

## CALCULATE RESULTS

1. Semi-quantitative results can be derived by simple comparison of the sample absorbances to the absorbance of the calibrator wells: Sample containing less color than a calibrator will have a concentration of Aflatoxin M1 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 < 0.3 ppt or 300 ppt, respectively. Alternatively, Beacon can supply a spreadsheet template which can be used for data reduction. Please contact Beacon for further details.

## SAMPLE CALCULATIONS

Well Contents	OD	Average OD $\pm$ SD*	%RSD	%Bo**
Negative Control	2.041 2.069	2.055 $\pm$ 0.020	0.97	100
1.5 ppt Calibrator	1.748 1.731	1.739 $\pm$ 0.012	0.72	85
3.0 ppt Calibrator	1.544 1.543	1.543 $\pm$ 0.0004	0.03	75
10 ppt Calibrator	0.926 0.93	0.928 $\pm$ 0.003	0.29	45
30 ppt Calibrator	0.502 0.5	0.501 $\pm$ 0.001	0.18	24
100 ppt Calibrator	0.356 0.355	0.356 $\pm$ 0.0004	0.1	17

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.



## Aflatoxin M1 Plate Kit

Cat.# 20-0201

Instructional Booklet

READ COMPLETELY BEFORE USE.

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## INTENDED USE

The Beacon Aflatoxin M1 Plate Kit is a competitive ELISA for the quantitative analysis of Aflatoxin M1 in contaminated samples, such as fresh milk and milk powder.

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## USE PRINCIPLES

The Beacon Aflatoxin M1 plate kit is a competitive enzyme-labeled immunoassay. Sample extract and calibrators are pipetted into the test wells followed by Aflatoxin M1 HRP conjugate into the test wells to initiate the reaction. During this incubation period, Aflatoxin M1 from the sample and Aflatoxin M1 HRP conjugate compete for binding to Aflatoxin M1 antibody. Following this incubation, the contents of the well are removed and the wells are washed to remove any unbound Aflatoxin M1 and Aflatoxin M1 HRP conjugate. After wash, 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 the amount of color in each well is read. The color of the unknown samples is compared to the color of the calibrators and the Aflatoxin M1 concentration of the samples is derived.

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## MATERIALS PROVIDED

The kit in its original packaging can be used until the end of the month indicated on the box label when stored at 2 – 8°C.

- 1 plate containing 12 test strips of 8 wells each vacuum-packed in aluminized pouch with indicating desiccant.
- 1 vial of Negative control (0.0 ppb Aflatoxin M1)
- 5 vials each containing 2 mL of Aflatoxin M1 calibrators corresponding to 1.5, 3.0, 10, 30 and 100 ng/L (ppt) of Aflatoxin M1.
- 1 vial containing 12 mL Aflatoxin M1 HRP Enzyme Conjugate.
- 1 vial containing 14 mL of Substrate.
- 1 vial containing 14 mL of Stop Solution. (Caution! 1N HCl. Handle with care.)
- 1 bottle containing 50 mL 10X Wash solution concentrate.

### You also need these items:

- Laboratory quality distilled or deionized water.
  - Pipet with disposable tips capable of dispensing 50 µL.
  - Multi-channel pipet; 8 channel capable of dispensing 50 and 100 µL.
  - Paper towels or equivalent absorbent material.
  - Micro well plate or strip reader with 450 nm filter.
  - Timer
  - Wash bottle
  - Microcentrifuge and tubes ( Ex. Eppendorf , centrifuge model 5415C)
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## PERFORMANCE CHARACTERISTICS

### SPECIFICITY

The following table shows the % cross reactivity of Aflatoxin M1.

Compound	% CR
Aflatoxin M1	100 %
Aflatoxin M2	11 %

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### PRECAUTIONS

- Store all kit components at 4°C to 8°C (39°F to 46°F) when not in use.
- Each reagent is optimized for use in the Beacon Aflatoxin M1 Plate Kit. Do not substitute reagents from any other manufacturer into the test kit. Do not combine reagents from other Beacon Aflatoxin M1 Plate Kits with different Lot numbers.
- Dilution or adulteration of reagents or samples not called for in the procedure may result in inaccurate results.
- Do not use reagents after expiration date.
- Reagents should be brought to room temperature, 20 – 28°C (62 – 82°F) prior to use. Avoid prolonged (> 24 hours) storage at room temperature.
- Aflatoxin M1 is a toxin and should be treated with care.
- 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.
- Transfer of samples and reagents by pipette requires constant monitoring of technique. Pipetting errors are the major source of error in immunoassay methodology.

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### SAMPLE PREPARATION

#### A) Dry powder milk

1. Weigh out 3 grams of dry powder milk into a clean container and add 30 mL of laboratory grade water.
2. Vortex gently for 2 minutes to dissolve the powder completely.
3. Transfer 1.2-1.4 mL (per tube) of the reconstituted milk sample into two clean microcentrifuge tubes. Centrifuge for 5 minutes at 12,000 rpm.
4. Carefully transfer the middle liquid layer from the two tubes into a clean glass tube. Avoid the top lipid layer and mix the contents well.
5. Use 100 µL per well in the assay.

#### B) Fresh milk (raw milk)

Start the sample preparation from step 3 above

\*Proper dilution is based on level of contamination.

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## ASSAY PROCEDURE

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

1. Prepare the 1X wash solution by adding the contents of the 10X wash concentrate bottle to 450 mL Lab grade water in a wash bottle.
2. Allow reagents and sample extracts reach room temperature prior to running the test.
3. Place the appropriate number of test wells and into a micro well holder. Be sure to re-seal unused wells in the zip-lock bag with desiccant.
4. Using a pipet with disposable tips, add 100 µL of Calibrators or Sample extract to the appropriate test wells. Be sure to use a clean pipet tip for each.
5. Shake the plate gently for 30 seconds and incubate the test wells for 30 minutes. **Do NOT wash wells before adding the enzyme conjugate.**
6. Add 100 µL of enzyme conjugate to each well.
7. Shake the plate gently for 30 seconds and incubate the test wells for 15 minutes
8. Decant the contents of the wells into an appropriate waste container. Fill the wells to overflowing with wash solution and dump. Repeat 3X for a total of four washes.
9. Following the last wash tap the inverted wells onto absorbent paper to remove the last of the wash solution.
10. Dispense 100 µL of Substrate into each well.
11. Incubate the wells for 30 minutes.
12. Dispense 100 µL of Stop Solution into each test well.
13. Read and record the absorbance of the wells at 450nm using a strip or plate reader.