

# Test Kit Instruction

August 8, 2019

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## VICAM Afla-V AQUA

### FORWARD

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](mailto:Ajit.K.Ghosh@usda.gov).

Refer to the Mycotoxin Handbook 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 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](mailto:Patrick.J.McCluskey@usda.gov).

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## 1. 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.

### Approved Test Kit Information

<b>Test Kit Vendor:</b>	<i>VICAM, A Waters Business, 1-800-338-4381 or 508-482-4935</i>
<b>Test Kit Name:</b>	Afla-V AQUA
<b>Product Number:</b>	176003991
<b>Effective Date of Instructions:</b>	08/08/2019
<b>Conformance Range:</b>	5.0–300 ppb
<b>Number of Analyses to Cover Conformance Range:</b>	2
<b>Type of Service:</b>	Quantitative
<b>Approved Commodities:</b>	Corn (including dent or field corn, corn meal, corn flour, cracked corn, corn grits or polenta, and corn screenings).
<b>Extraction method:</b>	Blend 50 gram sample with 250 milliliters (mL) of Afla-V AQUA premix solution for one minute.
<b>Test Format:</b>	Lateral Flow strip
<b>Detection Method:</b>	Vertu Reader

## 2. 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.

## 3. 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. Add 50 gram ( $\pm 0.2$ g) of ground sample to the blender jar.
- b. Using a 250 mL graduated cylinder, transfer 250 mL of Afla-V AQUA premix solution to the blender jar containing the sample.
- c. Place the blender jar on the blender base and blend the sample for 1 minute at maximum speed.
- d. Filter the extract using Afla-V fluted filter paper (VICAM product#31240) into a clean extraction tube for no longer than 5 minutes. This filtered extract can be used within 4 hours.

## 4. TEST PROCEDURES

- a. Test Procedure for 5 to 50 ppb Quantitation Range.
  - (1) Place a test strip vial in the rack and using a 100  $\mu$ L pipette, add 100 $\mu$ L of the Afla-V diluent.
  - (2) Using a 100  $\mu$ L pipette, transfer 100  $\mu$ L of the filtered extract to the vial. Cover and mix well by vortexing.
  - (3) Place an Afla-V strip into the incubator
  - (4) Using a 100  $\mu$ L pipette, transfer 100  $\mu$ l of the solution from step (2) to the circular opening on the 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 5 minutes.
- (6) Insert the Afla-V test strip into the Vertu reader (circular opening side in first) immediately.
- (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 Afla-V AQUA premix solution (100 µL filtered extract + 900 µL Afla-V AQUA premix solution) 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.

## 5. REPORTING AND CERTIFYING TEST RESULTS

Refer to the Mycotoxin Handbook for reporting and certification of test results. For questions regarding these instructions, contact Patrick McCluskey (816-659-8403 or [Patrick.J.McCluskey@usda.gov](mailto:Patrick.J.McCluskey@usda.gov)).

## 6. 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.

## 7. EQUIPMENT AND SUPPLIES

### a. Supplied with Afla-V AQUA Kit (25 tests) part#176003991.

- (1) Afla-V Strips (25)
- (2) Afla-V Diluent, 6 mL
- (3) Micro-Pipette Tips, 100  $\mu$ L
- (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. (VICAM part numbers listed)

- (1) Vertu Reader, 110V & 220V with barcode scanner, part #725000574
- (2) Complete Mini Incubator, 110V, part#176003201
- (3) Vertu Printer, 110V & 220V, part #725000577
- (4) Blender W/Stainless Steel 1QT Jar, 110V part #20200
- (5) Digital Timer, part #G4036
- (6) Micro-Pipettor, 100  $\mu$ L, 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 solution, part#100000339
- (11) Vortex mixture, part#23040
- (12) Micro-Pipettor, 100 - 1000 $\mu$ L, part #600001360

(13) Micro-Pipette Tips, 1000  $\mu$ L, part #20658

(14) Micro-Pipette Tips, 100  $\mu$ L, part #600001109

(15) Fluted Filter paper, part #31240

## **REVISION HISTORY**

Effective: 08/08/2019