ENVIROLOGIX

QuickTox™ Kit for QuickScan Aflatoxin Free

Catalog Number AQ 209 BG *Part #11178*

Intended Use

The QuickTox Kit for QuickScan Aflatoxin FREE is designed to quickly provide quantitative results for the presence of total aflatoxins. Refer to the below table for specific detection ranges, which are dependent upon matrix group and dilution.

Matrix Group (MG)	LOD	Maximum Reported Value of Base Range	Range with Dilution[2]
MG1-MG8[3]	2.5-2.7 ppb[1]	30 ppb	>30-100 ppb
MG9 – Corn (high sensitivity)[4]	1.5 ppb	20 ppb	>20-100 ppb
MG10-MG12	7.5 ppb	99 ppb	>99-300 ppb[5]
MG13-MG16	2.7 ppb	30 ppb	>30-100 ppb
MG17 – Peanut Seed (high sensitivity)	2.5 ppb	30 ppb	N/A

[1] *Matrix Group Dependent*

[2] *Dilution is performed only for samples with results above the base range. After running a diluted sample, selecting 1:A from the Dilution tab in the QuickScan results window adjusts for the dilution factor.*

[3] *MG3 reports results down to '0', with an LOD of 2.7 ppb. Do not assume accuracy for results reported below the LOD.*

[4] *MG9 – Corn (high sensitivity) reports results down to '0', with an LOD of 1.5 ppb. Do not assume accuracy for results reported below the LOD.*

[5] *The Hazelnut Seed matrix within MG10 has not been qualified for a range extension with additional dilution.*

Important Notes:

- **QuickScan Software Version 4.9.4, Update 2 or later is required**
- **Scan the Multi-Matrix Barcode Card (MMBC) once per kit lot**
- **Run for required time & read promptly for accurate results**

Contents of Kit:

- 50 QuickTox Strips packed in a moisture-resistant canister
- 50 EB17 Extraction Powder packets (25g sample uses 1 pkt)
- 50 reaction vials
- 100 pipette tips
- DB5 Buffer
- Multi-Matrix Barcode Card - kit lot specific

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.

Matrices

Note: Scanning the Multi-Matrix Barcode Card once per kit lot is required. The QuickScan software will prompt users to select a Matrix Group (MG) before proceeding to the result screen. If you only plan to test matrices within the MG1 group (Corn, Brown Rice and Wheat), scan the side of the MMBC card that only has the MG1 barcode. This allows the software to skip the step which prompts users to select a Matrix Group.

- Corn
- Brown Rice
- Wheat

EB17 Buffer Extraction
SET A
PROCEDURES: PAGE 5

▪ Barley ▪ Coconut Meal ▪ Corn (high sensitivity) ▪ Corn Flour ▪ Corn Germ ▪ Corn Gluten Meal ▪ Cottonseed (delinted)	▪ DDGS ▪ Hominy Feed ▪ Oats ▪ Rice, Black Glutinous ▪ Rice, Rough ▪ Rice, White ▪ Rice, White Glutinous	▪ Rice Bran ▪ Rice Hulls ▪ Rye, Whole ▪ Sorghum ▪ Soybean Meal	50% Ethanol Extraction **SET B** **PROCEDURES: PAGE 6**
▪ Corn Germ Meal ▪ Corn Gluten Feed ▪ Corn Silage ▪ Cottonseed Meal	80% Ethanol 84% Acetonitrile 80% Ethanol 50% Acetonitrile		**SET C** **PROCEDURES: PAGE 7**
▪ Peanut Hull ▪ Peanut Seed ▪ Whole Peanut	80% Ethanol		**SET D** **PROCEDURES: PAGE 8**
▪ Hazelnut Seed	80% Ethanol + 7% Acetic Acid		**Set E** **PROCEDURES: PAGE 9**
▪ Peanut Seed (high sensitivity)	80% Ethanol		**Set F** **PROCEDURES: PAGE 10**

Items Not Provided:

- QuickScan System*
- Bunn grinder or equivalent
- Coffee grinder or equivalent
- 20 mesh screen
- Extraction cups with lids (for 25g samples)* or other suitable vessels for sample extraction*
- Graduated cylinder*
- Orbital/rotary shaker
- Pipette to deliver 100 µL*
- Approved coffee filters*
- Tubes and pipettes for centrifugation*
- Microcentrifuge*
- Vials for additional dilution of high samples*
- Pipette to deliver larger volumes for dilutions
- Timer
- Scissors
- Distilled, deionized or bottled water
- Extraction bags (small or large depending on sample size, for cottonseed meal and corn gluten feed)
- Ethanol 50%* (Reagent Alcohol, for some matrices)
- Ethanol 80% (Reagent Alcohol, for some matrices)
- Acetonitrile, 50%* and/or 84% (for some matrices)
- Acetic acid, 7% (for hazelnuts)
- DB5 Buffer (additional, for some matrices)*
- Table salt, non-iodized (for peanut matrices)
- 7 mesh screen (for peanut seed and whole peanut)
- 12 X 75mm polypropylene tubes* (High Sensitivity Peanut protocol only)
- Incubator* (High Sensitivity Peanut protocol only)

*Available as Accessories →

Available Accessories:

Item	Cat. No.	Part #
QuickScan™ System	ACC 331	12721
Sample cups/lids (for 25g samples) *Please note: if using these cups with an acetonitrile extraction, they may leak; seal covers onto cups with Parafilm or similar sealant*	ACC 012-CS	10167
Graduated cylinder (100 mL)	ACC 068	11207
MiniPet pipette 100 µL (one/location free)	ACC 041	11202
Coffee filters (100)	ACC 083	11434
Centrifugation Set *Disposables for 50 tests*	ACC 010	11214
Microcentrifuge	ACC 064 E	11204
50g Sample Extraction Set *Additional Powder Packets and Sample Extraction bags*	ACC 035	11216
FREE Dilution Set: *Disposables and Extraction Powder Packets for 100 Dilutions*	ACC 034	11215
QuickTox Dilution Set: *Tips + vials for 100 dilutions for testing samples above base range*	ACC 080	11219
50% Ethanol	ACC E26902-1X	11156
DB5 Buffer *Additional Buffer needed for matrices requiring > 100 µL per Strip*	KR-266-7	11665
12 X 75mm poly tubes	20-0128	12198
Incubator	ACC-BSH301	12458

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 Extraction Powder is flammable and an irritant**. See attached Safety Data Sheet.
   a. 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 Packet powder is incompatible with strong oxidizers.
3. **Ethanol and acetonitrile are flammable and toxic**.
   a. Avoid inhaling vapors or contact with the skin, eyes, or clothing. Wear personal protective equipment including safety glasses, nitrile gloves (not latex), a vapor mask and a lab coat when handling. Keep containers tightly closed and away from heat, sparks and open flame.
   b. Observe any applicable regulations when disposing of samples and kit reagents.
4. **Acetonitrile may leak.**
   a. Use caution when sealing extraction cups, assure a tight seal.
   b. To avoid leaks when using Sample Cups (ACC-012), wrap Parafilm® or similar product around the outside cup threads in the direction of the threads before screwing on cap.

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.
6. Pipettes lose calibration accuracy over time. Calibrate or replace pipettes at least annually.

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. Note, Corn Silage procedure was qualified using samples with a moisture content in the range of 50-70%, which is a typical range for this matrix.
2. Unless noted, grind samples to provide a consistency such that 95% passes through a 20 mesh sieve.
   Note, Wheat: Grinding wheat too finely may impact flow and accuracy. Contact Technical Support for information.
   Note, Peanut: The speed of the grinder needs to be controlled to prevent sample overheating and oil release with peanut seed and whole peanut. An optimal finished grind allows about 90% to pass through a 7 mesh sieve.
   Note, Corn Silage: Must use a coffee grinder or equivalent, for 1 minute, to achieve the correct grind consistency.
3. Mix ground material thoroughly before sub-sampling, to minimize variability.
4. Weigh 25g or 50g samples into 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	Settling
1. Fill a microcentrifuge tube with extract. 2. Centrifuge for the specified time at 2000 x *g* (rcf, ***not rpm***). 3. Use the top layer of extract.	1. Add an approved coffee filter (e.g. BUNN Part #BUNBCF100B) to a clean vessel. 2. Pour extract into the filter. 3. Pull back the filter to access the filtered extract.	1. Allow the sample to sit undisturbed until a top layer forms that can easily be pipetted. 2. Use the top layer of extract.

Range with Dilution

For testing samples at levels greater than the assay's 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. Combine extract with the appropriate extraction reagent (EB17 Dilution Solution, Ethanol, Acetonitrile) to create a 1:6 dilution. Example: 1 part clarified extract + 5 parts diluent; 100 µL + 500 µL). Measure carefully and mix well.

   Note: for EB17-extracted matrices, a liquid EB17 Dilution Solution must be prepared. Mix 1 packet EB17 powder with 300 mL of water and mix well; Dilution Solution mixture will appear cloudy. It may be stored after mixing for up to 30 days at room temperature. Re-suspend solution before each use.
3. Rerun assay as before, adding Buffer + diluted extract into the reaction vial, then adding a new strip for the time specified. Example: for corn, pipette 100 µL DB5 + 100 µL of the extract diluted with Dilution Solution into a new vial, add a new test strip, and wait 4 minutes for test results.
4. In the QuickScan Results Screen, select 1:A under the dilution tab (dropdown menu). The System will calculate and record the aflatoxin level in diluted samples.

   Note: Dilution accessory set is available, see items ACC-080 and ACC-034 (includes EB17 packets).

Use of the QuickScan System

Detailed instructions for use of the QuickScan System are supplied with each unit, and can also be found at envirologix.com/quickscan. The lot-specific Multi-Matrix Barcode Card (MMBC) must be scanned into the system prior to testing. In summary, a strip is inserted into the reader and the strips are read by touching or clicking on the "Read Test" area of the screen. The "Select Matrix Groups" screen will appear if more than one barcode was scanned into the system from the MMBC. Select the group that displays the matrix run. Results are then recorded in an electronic worksheet, allowing each user to report and track data easily.

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 B_1, Ochratoxin A, Zearalenone.

Precautions and 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. Performance in other sample matrices has been validated using fortified samples.
- As with all screening tests, it is recommended that results be confirmed by an alternate method when necessary.
- The assay has been optimized for use with the protocols provided in the kit. Deviation from these protocols may invalidate the results of the test. Proper 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.

SET A Procedures: EB17 Aqueous Matrices

Matrices: • *Brown Rice* • *Corn (EB17 Extraction)* • *Wheat*

- Review Sample Preparation on page 3 for grinding consistency and notes.
- 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 packets are required (order Catalog No. ACC-035)

Sample Extraction

	25g Samples	50g Samples
Corn, Brown Rice	1. Add 1 packet of EB17 to sample 2. Add 75 mL water	1. Add 2 packets of EB17 to sample 2. Dry Blend EB17 into sample 3. Add 150 mL water
Wheat	1. Add 1 packet EB17 to sample 2. Add 75 mL water	1. Add 150 mL water, wet thoroughly 2. Add 2 packets of EB17

Shake: choose mechanical shaker or hand shaking

Shaker Table: mix at highest speed for 1 minute	***By Hand:*** shake vigorously for 2 minutes

Clarify Extract: choose centrifuge or filter

* Do not filter wheat samples, centrifuge only.

Centrifuge: 30 seconds at 2000 x *g* (rcf, ***not rpm***)	***Filter:*** Pour through approved coffee filter (ACC-083)

Combine Buffer and Extract, then Run Test Strips

1. Add 100 µL DB5 to the reaction vial (discard tip)
2. Add 100 µL clarified extract to the reaction vial
3. Mix thoroughly with extract pipette tip, discard tip
4. Add test strip to vial, arrows down, wait for run time
   4 minutes: Corn and Brown Rice
   5 minutes: Wheat
5. Immediately cut strips at the top of the arrow tape (discard bottom pads)
6. Insert strip, barcode face down, into QuickScan Reader
7. If prompted, select "MG1 – Brown Rice, Corn, Wheat"

TIPS!

Get Complete Extraction
- Fully wet samples before 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 vial per test
- Keep DB5 capped, when possible
- Use new pipette tips for each step

TABLE A: EB17-Extracted Matrix Summary Guide

Matrix	LOD (ppb)	First	Second	Third	Shake	Clarify	Reaction Vial	Run
Brown Rice	2.7	25g	1 x EB17	75 mL water	1 min – shaker or 2 min – by hand	Filter or Centri-fuge	100 µL DB5 100 µL extract	4 min
		50g	2 x EB17, dry blend	150 mL water				
Corn		25g	1 x EB17	75 mL water				
		50g	2 x EB17, dry blend	150 mL water				
Wheat		25g	1 x EB17	75 mL water	1 min – shaker or 2 min – by hand	Centri-fuge	100 µL DB5 100 µL extract	5 min
		50g	150 mL water	2 x EB17				

SET B Procedures: Additional Matrices

Matrices:	*Corn Flour*	*DDGS*	*Rice, Rough*	*Rice Hulls*
Barley	*Corn Germ*	*Hominy Feed*	*Rice, White*	*Rye, Whole*
Coconut Meal	*Corn Gluten Meal*	*Oats*	*Rice, White Glutinous*	*Sorghum*
Corn (high sens)	*Cottonseed (delinted)*	*Rice, Black Glutinous*	*Rice Bran*	*Soybean Meal*

Review Sample Preparation on page 3 for grinding consistency and notes

Sample Extraction: Consult TABLE B below to determine if 2x or 4x 50% ethanol extraction is required

	25g Samples	50g Samples
2x ethanol	Add 50 mL 50% ethanol to sample	Add 100 mL 50% ethanol to sample
4x ethanol	Add 100 mL 50% ethanol to sample	Add 200 mL 50% ethanol to sample

Shake: choose mechanical shaker or hand shaking

Shaker Table: mix at highest speed for 1 minute	***By Hand:*** shake vigorously for 2 minutes

***For oats**, centrifuge immediately after shaking, or paste will form

Clarify Extract: Centrifuge for 1 minute at 2000 x *g* (rcf, ***not rpm***)

Combine Buffer and Extract, then Run Test Strips

1. **Consult TABLE B** to determine DB5 and extract volume
2. Add DB5 to the reaction vial (discard tip)
3. Add clarified extract to the reaction vial
4. Mix thoroughly with extract pipette tip, discard tip
5. Add test strip to vial, arrows down
6. Wait 5 minutes (run time). For cottonseed, wait 7 minutes.
7. Immediately cut strips at the top of the arrow tape (discard bottom pads)
8. Insert strip, barcode face down, into QuickScan Reader
9. When prompted, select Matrix Group for the matrix being tested

TIPS!

Get Complete Extraction
- Fully wet samples before 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 vial per test
- Keep DB5 capped when possible
- Use new pipette tips for each step

TABLE B: 50% Ethanol-Extracted Matrix Summary Guide

Matrix	Matrix Group	LOD (ppb)	Ethanol Ratio	Shake	Clarify	DB5 Volume	Extract Volume	Run Time
Corn High Sensitivity	MG9	1.5	2x	1 min – shaker or 2 min – by hand	Centrifuge 1 min at 2000 x *g*	300 µL	200 µL	5 min
Cottonseed, Delinted	MG2	2.5	4x			100 µL	100 µL	7 min
Barley	MG8	2.7	2x			200 µL	100 µL	5 min
Corn Flour	MG8							
Oats	MG7							
Rice, Rough	MG7							
Rye, Whole	MG6							
Sorghum	MG7							
Soybean Meal	MG8							
Coconut Meal	MG3*	2.7	4x			100 µL	100 µL	5 min
Corn Germ	MG2	2.5						
Corn Gluten Meal	MG3*	2.7						
DDGS	MG2	2.5						
Hominy Feed	MG3*	2.7						
Rice, Black Glutinous	MG13	2.7						
Rice Bran	MG2	2.5						
Rice Hulls	MG16	2.7						
Rice, White	MG15	2.7				200 µL	100 µL	
Rice, White Glutinous	MG14	2.7						

* Results reported down to "0"; however, do not assume accuracy for results reported below the assay's LOD

SET C Procedures: Additional Matrices

Matrices: • *Corn Germ Meal* • *Corn Gluten Feed* • *Corn Silage* • *Cottonseed Meal*

Review Sample Preparation on page 3 for grinding consistency and notes

Sample Extraction: Add the appropriate solvent to the sample

	25g Samples	50g Samples
Corn Germ Meal, Corn Silage	Add 50 mL 80% Ethanol	Add 100 mL 80% Ethanol
Corn Gluten Feed	Add 40 mL 84% Acetonitrile	Add 80 mL 84% Acetonitrile
Cottonseed Meal	Add 50 mL 50% Acetonitrile	Add 100 mL 50% Acetonitrile

Shake: choose mechanical shaker or hand shaking

Shaker Table: mix at highest speed for 1 minute (Corn gluten feed, 2 minutes)	***By Hand:*** shake vigorously for 2 minutes

Clarify Extract: Let extract settle

Corn Germ Meal: 2 minutes
Corn Gluten Feed: 1 minute
Cottonseed Meal: at least 2 minutes
Corn Silage Centrifuge 1 min at 2000 x g

Combine Buffer and Extract, then Run Test Strips

1. **Consult TABLE C** to determine DB5 and extract volume
   Note, Corn Gluten Feed: Pre-mix DB5 and extract in a clean vial. Add 200 µL pre-mix to reaction vial.
2. Add DB5 to the reaction vial (discard tip)
3. Add clarified extract to the reaction vial
4. Mix thoroughly with extract pipette tip, discard tip
5. Add test strip to vial, arrows down
6. Wait 5 minutes (run time)
7. Immediately cut strips at the top of the arrow tape (discard bottom pads)
8. Insert strip, barcode face down, into QuickScan Reader
9. When prompted, select Matrix Group for the matrix being tested

TIPS!

Get Complete Extraction
- Fully wet samples before 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 vial per test
- Keep DB5 capped when possible
- Use new pipette tips for each step

TABLE C: Other Solvents Matrix Summary Guide

Matrix	Matrix Group	LOD (ppb)	Extraction	Shake	Clarify (Settle)	DB5 Volume	Extract Volume	Run Time
Corn Germ Meal	MG6	2.7	2x, 80% Ethanol	1 min – shaker or 2 min – hand	2 min	200 µL	100 µL	5 min
Corn Gluten Feed	MG5	2.5	1.6x, 84% Acetonitrile*	2 min – shaker or 2 min – hand	1 min	Pre-mix 500 µL DB5 + 100 µL extract (test 200 µL)		
Corn Silage	MG3**	2.7	2x, 80% Ethanol	1 min – shaker or 2 min – hand	Centrifuge 1 min at 2000 x *g*	200 µL	100 µL	
Cottonseed Meal	MG4	2.5	2x, 50% Acetonitrile*	1 min – shaker or 2 min – hand	≥ 2 min	200 µL	100 µL	

*Acetonitrile may leak; refer to page 3 for preventative measures.
** Results reported down to "0"; however, do not assume accuracy for results reported below the assay's LOD

SET D Procedures: Additional Matrices

Matrices: • *Peanut Hull* • *Peanut Seed* • *Whole Peanut*

Review Sample Preparation on page 3 for grinding consistency and notes

Sample Extraction

Prepare a bulk salt water solution: (a) Add 29.4g of table salt (non-iodized) per 100 mL of bottled water. (b) Mix well, until salt is in solution.

	25g Samples	50g Samples
Create Slurry*	1. Add 20 mL salt water to sample 2. Mix well, stir slowly	1. Add 40 mL salt water to sample 2. Mix well, stir slowly
Add Solvent	3. Add 75 mL 80% Ethanol 4. Make sure entire sample is wetted	3. Add 150 mL 80% Ethanol 4. Make sure entire sample is wetted

**Note: Peanut hull slurry will not have the same consistency as peanut seed and whole peanut, it will be more of a dry mixture due to the absorbency of the matrix*

The above extraction protocol provides instruction for 25g and 50g samples. To customize sample size, keep salt water slurry and Ethanol ratios the same.

		Example: 200 g sample
Salt water:	0.8 mL/g sample	▪ *160 mL salt water*
Ethanol:	3 mL/g sample	▪ *600 mL 80% Ethanol*

Shake: choose mechanical shaker or hand shaking

Shaker Table: mix at highest speed for 1 minute	***By Hand:*** shake vigorously for 2 minutes

Clarify Extract:

Pour through an approved coffee filter (e.g. ACC-083). Mix the clarified extract well before testing.

Combine Buffer and Extract, then Run Test Strips

1. **Consult TABLE D** to determine DB5 and extract volume
2. Add DB5 to the reaction vial (discard tip)
3. Add clarified extract to the reaction vial
4. Mix thoroughly with extract pipette tip (discard tip)
5. Add test strip to vial, arrows down
6. Wait 4 minutes (run time)
7. Immediately cut strips at the top of the arrow tape (discard bottom pads)
8. Insert strip, barcode face down, into QuickScan reader
9. When prompted, select Matrix Group for the matrix being tested

TIPS!

Get Complete Extraction
- Fully wet samples before 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 vial per test
- Keep DB5 capped, when possible
- Use new pipette tips each step

TABLE D: Peanut Matrix Summary Guide

Matrix	Matrix Group	LOD (ppb)	Slurry	Extract-ant	Shake	Clarify	DB5 Volume	Extract Volume	Run Time
Peanut Hull	MG12	7.5	25g: add 20mL salt water 50g: add 40mL salt water	3x, 80% Ethanol	1 min – shaker or 2 min – by hand	Filter; mix well	200 µL	100 µL	4 min
Peanut Seed	MG10						400 µL	100 µL	
Whole Peanut	MG11						400 µL	100 µL	

SET E Procedures: Additional Matrices

Matrices:
- *Hazelnut*

Review Sample Preparation on page 3 for grinding consistency and notes

Sample Extraction

Prepare a bulk salt water solution: (a) Add 29.4g of table salt (non-iodized) per 100 mL of bottled water. (b) Mix well, until salt is in solution.

	25g Samples	50g Samples
Create Slurry*	1. Add 20 mL salt water to sample 2. Mix well, stir slowly	1. Add 40 mL salt water to sample 2. Mix well, stir slowly
Add Solvent	3. Add 72 mL 80% Ethanol 4. Add 3 mL of 7% Acetic Acid 5. Make sure entire sample is wetted	3. Add 144 mL 80% Ethanol 4. Add 6 mL of 7% Acetic Acid 5. Make sure entire sample is wetted

**Note: Commercial vinegar with 7% acetic acid may be used.*

The above extraction protocol provides instruction for 25g and 50g samples. To customize sample size, keep salt water slurry, Ethanol and Acetic Acid ratios the same.

	Example: 200 g sample
Salt water: 0.8 mL/g sample 80% Ethanol: 2.88 mL/g sample 7% Acetic Acid: 0.12 mL/g sample	▪ *160 mL salt water* ▪ *576 mL 80% Ethanol* ▪ *24 mL 7% Acetic Acid*

Shake: choose mechanical shaker or hand shaking

Shaker Table: mix at highest speed for 1 minute	***By Hand:*** shake vigorously for 2 minutes

Clarify Extract:

Pour through an approved coffee filter (e.g. ACC-083). Mix the clarified extract well before testing.

Combine Buffer and Extract, then Run Test Strips

1. **Consult TABLE E** to determine DB5 and extract volume
2. Add DB5 to the reaction vial (discard tip)
3. Add clarified extract to the reaction vial
4. Mix thoroughly with extract pipette tip (discard tip)
5. Add test strip to vial, arrows down
6. Wait 4 minutes (run time)
7. Immediately cut strips at the top of the arrow tape (discard bottom pads)
8. Insert strip, barcode face down, into QuickScan reader
9. When prompted, select Matrix Group for the matrix being tested

TIPS!

Get Complete Extraction
- Fully wet samples before 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 vial per test
- Keep DB5 capped, when possible
- Use new pipette tips each step

TABLE E: Matrix Summary Guide

Matrix	Matrix Group	LOD (ppb)	Slurry	Extract-ant	Shake	Clarify	DB5 Volume	Extract Volume	Run Time
Hazelnut Seed Not qualified for testing samples at levels greater than the assay's base range	MG10	7.5	25g: add 20mL salt water 50g: add 40mL salt water	2.88x, 80% Ethanol + 0.12x, 7% Acetic Acid	1 min – shaker or 2 min – by hand	Filter; mix well	400 µL	100 µL	4 min

SET F Procedures (Incubator required): Additional Matrices

Matrices:
- *Peanut Seed (high sensitivity)*

Review Sample Preparation on page 3 for grinding consistency and notes

Sample Extraction

Prepare a bulk salt water solution: (a) Add 29.4g of table salt (non-iodized) per 100 mL of bottled water. (b) Mix well, until salt is in solution.

	25g Samples	50g Samples
Create Slurry	1. Add 10 mL salt water to sample 2. Mix well, stir slowly	1. Add 20 mL salt water to sample 2. Mix well, stir slowly
Add Solvent	3. Add 50 mL 80% Ethanol 4. Make sure entire sample is wetted	3. Add 100 mL 80% Ethanol 4. Make sure entire sample is wetted

The above extraction protocol provides instruction for 25g and 50g samples. To customize sample size, keep salt water slurry and Ethanol ratios the same.

		Example: 200 g sample
Salt water:	0.4 mL/g sample	▪ *80 mL salt water*
Ethanol:	2 mL/g sample	▪ *400 mL 80% Ethanol*

Turn on incubator and set the temperature to 22°C, let equilibrate for at least 10 minutes.

Shake: choose mechanical shaker or hand shaking

Shaker Table: mix at highest speed for 1 minute	***By Hand:*** shake vigorously for 2 minutes

Clarify Extract:

Pour through an approved coffee filter (e.g. ACC-083). Mix the clarified extract well before testing.

Combine Buffer and Extract, then Run Test Strips

1. **Consult TABLE F** to determine DB5 and extract volume
2. Add DB5 to the 12X75mm reaction tube (discard tip)
3. Add clarified extract to the reaction tube
4. Mix thoroughly with extract pipette tip (discard tip)
5. Insert tube into incubator
6. *Wait 2 minutes (equilibration time)
7. Add test strip to tube, arrows down
8. Wait 4 minutes (run time)
9. Immediately cut strips at the top of the arrow tape (discard bottom pads)
10. Insert strip, barcode face down, into QuickScan reader
11. When prompted, select Matrix Group for the matrix being tested

TIPS!

Get Complete Extraction
- Fully wet samples before 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 each step

TABLE F: High Sens. Peanut Seed Matrix Summary Guide

Matrix	Matrix Group	LOD (ppb)	Slurry	Extractant	Shake	Clarify	DB5 Volume	Extract Volume	Add tube to Incubator	Run Time
High Sens. Peanut Seed	MG17	2.5	25g: add 10 mL salt water 50g: add 20 mL salt water	2x, 80% Ethanol	1 min – shaker or 2 min – by hand	Filter; mix well	300 µL	200 µL	Acclimate tube for 2 min*	4 min

* 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)

For Technical Support Contact Us At:

EnviroLogix
500 Riverside Industrial Parkway
Portland, ME04103-1486 USA
Tel: (207) 797-0300
Toll Free: 866-408-4597
Fax: (207) 797-7533

e-mail: ***info@envirologix.com***

website:
www.envirologix.com

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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
Acute Toxicity Inhalation 4	H322 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 + H322	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

32 Mixtures: Extraction Reagent Powder (EB17)

Chemical name	CAS No	EC No	Amount (%)	Classification OSHA 29CFR1910.1200
Sodium Lauryl Sulfate	151-21-3	205-788-1	60 to 85	Flam. Sol. 2 H228; Acute Tox. Oral 4 H302; Acute Tox. Inhal. 4 H322; 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.

SDS: EB17

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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 evacuate 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/m3 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: 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.

SDS: EB17

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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)

14.4Packing 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.

SDS: EB17

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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	**Extraction Reagent Powder (EB17)– no CAS number**
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).....	**NFPA Rating (US)** .....
Health hazard: 2 , Flammability: 1 , Physical Hazards: 0	Health hazard: 2 , Fire: 1 , Reactivity Hazard: 0
US Federal Regulations	
TSCA	TSCA 8(b) inventory: Sodium lauryl sulfate
Health and Safety Reporting List	
CERCLA	Listed.
SARA Section 302 (Extremely Hazardous Substances)	Not listed
Clean Air Act	Not listed
Clean Water Act	Not listed
OSHA	Not listed
European/International Regulations	
European labeling in accordance with EC Directives	This product is on the European Inventory of Existing Commercial Chemical Substances (EINECS No. 205-788-1)
Canada – DSL/NDSL	Listed
Canada – WHMIS	CLASS D-2B: Material causing other toxic effects (TOXIC).
Other	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:

H228	Flammable solid.
H302 + H322	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.
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

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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.

3.2 Mixture

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

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 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 use(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
Sodium Tetraborate Decahydrate	8 Hr TWA = 5mg/m^3	8 Hr TWA = 10 mg/m^3

8.2 Exposure Controls:

8.2.1Engineering 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
Triton X-100

Acute toxicity: Oral LD50 –Rat- 1800mg/kg
Dermal LD50- Rabbit- 8000 mg/kg

Sensitization: No sensitizing effects known

CMR (carcinogenity, 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 Pimephales promelas (fathead minnow) – 8.9mg/l – 96.0 hr
Daphnia: EC50 – Daphnia – 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 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:

H302 Harmful if swallowed **H315** Causes skin irritation **H317** May cause an allergic skin reaction
H318 Causes Serious Eye Damage **H335** May cause respiratory irritation **H411** Toxic to Aquatic Life with Long Lasting Effects