

Catalog No. AQ 440 ADF, ADFZ

### Matrix and Detection Summary:

The TotalTox™ Comb consists of a combination of the following individual mycotoxin tests mounted on a common backing card for ease of use:

	Matrix Group ID	Results reported in the range of:	Limit of Detection (LOD)*
Aflatoxin	AF MG1 - Corn	0 - 30 ppb	2.7 ppb
DON/Vomitoxin	DN MG21 – Corn Common Extraction	0.1 - 8 ppm	0.1 ppm
Fumonisin	FM MG1 - Corn	0 - 10 ppm	0.1 ppm
Zearalenone	ZN MG1 - Corn	0 – 500 ppb	50 ppb

\*Do not assume accuracy for results reported below the protocol's LOD.

### Contents of Kit:

- TotalTox Combs packed in moisture-resistant pouches
- Clear reaction tubes
- Pipette tips (1-200 µL)
- EB17 Extraction Buffer
- DB5 Buffer
- Multi-Matrix Barcode Card - kit lot specific

### 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 5.1.1 Update 2 or later is required

A visual guide for testing is provided on Page 9. More details for each step in the process are described below and are important for achieving optimal, accurate results.

### Intended Use

TotalTox is designed to quickly provide quantitative results for the presence of mycotoxins. The table above lists the Limit of detection (LOD) and Assay range for each mycotoxin test strip that could be included in the comb.

### How the Test Works

A composite sample is collected, ground, and extracted to solubilize any mycotoxins present. The extract is further diluted into Buffer before being run on the comb. Each strip on the comb 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 strips are cut at the top of the arrow tape, the bottom pads are discarded, and the comb is inserted into the QuickScan reader to obtain quantitative results.

Matrix-specific extractions and analysis protocols are chosen for the 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 mycotoxin-contaminated materials.** Follow your facility's safety procedures for disposal of samples and extracts potentially containing or known to contain aflatoxin, DON/vomitoxin, fumonisin and/or zearalenone.
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 pouches are desiccated; before opening, ensure they have warmed to room temperature. After removing test strips, reseal the pouch 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.

Items Not Provided:	*Available Accessories:		
<ul style="list-style-type: none"> <li>QuickScan System*</li> <li>Incubator*</li> <li>Bunn grinder or equivalent</li> <li>20-mesh screen (available through Seedburo or other vendor)</li> <li>Digital scale for weighing samples</li> <li>Extraction cups with lids* or other suitable vessels for sample extraction</li> <li>Graduated cylinder*</li> <li>Orbital/rotary shaker</li> <li>Pipette to deliver 100 µL*</li> <li>Timer</li> <li>Scissors</li> <li>Distilled, deionized or bottled water</li> </ul>			
*Available as Accessories			
	<b>Item</b>	<b>Catalog No.</b>	<b>Part #</b>
	QuickScan™ System	ACC 331	12721
	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 &gt;30g</i>	20-0129	12383
	Graduated cylinder (100 mL)	ACC 068	11207
	MiniPet pipette 100 µL (one/location free)	ACC 041	11203
	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 (100)</i>	ACC 099	12409
	Dilution Set: <i>Blue dilution tubes and EB17 dissolvable pouches for 50 tests</i>	ACC 103	12500
	Dilution Tubes: <i>Blue dilution tubes for non-EB17 dilution, 50</i>	ACC 098	12236
	Incubator	ACC BSH301	12458

## Sample Preparation

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 test kits and reagents should be at room temperature before testing. If room temperature is between 20-24°C (68-75°F), the two-minute acclimation step can be skipped.

### SAMPLE SIZE

1. Collect a composite sample according to your own sampling plan or USDA/AMS-FGIS (formerly GIPSA) guidelines. Consult AMS-FGIS 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 of sub-sample into container that will allow enough head room for the liquid to move forcefully when shaken vigorously.

### MIX

1. Add one EB17 pouch and 75 mL of distilled, deionized or bottled water to extraction vessel. *50g samples may be run if desired, requires purchase of additional EB17. Add 2 EB17 buffers and 150 mL water, and use large-enough extraction vessels (ACC-099, 50g Sample Extraction Set)*
2. Shake immediately for 10 seconds to dissolve EB17 pouch.

### SHAKE

Mechanical or Hand

Mechanical Shaker: Shake sample at highest speed (≥ 300rpm) for 1 minute

Hand Shaking: Shake vigorously by hand for 2 minutes

### CLARIFICATION

Centrifuge or Filter

#### Centrifugation

1. Fill microcentrifuge tube with extract
2. Centrifuge for 30 seconds at 2000 x g (rcf, **not rpm**)
3. Use the top layer of extract

#### Filtration

1. Add an approved coffee filter (e.g. BUNN Part #BUNBCF100B) to a clean vessel
2. Pour extract into the filter; allow to filter for no more than 2 minutes
3. Pull back the filter to access the filtered extract

## Testing in Base Range

### COMBINE BUFFER AND EXTRACT

1. Add 100  $\mu$ L DB5 to each reaction tube, and discard the pipette tip once all transfers are completed. It is important to add buffer to all tubes first, then add a new tip for the sample extract transfers. This will help keep DB5 uncontaminated.
2. Add 100  $\mu$ L clarified extract to each reaction tube and mix thoroughly after addition; discard tip after final transfer.
3. Place reaction tube into incubator (if not already placed), acclimate for 2 minutes if room temperature is outside 20-24°C (68-75°F)

### RUN TOTALTOX COMB

1. Add test comb to tubes, arrows down, and allow the test to run for **4 minutes**
2. Immediately upon completion, cut strips at the top of the arrow tape (discard bottom pads)
3. Insert comb into QuickScan Reader
4. Touch or click "Read Test"
5. Utilizing the matrix group and dilution pulldown menus, **take care to choose the proper Matrix Group and Dilution options:**

	Matrix Group	Dilution Tab	Base Range
a. TotalTox Aflatoxin:	MG1	1:1	2.7-30 ppb
b. TotalTox DON:	MG21	1:1	0.2-8 ppm
c. TotalTox Fumonisin	MG1	1:1	0.1-10 ppm
d. TotalTox Zearalenone	MG1	1:1	50-500 ppb

## Extended Range with Dilution

If after running and reading the test, the initial result of a strip is greater than the upper end of its Base Range, the prepared sample extract can be diluted and retested with individual test strips to extend quantitation. See individual mycotoxin test kit instructions for detailed instructions. Combine extract with the appropriate Dilution Reagent to create a diluted extract. Measure carefully and mix well.

1. In a separate tube or dilution vessel (not provided) combine extract with Diluent Reagent indicated below, using the Pre-Mix instructions in each mycotoxin's table. Measure carefully and mix well. Refer to Accessories list for available dilution accessories.
2. Add 100  $\mu$ L **DB5** Buffer + 100  $\mu$ L newly diluted extract into a new reaction tube; mix, add to the incubator and acclimate if necessary; then add a new strip for 4 minutes.
3. In the QuickScan Results Screen, choose "1:A" (in most cases) under the Dilution tab (dropdown menu). The System will calculate and record the mycotoxin level in the diluted sample.

### Dilution Reagent

Aflatoxin / Fumonisin / Zearalenone	DON/Vomitoxin
<b>EB17</b> Dilution Solution: Dissolve 1 EB17 pouch in 150 mL of water and mix well; Dilution Solution mixture will appear cloudy. Label, date, and document the preparation. Dilution Solution can be stored at ambient temperature for 30 days. Thoroughly mix before use.	Water, distilled, deionized or bottled

### AQ-309-BG: TotalTox Aflatoxin (more detailed instructions in AQ-309-BG product insert)

MG1 Extended Dilution	Pre-mix, then transfer	Add Reaction Tube to Incubator Set at 22°C	Add Strip for	Read in QuickScan:
Dilution A 30 – 100 ppb	<b>Pre-Mix</b> 400 $\mu$ L Dil'n Sol'n + 100 $\mu$ L clarified extract <b>Transfer</b> 100 $\mu$ L of this Pre-Mix and 100 $\mu$ L DB5	Acclimate tube for 2 min <sup>^</sup>	4 min.	Select 1:A in the Dilution Tab on Result Page
Dilution B 100 – 300 ppb	<b>Pre-Mix</b> 200 $\mu$ L Dil'n Sol'n + 100 $\mu$ L pre-mix extract from Dil A <b>Transfer</b> 100 $\mu$ L of this Pre-Mix and 100 $\mu$ L DB5	Acclimate tube for 2 min <sup>^</sup>	4 min.	Select 1:B in the Dilution Tab on Result Page

### AQ-304-BG: TotalTox DON

MG21 Dilution A	Pre-mix, then transfer	Add Reaction Tube to incubator set at 22°C	Add strip for	Read in QuickScan
8.0 to 30 ppm (Extended Range)	<b>Pre-Mix</b> 700 $\mu$ L water + 100 $\mu$ L extract <b>Transfer</b> 100 $\mu$ L Pre-Mix + 100 $\mu$ L DB5	Acclimate tube for 2 min <sup>^</sup>	4 min	Select 1:A in the Dilution Tab on Result Page

<sup>^</sup> 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).

**AQ-411-BG: TotalTox Fumonisin**

MG1 Dilution A	Pre-mix, then transfer	Add Reaction Tube to Incubator set at 22°C	Add strip for	Read in QuickScan
2 to 100 ppm (Extended Range)	<b>Pre-Mix</b> 700 µL Dil'n Sol'n + 50 µL clarified extract <b>Transfer</b> 100 µL Pre-Mix + 100 µL DB5	Acclimate tube for 2 min <sup>^</sup>	4 min	Select 1:A in the Dilution Tab on Result Page

**AQ-412-BG: TotalTox Zearalenone**

MG1 Dilution A	Pre-mix, then transfer	Add Reaction Tube to Incubator set at 22°C	Add strip for	Read in QuickScan
250 to 2000 ppb (Extended Range)	<b>Pre-Mix</b> 800 µL Dil'n Sol'n + 100 µL clarified extract <b>Transfer</b> 100 µL Pre-Mix + 100 µL DB5	Acclimate tube for 2 min <sup>^</sup>	4 min	Select 1:A in the Dilution Tab on Result Page

<sup>^</sup> 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 [envirologix.com/quickscan](http://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.

## Kit Storage

This 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.

## Notes

- 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.
- Immediate shaking of the sample after water addition is critical to ensure the EB17 packet does not cause clumps which may interfere with test results.
- 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.



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## LIMITED WARRANTY

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## 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: Extraction Buffer  
Part number: EB17(11198, 12382)

**1.2 Relevant identified uses of the substance or mixture and uses advised against:**  
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  
Information department: Technical Service  
1.4 Emergency telephone number: (207) 797-0300

#### 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	H228	Flammable solid
Acute Toxicity Oral 4	H302	Harmful if swallowed or inhaled
Acute Toxicity Inhalation 4	H332	Harmful if inhaled
Skin Irritation category 2	H315	Causes skin irritation
Serious eye damage category 1	H318	Causes serious eye damage
Specific Target Organ Toxicity Single Exposure category 3	H335	May cause respiratory irritation
Aquatic Toxicity-Chronic category 3	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 aquatic life with long lasting effects.

Precautionary statements:

P264	Wash hands thoroughly after handling.
P273	Avoid release to the environment.
P280	Wear protective gloves/ eye protection.
P301 + P312	IF SWALLOWED: Call a POISON CENTER/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

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#### SECTION 3. Composition/information on ingredients.

**3.1 Substances:** Information not relevant

**3.2 Mixtures:** Extraction Reagent Powder (EB17)

Chemical name	CAS No	EC No	Amount (%)	Classification
Sodium Lauryl Sulfate	151-21-3	205-788-1	60 to 85	OSHA 29CFR 1910.1200 Flam. Sol. 2 H228; Acute Tox. Oral 4 H302; Acute Tox. Inhal. 4 H332; Skin Irrit. 2 H315; Eye Dam. 1 H318; STOT SE 3 Resp. H335; Aquatic Tox. Chronic 3 H412
Benzenesulfonic Acid, 4 C10-C13 sec-Alkyl Derivatives	85536-14-7	287-494-3	1.5 to 2	Acute Tox. 4 H302; Skin Corr. 1C H314; Aquatic Tox. Chronic 3 H412

#### SECTION 4. First aid measures.

**4.1 Description of first aid measures**

After inhalation: If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.

After 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.

After 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.

After 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**  
Suitable extinguishing agents: 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**  
Protective equipment: Wear appropriate PPE for fire conditions including self-contained breathing apparatus for firefighting if necessary. Use water spray to cool unopened containers.

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#### 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. Assure 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 shovel. Prevent entry into sewers, dike 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 use(s):** 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: Observe limits for particulate not otherwise regulated. 15 mg/m <sup>3</sup> total dust, 5 mg/m <sup>3</sup> respirable fraction (OSHA PEL) 10 mg/m <sup>3</sup> inhalable particulate, 3 mg/m <sup>3</sup> respirable particulate (ACGIH TLV) EH40/2005 Inhalable dust: 10mg/m <sup>3</sup> , Respirable dust: 4mg/m <sup>3</sup>

**Exposure controls - Engineering Controls:** Facilities using or storing this material should be equipped with an eyewash and safety shower. Provide local exhaust or general dilution ventilation.

**Personal protective equipment**  
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).

Protection of hands: 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.

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#### SECTION 12. Ecological information.

**12.1 Toxicity: Sodium Lauryl Sulfate**  
Aquatic toxicity: Note: Aquatic Toxicity of mixture is based on Sodium Lauryl Sulfate.

Aquatic toxicity LC50	Effect dose	Exposure	Species
Acute fish toxicity	10.2-22.8 mg/l	96 hours	Pimephales promelas
Acute daphnia toxicity	1.8 mg/l	48 hours	daphnia magna
Acute algae toxicity	117 mg/l	96 hours	Pseudokirchneriella subcapitata
	53 mg/l	96 hours	Desmodesmus subspicatus
	30-100 mg/l	96 hours	Desmodesmus subspicatus

**12.2 Persistence and degradability:** Biodegradability Result: 90 % - Readily biodegradable. Ratio BOD/ThBOD 95.9 %

**12.3 Bio accumulative potential:** Cyprinus carpio (Carp) - 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/not conducted.

**12.6 Other adverse effects** No others listed.

#### SECTION 13. Disposal considerations.

Waste treatment methods/ Uncleaned 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): 4.1 (6.1)


**14.4 Packing group (DOT, ADR, IMDG, IATA):** PG111

**14.5 Environmental hazards**  
Marine pollutant: 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.

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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(EU).  
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**

Appearance:	Solid – Powder, White
Odor:	Odorless
Odor threshold:	not applicable
pH:	9.5 (1% sol/water)
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(ies):	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
Oxidizing Properties:	Not applicable

**9.2 Other information** None

### 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 (eg 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/m3, 1hour	rat	

Sensitization: No sensitizing effects known

Additional toxicological information: CMR (carcinogenicity, mutagenicity and toxicity for reproduction) – no CMR effects.

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### SECTION 15. Regulatory information.

**15.1 Safety, health and environmental regulations**

**HMIS Classification (US):**.....  
Health hazard: 2, Flammability: 1, Physical Hazards: 0  
**US Federal Regulations**  
TSCA  
Health and Safety Reporting List  
CERCLA  
SARA Section 302 (Extremely Hazardous Substances)  
Clean Air Act  
Clean Water Act  
OSHA  
**European International Regulations**  
European labeling in accordance with EC Directives  
**Canada – DSL/NDL**  
**Canada – WHMIS**  
**Other**

**NFPA Rating (US)** .....  
Health hazard: 2, Fire: 1, Reactivity Hazard: 0  
TSCA 8(b) inventory: Sodium lauryl sulfate  
Listed  
Not listed  
Not listed  
Not listed  
Not listed  
This product is on the European Inventory of Existing Commercial Chemical Substances (EINECS No. 205-788-1)  
Listed  
CLASS D-2B: Material causing other toxic effects (TOXIC).  
China: Listed on National Inventory. Japan: Listed on National Inventory (ENCS). Korea: Listed on National Inventory (KECI). Philippines: Listed on National Inventory (PICCS). Australia: Listed on AICS.

**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.

**Code Definitions:**

<b>H228</b>	Flammable solid.
<b>H302 + H332</b>	Harmful if swallowed or inhaled
<b>H315</b>	Causes skin irritation.
<b>H318</b>	Causes serious eye damage.
<b>H335</b>	May cause respiratory irritation.
<b>H412</b>	Harmful to aquatic life with long lasting effects.
<b>P264</b>	Wash hands thoroughly after handling.
<b>P273</b>	Avoid release to the environment.
<b>P280</b>	Wear protective gloves/ eye protection.
<b>P301 + P312</b>	IF SWALLOWED: Call a POISON CENTER/doctor/physician if you feel unwell.
<b>P304 + P340</b>	IF INHALED: Remove to fresh air and keep comfortable for breathing.
<b>P305 + P351 + P338</b>	IF IN EYES: Rinse cautiously with water for several minutes, remove contact lenses if present and easy to do. Continue rinsing.
<b>P403 + P233</b>	Store in a well ventilated place. Keep container tightly closed

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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 5 Dilution Buffer**  
Part number: 11150, 11665, 12495 (KR-266)

**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: Eye Damage Category 1  
Aquatic Toxic, Chronic Category 2

**2.2 Label elements**  
Labeling according to 29CFR 1910.1200:

Pictogram: 


Signal word: Warning

Hazard Statements: H318 Causes serious eye damage  
H411 Toxic to aquatic life with long lasting effects

Precautionary Statements: P264 Wash hands thoroughly after handling  
P280 Wear protective gloves/protective clothing/eye Protection/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/advice

**2.3 Other Statements** Restricted to professional users

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### SECTION 3. Composition/information on ingredients.

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 %
p-tertiary Octylphenoxy polyethyl alcohol (Triton 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 irritation 2 H318 Eye damage 1 H335 STOT SE 3	2 %
1,2 Benzisothiazolin-3-one (Proxel- GXL)	2634-33-5	220-120-9	H302 Acute Tox. 4; H315 Skin Irrit. 2 H317 Skin Sens. 1 (C≥ 0.05%) H318 Eye Dam. 1; H400 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.  
**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 skin 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 eye contact : **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.

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.

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**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 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

**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 Exposure controls/personal protection.**

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

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

**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

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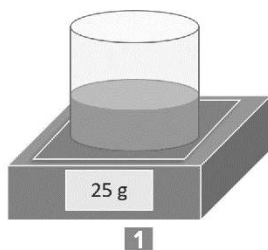


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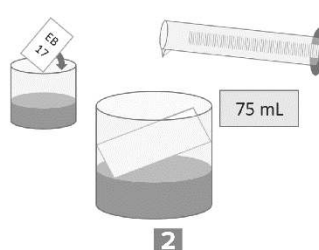


## TotalTox Comb Pictorial Guide

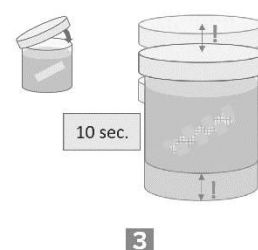
- 1 Grind sample and weigh out 25g



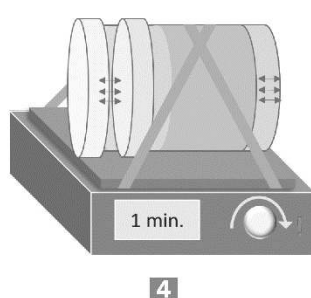
- 2 Add EB17 pouch and 75 mL water



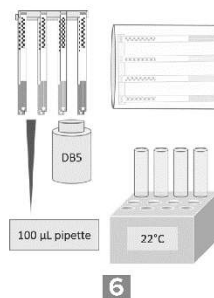
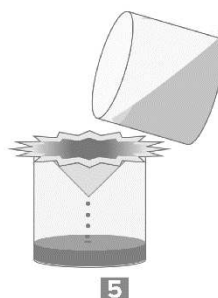
- 3 Cap, and shake vigorously to dissolve pouch



- 4 Place sample on a mechanical shaker on high for 1 minute

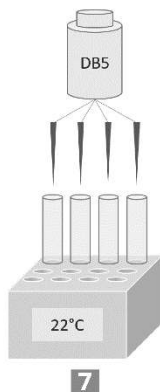


- 5 Filter the extract (or centrifuge 30 seconds)

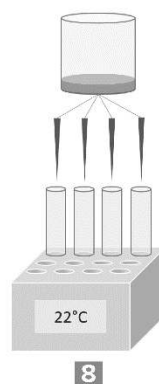


- 6 Lay out items to run assay: DB5 buffer, combs, tubes, incubator, pipettes, and tips

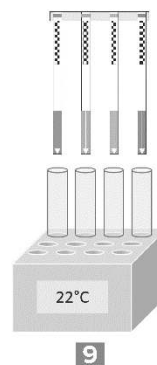
- 7 Add 100 µL DB5 Buffer to each tube



- 8 Add 100 µL Sample Extract to each tube; stir each tube well to mix Buffer and Extract

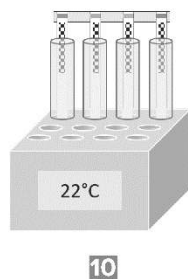


- 9 Add combs to tubes for testing



- 10 Set timer for 4 minutes

- 11 Remove comb immediately after 4 minutes and cut off the arrow tape "tail pads"



- 12 Insert comb into carrier and press Read Test in the QuickScan main menu

