

VICAM AFLA-V AQUA QUANTITATIVE AFLATOXIN TEST KIT

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GENERAL INFORMATION

Afla-V AQUA is VICAM's rapid lateral flow strip test for the quantitation of total aflatoxins in the range of 5-300 parts per billion (ppb) using an aqueous based extraction solution.

The instructions presented in this document cover only the procedure for performing the analytical test for official inspections. For questions regarding this procedure, contact Dr. Ajit Ghosh of the Technology and Science Division by phone at 816-891-0417 or email at Ajit.K.Ghosh@usda.gov.

Refer to the current policies and/or instructions issued by the Policies, Procedures, and Market Analysis Branch (PPMAB) of the Field Management Division for information on use of this test kit in official inspections including sampling, general sample preparation (e.g., grinding and dividing), reporting and certification of the test results, laboratory safety, and hazardous waste management. For questions regarding these policies and/or instructions, contact Patrick McCluskey of PPMAB by phone at 816-659-8403 or email at Patrick.J.McCluskey@usda.gov.

Approved Test Kit Information

Test Kit Vendor:	VICAM, A Waters Business, 1-800-338-4381 or 508-482-4935
Test Kit Name:	Afla-V AQUA
Effective Date of Instructions:	5/18/2016
Instructions Revision Number:	0
Conformance Range:	5-300 ppb
Number of Analyses to Cover Conformance Range:	2
Type of Service:	Quantitative
Approved Commodities:	Corn (including dent or field corn, corn meal, corn flour, cracked corn, corn grits or polenta, and corn screenings).
Extraction method:	Stir 50 gram sample with 250 milliliters (mL) of Afla-V AQUA premix solution for 2 minutes
Test Format:	Lateral Flow strip
Detection Method:	Vertu Reader

PREPARATION OF TESTING MATERIALS

- a. Turn on the power for Vertu incubator. Pre-set temperature at 30°C and let warm up until 30°C is displayed on the incubator.
- b. Turn on the Vertu reader by pressing the center key. Using the arrow keys, move the cursor to "measure" on the display, then press the center key. You will then hear 3 beeps.
- c. Calibrate the Vertu reader daily or whenever a new test strip lot is used by scanning in the bar code provided with each lot of test strips. You will hear a beep when the bar code is

accepted. Make sure the lot number displayed on the reader is the same lot number as the strips and is for the Afla-V AQUA incubation method at 30°C.

SAMPLE PREPARATION AND EXTRACTION PROCEDURES

Standard Extraction Procedure for Corn (including dent or field corn, corn meal, corn flour, cracked corn, corn grits or polenta, and corn screenings):

- a.** Using a graduated cylinder, transfer 250 mL of AQUA Premix solution to an extraction cup containing a stirrer bar. Place the cup on a magnetic stir plate and begin to stir.
- b.** While the liquid in the cup is stirring, slowly add 50 gram ($\pm 0.2g$) of ground sample with increasing stirring speed.
- c.** Stir the sample for 2 minutes at maximum speed, making sure that no solid sample rests on the bottom of the cup and a vortex is visible.
- d.** Filter the extract using Afla-V fluted filter paper (VICAM product#31240) into a clean extraction tube. This filtered extract can be used within 4 hours.

TEST PROCEDURES

a. Test Procedure for 5 to 50 ppb Quantitation Range:

- (1)** Place a test strip vial in the rack and add 100 μ l of the AFLA-V diluent.
- (2)** Transfer 100 μ l of the extract to the vial. Cover and mix well by vortexing.
- (3)** Place above vial from step **(2)** and an AFLA-V strip cassette (circular opening side in first), into the Vertu-incubator. Close the incubator plastic cover and incubate at 30°C for 4 minutes.
- (4)** Transfer 100 μ l of the pre-warmed solution from step **(3)** to the circular opening on the pre-warmed AFLA-V strip cassette at a rate of about 1 drop per second. Be sure to hold the pipet vertically. The pipet tip can touch the bottom of cassette.
- (5)** Close the incubator plastic cover and allow the test strip to develop at 30°C for 4 minutes.
- (6)** Insert the AFLA-V test strip into the Vertu reader (circular opening side in first).
- (7)** Press the center key on the reader to take a reading.
- (8)** To print the result, move the cursor to "P" in the upper left hand corner of the display using the arrow keys then press the center key.
- (9)** To run the next sample, move the cursor to "NT" using the arrow keys and press

the center key. If you are using the same lot of strips, you are now ready to insert the next sample. If you are using a different lot of strips, you will need to scan in the new bar code.

b. Test Procedure for 50-300 ppb Quantitation Range:

- (1) If the reader displays "> Range" for an undiluted sample, dilute the sample extract from step **d** (of Standard Extraction Procedure for Corn) one to ten with AQUA premix solution (100 μ L extract + 900 μ L AQUA premix) and analyze the diluted extract according to steps (1) to (9) of Test Procedure for 5 to 50 ppb Quantitation range, above.
- (2) The reading obtained will need to be multiplied by the dilution factor (x 10) to obtain the final result.

REPORTING AND CERTIFYING TEST RESULTS

Refer to the current instructions issued by the Policies, Procedures, and Market Analysis Branch of the Field Management Division for reporting and certification of test results. For questions regarding these instructions, contact Patrick McCluskey (816-659-8403 or Patrick.J.McCluskey@usda.gov).

STORAGE CONDITIONS AND PRECAUTIONS

a. Storage Conditions:

Test strips must be stored refrigerated (4° - 8° C) and brought to room temperature before use (may take about 45 minutes).

b. Precautions:

- 1) Prolonged exposure of the test strips to high temperatures may adversely affect the test results.
- 2) Do not open the test strip package until ready to use the strips.
- 3) Do not run test in a location where air from an air conditioner, heater, or window will blow directly on strips.
- 4) All strips should have a visible control line.
- 5) Press the center button on the keypad quickly and gently to read samples. Pressing the center button on the keypad long and hard will turn the instrument off.

EQUIPMENT AND SUPPLIES

a. Supplied with Afla-V AQUA Kit (25 tests) part #176003520.

- (1) Afla-V Strips (25)

- (2) Afla-V Diluent, 6 mL
- (3) Micro-Pipette Tips, 100 µL
- (4) Test Strip Vials, 1.5 mL
- (5) Filter Paper
- (6) Extraction Tubes, 40 mL
- (7) Afla-V AQUA Barcode
- (8) Afla-V AQUA Instruction Guide

b. Equipment and Materials Needed but not Supplied with the Test Kit

- (1) Vertu Reader, 110V & 220V with barcode scanner, part #725000574
- (2) Custom V-incubator w/block, 110V & 220V, part#600001330
- (3) Vertu Printer, 110V & 220V, part #725000577
- (4) Magnetic stir plate, part #600001566
- (5) Digital Timer, part #G4036
- (6) Micro-Pipettor, 100 µL, part #600001108
- (7) Filter Funnel, 65 mm, (10 pack), part#36020
- (8) Strip Test Vial Rack, part #600001107
- (9) Graduated Cylinder, 250 mL, part #20250
- (10) Afla-V AQUA premix, part#100000339
- (11) Extraction cups (25/pack), part #600001568
- (12) Stirrer bar (1 each), part #600001567

REVISION HISTORY

Revision 0 (05/18/2016)