
Matrices and Detection Ranges:

Matrix Group ID	Protocol	Results reported in the range of:	Limit of Detection (LOD)*	Highest Approved Level*
AF MG1 - Corn	Base Range	0 - 30 ppb	2.7 ppb	30 ppb
	Dilution A	0 - >100 ppb	30 ppb	100 ppb
	Dilution B	0 - >300 ppb	100 ppb	300 ppb

**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
- QuickScan Software Version 4.9.4 Update 3 or later is required

Table A on Page 11 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.

Contents of Kit:

- 50 QuickTox Strips packed in a moisture-resistant canister
- 50 EB17 dissolvable pouches (1 pkt per 25g sample)
- 50 reaction tubes
- 100 pipette tips (1-200 µL)
- DB5 Buffer
- Multi-Matrix Barcode Card - kit lot specific

Items Not Provided:

- QuickScan System*
- Incubator base*
- Incubator block*
- Bunn grinder or equivalent
- 20-mesh screen (available through Seedburo or other vendor)
- Digital scale for weighing samples
- Extraction cups with lids* or other suitable vessels for sample extraction
- Graduated cylinder*
- Orbital/rotary shaker
- Pipette to deliver 100 µL*
- Pipette to deliver larger volumes (>200 µL to 1 mL) for dilutions*
- Timer
- Scissors
- Distilled, deionized or bottled water

***Available as Accessories**

Available Accessories:

<i>Item</i>	<i>Catalog No.</i>	<i>Part #</i>
QuickScan™ System	ACC 131	10050 + 10198
5 oz Sample cups/lids <i>Case of 500; for extracting samples up to 30g</i>	20-0047	10167
10 oz Sample cups/lids <i>Case of 100; for extracting samples >30g</i>	20-0129	12383
Graduated cylinder (100mL)	ACC 068	11207
MiniPet pipette 100 µL (one/location free)	ACC 041	11202
Coffee filters (100)	ACC 083	11434
Centrifugation Set: <i>Disposables for 50 tests</i>	ACC 010	11214
Microcentrifuge	ACC 064 E	11204
50g Sample Extraction Set: <i>Additional EB17 dissolvable pouches and sample cups (enough for 100 tests)</i>	ACC 099	12409
1 mL adjustable pipette	ACC 1303-PRO-1000	11964
Pipette tips for 1 mL pipette (50)	20-0127	12243
Incubator	ACC BSH301	12458

Intended Use

Aflatoxin Flex is designed to quickly provide quantitative results for the presence of total aflatoxins.

- Limit of detection (LOD) = **2.7 ppb (Base Range protocol)**
- Assay range = 2.7 - 300 ppb, following three different protocols for the sub-ranges defined below.
 - 2.7 - 30 ppb (Base Range protocol)
 - 30 - 100 ppb (Dilution A protocol)
 - 100 - 300 ppb (Dilution B protocol)

How the Test Works

A composite sample is first collected, ground, and extracted to solubilize any aflatoxin present. The extract is further diluted into Buffer before being run on the QuickTox test strip.

Each QuickTox Strip has an absorbent pad at each end. The sample extract travels up the test strip and is absorbed into the larger pad at the top of the strip. At the end of the reaction time, the strip is cut 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, Limit of Detection (LOD), and maximum reported value. When the user selects the MG during testing, the QuickScan System software reads the test strip, retrieves information encoded in the strip's barcode and on the Multi-Matrix Barcode Card (MMBC), and uses the appropriate curve to obtain a result for the matrix being tested.

Precautions – Read First!

SAFETY

1. **Disposal of aflatoxin-contaminated materials.**
 - a. Follow your facility's safety procedures for disposal of samples and extracts potentially containing or known to contain aflatoxin.
2. **EB17 Dissolvable Pouches contain powder that is flammable and an irritant.** See attached Safety Data Sheet.
 - a. If the pouches are damaged, avoid inhaling powder or contact with the skin, eyes, or clothing. Wear personal protective equipment including safety glasses, gloves, mask and lab coat when handling. Keep powder away from heat, sparks and open flame.
 - b. Observe any applicable regulations when disposing of extracted samples and kit reagents.
 - c. Do not treat either the EB17 extracts or the EB17 extraction labware with bleach; the Extraction Pouch powder is incompatible with strong oxidizers.

GENERAL

1. The intended user should read the entire product instructions, including all safety precautions, before use of this kit. The operator should be capable of using common testing equipment including an appropriate grinder or mill, pipettes, graduated cylinders, etc. Training on use of this product and the QuickScan System is available from EnviroLogix.
2. Test strip canisters are desiccated; before opening canisters, ensure they have warmed to room temperature. After removing test strips, reseal the canister immediately. Avoid bending test strips.
3. Ensure all samples, extraction reagents (including water), test strips, and Buffer are at room temperature before use.
4. As soon as water is added to the sample containing dissolvable EB17 pouches, the sample must be shaken immediately in a hard-walled container to prevent the extraction powder from clumping and not going into solution.
5. Test extracts within 5 minutes of diluting with Buffer for optimal performance.

Sample Preparation

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. Contact Technical Support for more information.

2. Grind samples to provide a consistency such that 95% passes through a 20-mesh sieve.
3. Mix ground material thoroughly before sub-sampling, to minimize variability.
4. Weigh 25g or 50g samples into **hard-walled** containers that will allow enough head room for the liquid to move forcefully when shaken vigorously.

Sample Clarification

Depending on the sample matrix, there may be multiple acceptable methods for removing particulate from the extract.

Centrifugation	Filtration
<ol style="list-style-type: none"> 1. Fill a microcentrifuge tube with extract. 2. Centrifuge for the specified time at 2000 x g (rcf, <i>not rpm</i>). 3. Use the top layer of extract. 	<ol style="list-style-type: none"> 1. Add an approved coffee filter (e.g. BUNN Part #BUNBCF100B) to a clean vessel. 2. Pour extract into the filter. Wait 2 min. 3. Pull back the filter to access the filtered extract.

Testing in Base Range

Refer to Matrix Group instructions (page 6) or Summary Table A (page 11) for base range testing.

Range with Dilution

For testing samples at levels greater than 30 ppb (> 30 ppb in Base Range)

1. If after running and reading the test, the initial result is greater than the upper end of the Base Range, samples can be diluted and retested to extend quantitation (see table on p.1).
2. Prepare Dilution Solution by dissolving one EB17 pouch in 150 mL distilled/deionized water. Label, date, and document the preparation. This is not a clear solution and can be stored at ambient temperature for 30 days. Thoroughly mix before use.

3. Dilution A: 30 – 100 ppb

Mix 400 µL Dilution Solution + 100 µL clarified extract. Save this diluted extract.

- 3a. Rerun assay as before (see page 6). Example: for corn, pipette 100 µL DB5 + 100 µL of the diluted extract into a new reaction tube; place tube in 22°C incubator for 2 min[^], add a new test strip, and wait 4 minutes for test results.
- 3b. In the QuickScan Results Screen, use the dilution tab pull down menu to select Dilution A (1:A). The System will adjust and display the aflatoxin level from diluted samples. Adjusted results are valid in the range of 30 – 100 ppb.

For testing samples that read greater than 100 ppb in the Dilution A protocol (after selecting 1:A from the Dilution Tab)

4. Dilution B: 100 – 300 ppb

Mix 200 µL Dilution Solution + 100 µL diluted extract from Step 3 above.

- 4a. Rerun assay as in Step 3a above.
- 4b. In the QuickScan Results Screen, use the dilution tab pull down menu to select Dilution B (1:B). The System will adjust and display the aflatoxin level from diluted samples. Adjusted results are valid in the range of 100 – 300 ppb.

[^] 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).

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 lot-specific Multi-Matrix Barcode Card (MMBC) 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. 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.

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; protect all components from extreme hot or cold temperatures. Do not leave in direct sunlight or in a vehicle. 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: DON (deoxynivalenol), Fumonisin B₁, Ochratoxin A, Zearalenone.

Notes

- This product is currently not applicable for use in testing any other crops beyond those specified in this Product Insert.
- 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 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, timing, and 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 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.

AF MG1: Corn Procedure:

- Review Sample Preparation on page 3 for grinding consistency and notes.
- 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. All reagents should be at room temperature.
- Use distilled, deionized, or flat (non-carbonated) bottled water. Drinkable (potable) tap water may be used, with customer validation of water supply. Contact Technical Support to purchase a control set and protocol that can be used to verify your water supply.
- If testing 50-gram samples, additional EB17 Buffer pouches are required (50g Sample Set, order Catalog No. ACC-099).

Sample Extraction

Corn	25g	Add 1 EB17 pouch to sample Add 75 mL water	Wet sample immediately, by vigorously shaking for 10 seconds by hand. If needed, shake the sample against the palm of your other hand or a hard surface to loosen up any dry sample areas. Immediately proceed to next shaking step.
	50g	Add 2 EB17 pouches to sample Add 150 mL water	

Shake: choose mechanical shaker or hand shaking

Shaker Table: mix at highest speed (≥ 300 rpm) for 1 minute

By Hand: shake vigorously for 2 minutes

Clarify Extract: choose centrifuge or filter

Centrifuge: 30 seconds at 2000 x g (rcf, **not rpm**)

Filter: Pour through approved coffee filter (ACC 083); wait no more than 2 min

Combine Buffer and Extract, then Run Test Strips

- Add 100 μ L DB5 to the reaction tube (discard tip)
- Add 100 μ L clarified extract to the reaction tube
- Mix thoroughly with extract pipette tip, discard tip
- Place the reaction tube in the 22°C incubator; equilibrate for 2 minutes
Note: tube acclimation step is only required if the temperature of the testing environment is unknown or outside of 20 - 24°C (68 - 75°F)
- Add test strip to tube, arrows down, wait for run time 4 minutes
- Immediately cut strips at the top of the arrow tape (discard bottom pads)
- Insert strip, barcode face down, into QuickScan Reader

TIPS!

Get Complete Extraction

- Fully wet samples before the next shaking step
- Avoid delay between water addition and shaking
- Assure liquid is moving forcefully though the sample while shaking

For Best Performance

- Pipette up and down while mixing
- Do not reuse diluted samples
- Read strips promptly after run time

Avoid Contamination

- Use a new reaction tube per test
- Keep DB5 capped, when possible
- Use new pipette tips for each step



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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: Part number:	Extraction Buffer B91701198, 12382
1.2 Relevant identified uses of the substance or mixture and uses advised against	Extraction buffer used with the Aflatoxin FREE test kit (P/N: 11178, AQ-209 EG), and with the Aflatoxin Flex kit (P/N: 12376, AQ-309). 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
Information department:	Technical Service
1.4 Emergency telephone number:	(207) 797-9300

SECTION 2: Hazards Identification	
2.1 Classification of the substance or mixture Classification according to OSHA 29CFR 1910.1200 and Regulation EC/1272/2008 (CLP):	
Flammable, Solid category 2 Acute Toxicity Oral 4 Acute Toxicity Inhalation 4 Skin Irritation category 2 Serious eye damage category 1 Specific Target Organ Toxicity Single Exposure category 3 Aquatic Toxicity/Chronic category 3	H228 Flammable solid H302 + H332 Harmful if swallowed or inhaled H315 Causes skin irritation H318 Causes serious eye damage H335 May cause respiratory irritation H336 May cause respiratory irritation H412 Harmful to the environment with long lasting effects

2.2 Label elements Labeling according to OSHA 29CFR 1910.1200 and Regulation (EC) 1272/2008	
Hazard pictograms:	
Signal word:	Danger
Hazard statements:	H228 Flammable solid H302 + H332 Harmful if swallowed or inhaled H315 Causes skin irritation H318 Causes serious eye damage H335 May cause respiratory irritation H412 Harmful to the environment with long lasting effects.
Precautionary statements:	P264 Wash hands thoroughly after handling. P273 Avoid release to the environment. P303 + P361 + P353 If SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell. P304 + P340 IF INHALED: Remove to fresh air and keep comfortable for breathing. P305 + P351 + P338 IF in Eyes: Rinse cautiously with water for several minutes, remove contact lenses if present and easy to do. Continue rinsing. P403 + P233 Store in a well ventilated place. Keep container tightly closed.
2.3 Other hazards	No additional hazards listed

SECTION 3: Composition/information on ingredients				
3.1 Substances: Information not relevant				
3.2 Mixtures				
Extraction Reagent Powder (ERP)				
Chemical name	CAS No	EC No	Amount (%)	Classification
Sodium Lauryl Sulfate	151-21-3	205-788-1	60 to 85	Harm. Sol. 2 H328, Acute Tox. Oral 4 H302, Acute Tox. Inhal. 4 H332, Skin Irrit. 2 H315, Eye Dam. 1 H318, STOT 08 3 H360 H333, Aquatic Tox. Chronic 3 H412
Benzosulfonic Acid, 4 C10-C13 alkyl Derivatives	83338-14-7	287-894-3	1.5 to 2	Acute Tox. 4 H302, Skin Corr. 1C H314, Aquatic Tox. Chronic 3 H412
The full text of hazard (H) statements is shown in section 16				

SECTION 4: FIRST AID MEASURES	
4.1 Description of first aid measures	
Inhalation:	If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.
Air/skin contact:	Flush skin with water. Cover the irritated skin with an emollient. Remove contaminated clothing and shoes. Cold water may be used. Wash clothing before reuse.
Air/eye contact:	Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Seek medical attention if irritation develops.
Air/swallowing:	Do NOT induce vomiting unless directed to do so by medical personnel. If large quantities of this material are swallowed, call a physician immediately. Loosen tight clothing such as a collar, tie, belt or waistband. Never give anything by mouth to an unconscious person.

4.2 Most important symptoms and effects, both acute and delayed	Difficulty breathing, Skin irritation, Eye irritation Do NOT induce vomiting unless directed to do so by medical personnel. If large quantities of this material are swallowed, call a physician immediately.
4.3 Indication of any immediate medical attention and special treatment needed	No special treatment is required

SECTION 5: Firefighting measures	
5.1 Extinguishing media	SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use water spray, fog or foam. Do not use water jet.
5.2 Special hazards arising from the substance or mixture	When heated to decomposition it emits toxic fumes of sulfur oxides, and sodium oxide
5.3 Advice for firefighters	Wear appropriate PPE for fire conditions including self-contained breathing apparatus for firefighting if necessary. Use water spray to cool unopened containers.

SECTION 6: ACCIDENTAL RELEASE MEASURES	
6.1 Personal precautions, protective equipment and emergency procedures:	Use personal protective equipment. Avoid dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to a safe area. Avoid breathing dust.
6.2 Environmental precautions:	Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.
6.3 Methods and material for containment and clean up:	Sweep up and shore. Prevent entry into sewers, dikes if needed. Eliminate all ignition sources. Call for assistance on disposal. Finish cleaning by spreading water on the contaminated surface and allow to evaporate through the sanitary system.
6.4 Reference 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:	Keep away from heat. Keep away from sources of ignition. Prevent electrostatic buildup. Do not ingest. Do not breathe dust. Wear suitable protective clothing. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes.
7.2 Conditions for safe storage, including any incompatibilities:	Keep away from incompatibles such as oxidizing agents. Keep container tightly closed. Keep container in a cool, well-ventilated area.
7.3 Specific end uses:	Besides the uses described in Section 1.2 there are no other specific uses.

SECTION 8: Exposure Controls/Personal Protection	
8.1 Exposure controls	
Additional information about design of technical systems:	None required
Exposure limits	Components with limit values that require monitoring at the workplace:
Chemical	Exposure Limits
Sodium Lauryl Sulfate	OSHA: OSHA limits for particulate not otherwise regulated. 15 mg/m ³ total dust, 5 mg/m ³ respirable fraction (OSHA PEL), 10 mg/m ³ inhalable particulate, 3 mg/m ³ respirable particulate. (ACGIH TLV)
	EH40/2005 Inhalable dust: 10mg/m ³ Respirable dust: 4mg/m ³

Exposure controls - Engineering Controls:	
Personal protective equipment	Facilities using or storing this material should be equipped with an eyewash and safety shower. Provide local exhaust or general dilution ventilation.
Respiratory 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 in a facility to engineering controls. Always use respirators and equipment tested and approved under appropriate government standards such as NIOSH (US) or CEI (EU).
Protection of hands:	Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching gloves 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.
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/EEC. Eye and face protection regulations are described by OSHA (US) in 29 CFR 1910.133. Do not wear contact lenses when working with chemicals.

SECTION 9: Physical and Chemical Properties	
9.1 Information on basic physical and chemical properties	Extraction Reagent Powder (ERP) - no CAS number
Appearance:	Solid Powder, White
Odor:	Odorless
Odor threshold:	Not applicable
pH:	9-10 (1% solution)
Melting point/freezing point:	No data available
Initial boiling point and boiling range:	No data available
Flash point:	No data available
Evaporation rate:	No data available
Flammability (solid, gas):	May be combustible at high temperature
Upper/lower flammability or explosive limits:	No data available
Vapor pressure:	No data available
Vapor density:	No data available
Relative density:	No data available
Solubility(s):	Soluble in water
Partition coefficient: n-octanol/water:	No data available
Auto-ignition Temperature:	No data available
Decomposition temperature:	No data available
Viscosity:	No data available
Explosive properties:	No data available
OSHA Properties	not applicable
9.2 Other information	Products of Combustion: Carbon oxides (CO, CO2), sulfur oxides (SO2, SO3, ...) Slightly flammable in presence of heat. Basic information on the product in presence of mechanical impact: Not available.

SECTION 10: Stability and reactivity	
10.1 Reactivity:	Not self-reactive.
10.2 Chemical stability:	Stable under normal temperatures and pressures
10.3 Possibility of hazardous reactions:	Reaction with strong oxidizers may cause fire.
10.4 Conditions to avoid:	Heat, flames, and sparks
10.5 Incompatible materials:	Oxidizing agents (e.g. bleach)
10.6 Hazardous decomposition products:	Carbon monoxide, carbon dioxide, sulfur oxides, carbon dioxide, nitrogen oxides, silicone oxides

SECTION 11: Toxicological information		
Acute effects (toxicity tests):		
	Sodium lauryl sulfate - 151-21-3	
Acute oral toxicity	LD50 = 1200 mg/kg	rat
Acute dermal toxicity	LD50 = 2000 mg/kg	rabbit
Acute inhalation toxicity:	LC50 = 3900 mg/m ³ , 4 hours	rat
No irritating effects known		
CMR (carcinogenicity, mutagenicity and toxicity for reproduction) - no CMR effects.		

SECTION 12: Ecological information			
12.1 Toxicity: Sodium Lauryl Sulfate	Aquatic toxicity: LC50	Effect dose	Exposure / Species
	Aquatic fish toxicity	10,2-27,8 mg/l	96 hours: Pimephales promelas
	Acute daphnia toxicity	1.8 mg/l	48 hours: daphnia magna
	Acute algae toxicity	11.5 mg/l	96 hours: Pseudokirchneriella subcapitata
		53 mg/l	96 hours: Daphnia magna subcapitata
		30-100 mg/l	96 hours: Daphnia magna subcapitata
12.2 Persistence and degradability:	Biodegradability Result: 90 % - Readily biodegradable. Ratio BOD5/BOD 95.9 %		
12.3 Bio accumulative potential:	Cypripis (logP) - 72 h. Bioconcentration factor (BCF): 3.9 - 5.3		
12.4 Mobility in soil:	Not available		
12.5 Results of PBT and vPvB assessment:	Not available as a chemical safety assessment, not required to be conducted.		
12.6 Other adverse effects:	No others listed.		

SECTION 13. Disposal considerations
Waste treatment methods/Unlabeled packaging: Dispose of contents and containers in accordance with local, state and federal regulations.

SECTION 14. Transport information
14.1 UN-Number (DOT, ADR, ADN, IMDG, IATA): UN2926
14.2 UN proper shipping name (DOT, ADR, ADN, IMDG, IATA): FLAMMABLE SOLID, TOXIC, ORGANIC, N.O.S. (Sodium dodecyl sulfate)
14.3 Transport hazard class(es): Class (DOT, ADR, ADN, IMDG, IATA): 3 (6.1)
14.4 Packing group (DOT, ADR, IMDG, IATA): PG11
14.5 Environmental hazards: Marine pollutants: Not applicable.
14.6 Special precautions for user: Not applicable.
14.7 Transport in bulk, according to Annex II of MARPOL 73/78 and the IBC Code: Not applicable.

SECTION 15. Regulatory information
15.1 Safety, health and environmental regulations
Regulations: N/A
HMIS Classification (US): Health hazard: 2, Flammability: 1, Physical hazard: 0
US Federal Regulations: TSCA: Listed
Health and Safety Reporting List: CERCLA: Not listed
SARA Section 302 (Extremely Hazardous Substances): Not listed
Clean Air Act: Not listed
Clean Water Act: Not listed
OSHA
European/International Regulations: European labeling in accordance with EC Directives: This product is on the European Inventory of Existing Commercial Substances (EINECS No. 203-788-1)
Canada - DSL/NDSL: Listed
Canada - WHMIS: Listed
Other: China: Listed on National Inventory (NECS). Listed on National Inventory (NECS). Korea: Listed on National Inventory (KNEC). Philippines: Listed on National Inventory (PNCS). Australia: Listed on AICS. Not controlled.

15.2 Chemical safety assessment

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.
Code Definitions:
H228 Flammable solid.
H302 + H332 Harmful if swallowed or inhaled.
H315 Causes skin irritation.
H318 Causes serious eye damage.
H335 May cause respiratory irritation.
H412 Harmful to aquatic life with long lasting effects.
P264 Wash hands thoroughly after handling.
P273 Avoid release to the environment.
P303 + P361 + P531 IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.
P304 + P340 IF INHALED: Remove to fresh air and keep comfortable for breathing.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing.
P308 + P313 If eye irritation persists: Get medical attention/advise.
P309 + P312 Store in a well ventilated place. Keep container tightly closed.

MSDS /SDS : Extraction Buffer Revision: 7-26-2016 Page 5 of 5

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 5 Dilution Buffer; Part number: 11150 (GR-264)
1.2 Relevant identified uses of the substance or mixture and uses advised against application of the substance or 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: Eye Damage Category 1; Aquatic Toxic, Chronic Category 2
2.2 Label elements: Labeling according to 29CFR 1910.1200: Signal word: Warning; Hazard Statements: H318 Causes serious eye damage; Precautionary Statements: P264 Wash hands thoroughly after handling; P280 Wear protective glove/protective clothing/eye/face protection; P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing; P337+P313 If eye irritation persists: Get medical attention/advise.
2.3 Other Statements: Restricted to professional users

SECTION 3. Composition information on ingredients
3.1 Mixture: Chemical name, CAS No, EC No, Classification according to 29CFR 1910.1200, Amount (%): Sodium Tetraborate Decahydrate, 1303-86-4, 215-540-4, H360 Rep 1B, 1-5%

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p-Tertiary (Oxyphenylmethyl) alcohol (Trilon X-100)	9002-93-1	H302 Acute Tox. Oral 4 H315 Skin Irrit. 2 H318 Eye Dam. 1 H411 Aquatic Chronic 2	1%
Surfynol	9014-85-1	H315 Skin Irrit. 2 H318 Eye Dam. 1 H335 STOT SE 3	2%
1,2-Hydroxyethane-1,2-dione (Protosol - GXL)	2634-33-5	220-120-9 H302 Acute Tox. 4; H315 Skin Irrit. 2 H317 Skin Sens. 1 (≥2.0.05%) H318 Eye Dam. 1; H360 Aquatic Acute 1	0.048%

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: 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 protection, 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 and discard in appropriate waste. Clean with water afterwards. Large spills may be neutralized with dilute solutions of sodium carbonate or calcium oxide.
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.

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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 uses(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:
Sodium Tetraborate Decahydrate: EU OELV: 2005; 8 H₂ TWA = 5mg/m³; OSHA: 8 H₂ TWA = 10 mg/m³

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 ANSI (USA) or EN 180 (EU). Eye and face protection regulations are described by OSHA (USA) 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 cartridges 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: 8.5
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

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j) Flammability (self, gaseous):	No Data Available
k) Upper/lower flammability or explosive limits:	No Data Available
l) Vapor pressure:	No Data Available
m) Vapor density:	No Data Available
n) Relative density:	No Data Available
o) Solubility(ies):	Purely miscible, water.
p) Partition Coefficient: n-octanol/water:	No Data Available
q) Auto-ignition temperature:	No Data Available
r) Decomposition temperature:	No Data Available
s) Viscosity:	No Data Available
t) Explosive properties:	No Data Available
u) 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 decomposition products should not be produced.

SECTION 11. Toxicological information	
Information on Toxicological Effects	
Triton X-100	
Acute toxicity:	Oral LD50 Rat: 1800mg/kg Dermal LD50-Rabbit: 8000 mg/kg
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:	
Triton X-100	Fish: LC50 <i>Pimephales promelas</i> (fathead minnow) – 8.9mg/l – 96.0 hr Daphnia: EC50 – <i>Daphnia</i> – 26 mg/l – 48 hr
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 concluded.
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 MARPOL/73/78 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	
<i>This information is based on our present knowledge. However, Revvity does make 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.</i>	
EHS Department Revvity Inc.	
Codes:	
H302	Harmful if swallowed
H315	Causes skin irritation
H317	May cause an allergic skin reaction
H338	Causes Serious Eye Damage
H335	May cause respiratory irritation
H411	Toxic to Aquatic Life with Long Lasting Effects

Table A: Summary Guide for Approved Matrices

Approved Matrix	Add to Sample Extraction Vessel (in this order)	Then shake immediately	Clarify	Run the Base Range Protocol First, followed by Dilution A and Dilution B Protocols, if necessary	Pre-mix as noted, then Transfer 200µL to 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
Corn (MG1)	1. 25g sample 2. 1 EB17 pouch 3. 75 mL water* 4. Immediately shake vigorously for 10 seconds by hand	1 min highest speed on shaker table or 2 min by hand	Filter or Centrifuge	Base Range 0 – 30 ppb	<u>Pre-Mix</u> 100 µL DB5 buffer + 100 µL extract in Reaction Tube	Acclimate tube for 2 min [^]	4 min.	1:1 (this is software default)
	-----OR----- 1. 50g sample 2. 2 EB17 pouches 3. 150 mL water* 4. Immediately shake vigorously for 10 seconds by hand			Dilution A 30 – 100 ppb	<u>Pre-Mix</u> 400 µL Dil'n Sol'n + 100 µL extract <u>Transfer</u> 200 µL	Acclimate tube for 2 min [^]	4 min.	1:A (this must be selected)
	Dilution B 100 – 300 ppb			<u>Pre-Mix</u> 200 µL Dil'n Sol'n + 100 µL pre-mix extract from Dil A <u>Transfer</u> 200 µL	Acclimate tube for 2 min [^]	4 min.	1:B (this must be selected)	

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)

Dilution Solution = Mix 1 x EB17 pouch with 150 mL water