RESULTS INTERPRETATION

1. Semi-quantitative results can be derived by simple comparison of the sample absorbances to the absorbance of the calibrator wells. Samples containing less color than a calibrator well have a concentration of Invertase greater than the concentration of the calibrator. Samples containing more color than a calibrator well have a concentration less than the concentration of the calibrator.
2. Quantitative interpretation requires graphing the absorbances of the calibrators (Y axis) versus the log of the calibrator concentration (X axis) on semi-log graph paper. A straight line is drawn through the calibrator points and the sample absorbances are located on the line. The corresponding point on the X axis is the concentration of the sample. Samples with absorbances greater than the lowest calibrator or less than the highest calibrator must be reported as <10 ppb or >1000 ppb, respectively.

SAMPLE CALCULATIONS

Well Contents	OD	Average OD ± SD*	%RSD	%Bo**
Negative Control	1.694 1.760	1.727 ± 0.047	2.7	100
10 ppb Calibrator	1.549 1.482	1.516 ± 0.048	3.1	88
100 ppb Calibrator	0.956 0.934	0.945 ± 0.015	1.6	55
1000 ppb Calibrator	0.473 0.459	0.466 ± 0.010	2.1	27

Actual values may vary; this data is for example purposes only.
* standard deviation
** %Bo equals average sample absorbance divided by average negative control absorbance times 100%.

TECHNICAL ASSISTANCE

For questions regarding this kit or for additional information about Beacon products, call (207) 571-4302.

SAFETY

To receive complete safety information on this product, contact Beacon Analytical Systems, Inc. and request Material Safety Data Sheets. Stop Solution is 1N hydrochloric acid. Handle with care.

General Limited Warranty

Beacon Analytical Systems, Inc. ("Beacon") warrants the products manufactured by it against defects in materials and workmanship when used in accordance with the applicable instructions for a period not to extend beyond a product's printed expiration date. BEACON MAKES NO OTHER WARRANTY, EXPRESSED OR IMPLIED. THERE IS NO WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. The warranty provided herein and the data, specifications and descriptions of Beacon products appearing in published catalogues and product literature may not be altered except by express written agreement signed by an officer of Beacon. Representations, oral or written, which are inconsistent with this warranty or such publications are not authorized and, if given, should not be relied upon.

In the event of a breach of the foregoing warranty, Beacon's sole obligation shall be to repair or replace, at its option, any product or part thereof that proves defective in materials or workmanship within the warranty period, provided the customer notifies Beacon promptly of any such defect. The exclusive remedy provided herein shall not be deemed to have failed of its essential purpose so long as Beacon is willing and able to repair or replace any nonconforming Beacon product or part. Beacon shall not be liable for consequential, incidental, special or any other indirect damages resulting from economic loss or property damage sustained by a customer from the use of its products. However, in some states the purchaser may have rights under state law in addition to those provided by this warranty.

BEACON ANALYTICAL SYSTEMS, INC.
82 Industrial Park Road
Saco, ME 04072
Tel. (207) 571-4302
Fax (207) 602-6502
www.beaconkits.com

Beacon Analytical Systems Inc.

Invertase Plate Kit

Cat.# 20-0238

Instructional Booklet

READ COMPLETELY BEFORE USE.

INTENDED USE

The Beacon Invertase Plate Kit is a competitive ELISA for the quantitative analysis of Invertase in honey.

ASSAY PRINCIPLES

The Beacon Invertase kit is a competitive enzyme-labeled immunoassay. Invertase antibody and sample extracts/calibrators are pipetted into mixing wells and incubated for 30 minutes. The sample-antibody mixture is then pipetted into the antigen coated test wells to initiate the reaction. During the 30-minute incubation period, Invertase from the sample and Invertase on the coated strips compete for binding to Invertase antibody. Following this 30-minute incubation, the contents of the well are removed and the wells are washed. GAR-HRP is then added to the wells incubated for 30 minutes. During this 30 minutes GAR-HRP binds to the Invertase antibody. Following this incubation, the contents of the well are removed and the wells are washed to remove any unbound GAR-HRP. A clear substrate is then added to the wells and any bound enzyme conjugate causes the conversion to a blue color. Following a 30 minute incubation, the reaction is stopped and amount of color in each well is read. The color of unknown samples is compared to the color of the calibrators and the Invertase concentration of the samples is derived.

REAGENTS AND MATERIALS PROVIDED

The kit in its original packaging can be used until the specified date indicated on the box label when stored at 2 – 8ºC.

1 Plate containing 12 test strips of 8 wells each vacuum-packed in aluminized pouch with indicating desiccant

4 vials each containing 4 mL of Invertase calibrators corresponding to 0, 10, 100, and 1000 ng/mL (ppb) of Invertase

1 vial containing 12 mL of Invertase antibody solution

1 vial containing 12 mL of GAR-HRP Enzyme Conjugate

1 plate of red tabbed mixing wells

1 vial containing 14 mL of Substrate

1 vial containing 14 mL of Stop Solution (Caution! 1N HCl. Handle with care.)

1 Instructional Booklet

MATERIALS REQUIRED BUT NOT PROVIDED

- Laboratory quality distilled or deionized water
- 20 mM PBS, pH7 [0.77 g of $NaH_2PO_4.H_2O$ (F.W. 137.99) + 2.04 g of Na_2HPO_4 (F.W. 141.96) + 8.5 g of NaCl, filling with 1 liter of laboratory grade water]
- Graduated cylinder
- Glass vials or tubes for sample extraction
- Pipet with disposable tips capable of dispensing 100 - 200 µL
- Multi-channel pipet; 8 channel capable of dispensing 100 µL
- Paper towels or equivalent absorbent material
- Microwell plate or strip reader with 450nm filter
- Wash bottle
- Timer

PRECAUTIONS

1. Each reagent is optimized for use in the Beacon Invertase Plate Kit. Do not substitute reagents from any other manufacturer into the test kit. Do not combine reagents from other Beacon Invertase Plate Kits with different Lot numbers.
2. Dilution or adulteration of reagents or samples not called for in the procedure may produce inaccurate results.
3. Do not use reagents after expiration date.
4. Reagents should be brought to room temperature, 20 – 28ºC (62 – 82ºF) prior to use. Avoid prolonged (> 24 hours) storage at room temperature.
5. The Stop Solution is 1N hydrochloric acid. Avoid contact with skin and mucous membranes. Immediately clean up any spills and wash area with copious amounts of water. If contact should occur, immediately flush with copious amounts of water.

SAMPLE PREPARATION

1. Prepare sample extraction buffer (20 mM PBS).
2. Weigh out **0.4 g** of the honey sample into a clean vial.
3. Add **10 mL** of 20 mM PBS to the vial and vortex well until the honey has completely dissolved. The sample is now ready to be used in the assay.

TEST PROCEDURE

(Note: Running calibrators and samples in duplicate will improve assay precision and accuracy.)

1. Allow reagents and sample extracts to reach room temperature prior to running the test.
2. Place the appropriate number of test wells into a microwell holder. Be sure to re-seal unused wells in the zip-lock bag with desiccant.
3. Place the same number of mixing wells as test wells into a microwell holder. Be sure to re-seal unused wells in the zip-lock bag.
4. Dispense **100 µL of standards or sample** into the appropriate mixing well.
5. Using a pipet with disposable tips, add **100 µL of Invertase antibody solution to all** the mixing wells. Shake gently for 30 seconds to mix contents.
6. Incubate the mixing wells for **30 minutes**.
7. Using a multichannel pipet, transfer **100 µL of the sample/antibody mixture** into the test wells.
8. Incubate the test wells for **15 minutes**.
9. Dump the contents of the wells into an appropriate waste container. Fill the wells to overflowing with laboratory grade water and dump. Repeat 4X for a total of five washes.
10. Dispense **100 µL of GAR-HRP** into each well.
11. Incubate the test wells for **30 minutes**.
12. Dump the contents of the wells into an appropriate waste container. Fill the wells to overflowing with laboratory grade water and dump. Repeat 4X for a total of five washes.
13. Dispense **100 µL of Substrate** into each well.
14. Incubate the wells for **30 minutes**.
15. Dispense **100 µL of Stop Solution** into each test well.
16. Read and record the absorbance of the wells at 450nm using a strip or plate reader.
17. The result must be multiplied by the dilution factor of **25**.