is assigned to a Matrix Group (MG). Each MG has a common standard curve and maximum reported value. When the user selects the MG during testing, the QuickScan System software reads the test strip, retrieves the lot specific information that was uploaded using the Multi-Matrix Barcode Card (MMBC), and uses the appropriate curve to obtain a result for the matrix being tested.

Assay Preparation

Table A on page 9 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.

Turn on the incubator and set to 22°C for a minimum of 10 minutes before testing. Ensure 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.

Preparation of the Sample

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 that 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 T-2/HT-2.
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. Filtering: Add an approved coffee filter (example: BUNN part #BUNBCF100B) to a clean vessel and pour extract into the filter. Allow the sample to sit for 2 minutes. Pull back an edge of the filter to gain access to the filtered extract.
2. Centrifugation: Fill a microcentrifuge tube with extract and centrifuge for the specified time at 2000 x *g* (***rcf, not rpm***). The top layer is the extract that will be used in the testing.

Add reagents to reaction tube

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 T-2/HT-2 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 T-2/HT-2 Flex lot number.
2. Follow Table A 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 tube for each sample.

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 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 20-24°C (68-75°F), **allow the sample to acclimate 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 the summary table.
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 www.envirologix.com/quickscan. The 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 Groups” screen appears, select the group that displays the matrix run for each device. Results are then recorded in an electronic worksheet, allowing each user to report and track data easily.

Results are reported up to a maximum ppb for each matrix. Results will be reported down to '0', but accuracy should not be assumed for results below the LOD for the matrix being tested. Refer to Table A for the Matrix Group LOD levels and assay range. Results greater than the maximum are reported as ">900 ppb", for example. If quantification of a sample above the maximum ppb is desired, a further dilution of the sample extract can be performed if indicated in the Table A Summary Guide (see "Range with Dilution").

Range with Dilution

If after running and reading the test, the initial result is greater than the assay maximum, and further knowledge about the level of contamination is desired, samples can be retested by further dilution of the sample extract if indicated in the Table A Summary Guide.

1. In a separate tube (not provided) combine extract with water to create a 1:6 dilution. Example: 1 part clarified extract + 5 parts water; 100 µL + 500 µL). Measure carefully and mix well.
2. Rerun assay as before, adding DB6 Buffer + diluted extract into the reaction tube, acclimating for 2 minutes in the incubator (if room temperature is unknown or outside the range of 20-24°C [68-75°F]), and adding the strip for the time specified. Example: for corn, mix 100 µL Buffer + 100 µL diluted extract from step 1 (extracted 1:6 in water) in a reaction tube, place tube in incubator, acclimate if necessary, and add strip for 5 minutes.
3. In the QuickScan Results Screen, choose 1:A under the Dilution tab (dropdown menu). The System will calculate and record the T-2/HT-2 level in the diluted sample.

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, DON (deoxynivalenol), Fumonisin B1, Ochratoxin A, and Zearalenone.

Precautions and Notes

- Strips must be read wet promptly at the specified time for the matrix run to ensure accurate results.
- Accuracy of results less than the stated LOD for the matrix being tested, should not be assumed.
- For diluted samples, accuracy outside the qualified range should not be assumed.
- 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 corn reference samples supplied by Trilogy Analytical Laboratory, Washington, MO, using LC/MS/MS.
- 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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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.

ENVIROLOGIX™

Material Safety Data Sheet
According to OSHA 29CFR 1910.1200

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	1 – 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

SECTION 5. Firefighting measures

5.1 Extinguishing media: CO_2, 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

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.

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

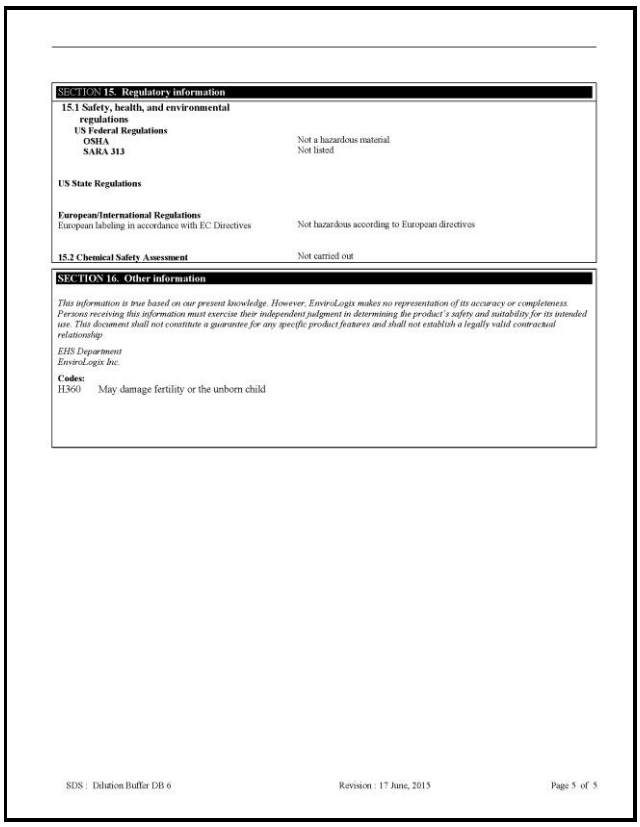
14.1 UN-Number DOT, ADR, ADN, IMDG, IATA : Not Hazardous for Transport
14.2 UN proper shipping name DOT, ADR, ADN, IMDG, IATA : Not Hazardous for Transport

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

US Federal Regulations

OSHA	Not a hazardous material
SARA 313	Not listed

US State Regulations

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 : Dilution Buffer DB 6 Revision : 17 June, 2015 Page 5 of 5

Table A: Validated Matrices

Table A: Validated Matrices	Matrix Group	Assay Range	Add grain to vessel first	Add Extractant second	Fully wet sample, then mix	Clarify	Add to Reaction Tube and mix	Add Reaction Tube to Incubator set at 22°C	Add strip for	For testing >900 ppb, dilute extract†
Corn (Standard Format)	T-2 MG3	50 ppb (LOD) to 900 ppb 900 to 2500 ppb with dilution	20g or 50g	5x vol water*	30 seconds at highest speed on shaker table, or vigorously by hand	Filter (2 min)	100 µL DB6 buffer + 100 µL extract	Acclimate tube for 2 min^	5 min	1:6 in water followed by 1:1 with buffer; select 1:A on Dilution tab
Corn (High Sensitivity Format)	T-2 MG4	25 ppb (LOD) to 600 ppb	20g or 50g	3x vol water*	30 seconds at highest speed on shaker table, or vigorously by hand	Centrifuge 30 sec at 2000 x *g*	100 µL DB6 buffer + 100 µL extract	Acclimate tube for 2 min^	5 min	-----

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)

† Follow the protocol outlined under 'Range with Dilution'