TotalTarget™ Kit for Peanut

Catalog AT-Peanut *Part #13056*

Intended Use

The TotalTarget Kit for Peanut Allergen Detection is designed to quickly extract and quantitate trace levels of total peanut protein in wheat, wheat flour, white wheat flour, corn, and corn flour samples when used in conjunction with the QuickScan System.

Performance Characteristics: *See "Interpretating the Results" section for more detail*

- Limit of Detection (LOD) = 1.00 ppm peanut protein
- Assay Range = up to 5.2ppm

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 5.7 or later is required

Contents of Kit:

- 10 TotalTarget Strips packed in a moisture-resistant canister
- Grain Extraction Buffer Concentrate
- 10 reaction tubes
- 20 pipette tips (1-200 µL)
- Multi-Matrix Barcode Card - kit lot specific

How the Test Works

A composite sample is collected, ground, and extracted to solubilize any peanut residues present. The extract is diluted into water before being run on the test strip. Each 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 traceable, quantitative results.



Items Not Provided:

- QuickScan System*
- Bunn grinder or equivalent
- 20-mesh screen (available through Seedburo or other vendor)
- Digital scale for weighing samples
- Extraction cups with lids* or other suitable vessels for sample extraction
- Centrifuge and vials*
- Graduated cylinder*
- Orbital/rotary shaker
- Pipette to deliver 100-200 µL*
- Timer
- Scissors
- Deionized or distilled water

*Available as Accessories

***Available Accessories:**

Item	*Catalog No.*	*Part #*
QuickScan™ System	ACC 331	12721
5 oz Sample cups/lids *Case of 500; for extracting samples up to 30g*	20-0047	10167
Graduated cylinder (100 mL)	ACC 068	11207
MiniPet pipette 100 µL (one/location free)	ACC 041	11202
MiniPet pipette 200 µL	ACC 067	11206
Centrifugation Set: *Disposables for 50 tests*	ACC 010	11214
Microcentrifuge	ACC 064 E	11204
1 mL adjustable pipet	ACC1303-PRO-1000	11964
Incubator	ACC-BSH301	12458
Coffee filters (100)	ACC-083	11434

Use of the QuickScan System

Detailed instructions for use of the QuickScan System are supplied with each unit and can also be found at www.envirologix.com/support. **The lot-specific Multi-Matrix Barcode Card (MMBC) must be scanned into the system prior to testing**. Strips inserted into the reader are read by touching or clicking on the "Read Test" button on 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.

Precautions – Read First!

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 and diluting reagents (including water), and test strips are at room temperature before use.
4. Test extracts within 5 minutes of diluting with water for optimal performance.
5. When the Grain Extraction Buffer Concentrate is stored refrigerated, a crystalline precipitate may form on the bottom of the container. Warm the buffer to room temperature to resolubilize prior to diluting to the working concentration. The use of a warm water bath and gentle mixing is recommended.

TIPS!

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

For Best Performance
- Pipette up and down while mixing
- Read strips promptly after run time

Avoid Contamination
- Use a new Reaction Tube per test
- Keep Buffers and Water capped, when possible
- Use new pipette tips for each step

Sample Preparation

Note: The Grain Extraction Buffer Concentrate provided must be diluted before use. In a clean vessel with a cover, dilute the Grain Extraction Buffer Concentrate **40**-fold, using 39 parts deionized or distilled water and one part concentrate to create 1X Grain Extraction Buffer. Mix to make homogenous. For example, add 25 mL of Grain Extraction Buffer Concentrate into 975 mL water and mix thoroughly. 1X Grain Extraction Buffer can be stored for up to 7 days at room temperature, or may be stored refrigerated for longer life, up to 30 days. (note: bring Buffer to room temperature before testing).

1. Allow refrigerated canisters to come to room temperature before opening.
2. Turn on the incubator and set to 22°C for a minimum of 10 minutes before testing. Ensure that the temperature display has stabilized and indicates "OK" before starting the assay. All reagents should be at room temperature
3. Collect a composite sample according to your own sampling plan or USDA/FGIS (formerly GIPSA) guidelines. Consult USDA reference documents to help design a plan that fits your needs. Contact Technical Support for more information.
4. Grind samples to provide a consistency such that 95% passes through a 20-mesh sieve. For example, the "Turkish" setting on a Bunn grinder generally returns a grind consistency in coarser grains that is suitable for testing. It is recommended to test your grinding protocol and/or settings using the 20-mesh sieve method, and to check periodically that it is remaining consistent. Flour matrices do not require additional grinding and can be tested as-is.
5. Mix ground material thoroughly before sub-sampling, to minimize variability.
6. Weigh 20 g samples into a container that will allow enough head room for the liquid to move forcefully when shaken vigorously.

Sample Extraction

1. Measure **1X** Grain Extraction Buffer with a graduated cylinder or other appropriate measuring device and add **100 mL** to the sub-sample in the extraction vessel.

2. Cap sample cup tightly, shake by hand briefly to ensure proper wetting of the ground sample and shake by hand 30 seconds. *Samples that are not thoroughly mixed may adversely affect test results due to incomplete extraction*.
3. Clarify extracts
    - Filtering: Add an approved coffee filter (example: BUNN part #BUNBCF100B) to a clean vessel and pour extract into the filter, allow the sample to sit for 2 minutes. Pull back an edge of the filter to gain access to the filtered extract.
    - Centrifugation: Fill a microcentrifuge tube with extract and centrifuge for the 30 seconds at 2000 x g (***not rpm***). The clear layer is the extract that will be used in the testing.

      Note: Do not allow clarified extracts to sit for an extended period of time before testing.
4. Proceed to testing sample.

Running the TotalTarget Strip Test

Note: Diluted sample extract should be tested within 5 minutes of dilution with dilution buffer. Be sure strips and water are at room temperature and ready for use prior to continuing.

1. Remove the TotalTarget strips to be used from the room temperature canister, being careful to avoid bending the strips. Reseal the canister immediately.
2. With a **new** pipette tip, transfer **200 µL** of deionized or distilled **Water** into a reaction tube. (tip: if using 100uL fixed, transfer 2X) Discard pipette tip.
3. Using a **new** pipette tip, add **100 µL total** of the clarified extract to the reaction tube containing water. Mix well with pipette by stirring or drawing liquids up and down in the pipette tip. Discard pipette tip. *Avoid transferring any floating particulates on top of the clarified sample if possible.*

   Note: Samples that are not thoroughly mixed and/or accurately pipetted will adversely affect test results. After adding the sample, the final volume in the reaction vial should be **300 µL.** Do not reuse diluted samples. Always use a new reaction tube and two pipette tips for each test, and discard vials and tips after use.
4. Place the reaction tube in the 22°C incubator; equilibrate for 2 minutes. Note: 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)
5. Place the strip into the reaction vial containing the dilution buffer and sample extract. The arrow tape on the end of the strip should point into the reaction vial.
6. Sample extract will travel up the strip (flow may not be visible immediately—this is expected and normal).
7. Allow the strip to develop for **4** minutes. Immediately cut off and discard the bottom section of the strip covered by the arrow tape. Insert strip into the QuickScan reader for quantitation.
8. **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. Select the MG group that correlates to sample type you are testing.

Wheat: MG1	Wheat flour: MG4	White wheat flour: MG14	Corn: MG2	Corn flour: MG5

Interpreting the Results

This assay is calibrated using quality control peanut materials that have undergone typical processing procedures (roasting, defatting, etc.). Reported results from the QuickScan software are indicative of contamination within the test sample by peanut proteins which have undergone the same degree of processing as the calibration material.

Limit of detection (LOD) is the lowest concentration that can be reliably distinguished from blank samples. Any result lower than the limit of detection will be reported as <LOD.

The performance of this assay to over-detect raw peanut protein in the specified matrix groups has been studied. To express results as raw peanut protein contamination, multiply result by 0.145 (e.g., a result of 1.0ppm peanut protein x 0.145 = 0.12 ppm raw peanut protein).

This assay is designed for the detection of trace amounts of peanut protein. Quantitative accuracy is not guaranteed in samples with 5% peanut content or greater. Samples containing greater than 50% raw peanut may return in a false-negative result.

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.

Cross-reactivity & Interference

The following commodities were tested for cross-reactivity and interference.

X – indicates the commodity cross-reacts with the test at concentrations of greater than 10%

I – indicates the commodity interferes with peanut detection at concentrations of greater than 20%
II – indicates the commodity interferes with peanut detection at concentrations of greater than 10%

Adzuki beans	Almond	Annatto	Apricot kernels
Barley	Basil – **(I)**	Black beans	Bovine Skim Milk – **(I)**
Brazil nut	Brown Mustard Seed – **(I)**	Buckwheat flour	Carmine Red
Cashew – **(X)**	Chestnut	Chickpeas	Chili – **(I)**
Cinnamon – **(I)**	Cloves – **(I)**	Cocoa Powder – **(I)**	Coconut – **(II)**
Coffee	Curry – **(I)**	Fava beans	Garlic – **(X) & (I)**
Green peas	Hazelnut	Kidney Beans	Lentils
Lima beans	Lupine – **(I)**	Macadamia	Millet Flour
Oat flour	Paprika – **(I)**	Pecan nut	Pine nut
Pink peppercon	Pinto beans	Pistachio nuts	Potato Flour
Pumpkin – **(I)**	Pumpkin kernel – **(I)**	Quinoa	Rapeseed
Rice flour	Romano beans	Rye	Sesame – **(I)**
Sorghum	Soy flour	Spelt	Sumac – **(II)**
Sunflower kernels	Sweet potato	Tapioca flour/starch	Tea
Teff flour	Tumeric	Walnut	White beans
Yellow Mustard Seed	Yellow Peas		

Notes

- This kit is designed to give quantitative results using the QuickScan System from 1.00 to 5.2 ppm total peanut protein in raw ingredients. This test is not intended to be visually interpreted.
- This product is currently not validated for use in testing any other grains than those listed in this Product Insert.
- Strips must be read wet promptly at four minutes.
- Protect all components from hot or cold extremes of temperature when not in use. Do not leave in direct sunlight or in vehicle.
- Pipettes lose calibration accuracy over time. Calibrate or replace pipettes at least annually.
- 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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This Limited Warranty states the entire obligation of EnviroLogix with respect to the Products. If any part of this Limited Warranty is determined to be void or illegal, the remainder shall remain in full force and effect.

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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 GEC 20X

Part number: 10556, 12124, (KR 033/004)

Synonyms: Grain Extraction Concentrate 20X; Grain Buffer Concentrate 20X

1.2 Relevant identified uses of the substance or mixture and uses advised against application of the substance / 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
Tele: (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 — Hazard Classes: Not Classified; Hazard Statements: None

Classification according to OSHA 29CFR 1910.1200:

2.2 Label elements

Labeling according to OSHA 29CFR 1910.1200

Hazard pictograms : Not required

Signal word : None

Hazard statements: None

Precautionary statements: None

2.3 Other Hazards None

SECTION 3. Composition/information on ingredients.

3.2 Mixture

Ingredients	EC Number	CAS Number	Classification	Concentration % w/w
Sodium Carbonate	207-838-8	497-19-8	Eye irritation 2 (H319)	3.1

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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: May cause slight skin or eye irritation

4.3 Recommendation of any immediate medical Attention or special treatment needed: None

SECTION 5. Firefighting measures.

5.1 Extinguishing media: Use extinguishing measures suitable for local circumstances and the surrounding environment

5.2 Special hazards arising from the substance or mixture : None

5.3 Advice for firefighters: Wear protective equipment suitable 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 safety 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 clean up: Absorb in paper towel and discard in appropriate waste. Clean with water afterwards.

6.4 References to other sections: For safe handling refer to Section 7; For information on PPE refer to Section 8; For disposal information 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 kits in original packaging in well ventilated areas away from heat.

7.3 Specific end use(s): Apart from those specified in Section 1.2, no other specific uses are stipulated.

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SECTION 8. Exposure controls/personal protection.

8.1 Control Parameters

Components with limit values that require monitoring at the workplace: None

8.2 Exposure controls

8.2.1 Engineering Controls: No specific recommendations, use in well ventilated areas

8.2.2 Recommendations for PPE: 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

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.

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 Controls: Contain spills, do not release to the environment.

SECTION 9. Physical and chemical properties.

9.1 Information on basic physical and chemical properties :	Clear liquid, colorless to slight yellow.
a) Appearance:	None
b) Odor:	No Data Available
c) Odor Threshold:	9.6
d) pH:	No Data Available
e) Melting point/freezing point:	No Data Available.
f) Boiling point/Boiling range:	Not Data Available.
g) Flash point:	No Data Available
h) Evaporation rate:	Not Data Available
i) Flammability (solid, gaseous):	
j) Upper/lower flammability or explosive limits:	No Data Available
k) Vapor pressure:	No Data Available
l) Vapor density	No Data Available
m) Relative density:	No Data Available
n) Solubility(ies):	Fully miscible, water.
o) Partition Coefficient: n-Octanol/water:	No Data Available
p) Auto-ignition temperature:	No Data Available
q) Decomposition temperature:	No Data Available
r) Viscosity:	No Data Available
s) Explosive properties:	No Data Available.
t) Oxidizing properties:	No Data Available
9.2 Other information:	No further relevant information available.

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SECTION 10. Stability and reactivity.

10.1 Reactivity: No data available

10.2 Chemical Stability: Stable under normal temperatures and pressures.

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

10.4 Conditions to avoid: No specific data

10.5 Incompatible materials: No Data Available

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

SECTION 11. Toxicological information.

The toxicological properties of this product have not been investigated

SECTION 12. Ecological information.

12.1 Toxicity No data available

12.2 Persistence and degradability : No Data Available

12.3 Bio accumulative potential : No Data Available

12.4 Mobility in soil : No Data Available

12.5 Results of PBT and vPvB assessment: Not Carried Out

12.6 Other adverse effects: No Data Available

SECTION 13. Disposal considerations.

Hand over to hazardous waste disposers.

Follow federal, state and local regulations for waste control regulations. US EPA guidelines for waste classification determination is listed in 40 CFR part 261.3; follow European Directive on waste, 2008/98/EC.

SECTION 14. Transport information.

14.1 UN-Number:	Non-regulated, non-hazardous for transport
14.2 UN proper shipping name:	Non-regulated, non-hazardous for transport
14.3 Transport hazard class(es):	Non-regulated, non-hazardous for transport
14.4 Packing group:	Non-regulated, non-hazardous for transport
14.5 Environmental hazards:	None
14.6 Special precautions for user :	None
14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code:	Not applicable

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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.

Envirologix Inc.
EHS Department

Codes:

H319 Causes serious eye irritation

SDS: GEC X 20

Summary Guide for Approved Matrices						
Approved Matrix	**Add to Sample Extraction Vessel (in this order)**	**Then shake immediately**	**Clarify**	**Add to the reaction tube and mix**	**Add Reaction Tube to Incubator Set at 22°C**	**Add Strip for**
Wheat (MG1) **Corn** (MG2) **Wheat Flour** (MG4) **Corn Flour** (MG5) **White Wheat Flour** (MG14)	1. 20g sample 2. 100 mL 1X GEC 3. Immediately shake vigorously to fully wet sample	30 seconds vigorously by hand	Filter (2 min maximum) or Centrifuge 30 sec. at 2000 x *g*	200 µL of Water* + 100 µL of clarified extract	Acclimate tube for 2 min^	4 min.

Notes:

*Use deionized or distilled water

^The tube acclimation step is only required if the temperature of the testing environment is unknown or outside of 20 - 24°C (68 - 75°F