

# Test Kit Instruction

August 21, 2018

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## TEST KIT INSTRUCTIONS VICAM FUMO-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@ams.usda.gov](mailto:Ajit.K.Ghosh@ams.usda.gov).

Refer to the Mycotoxin Handbook for information on use of this test kit in official inspections including sampling, general sample preparation, reporting and certification of test results, laboratory safety, and hazardous waste management. For questions regarding these policies and/or instructions, contact Patrick McCluskey of PPMB by phone at 816-659-8403 or email at [Patrick.J.McCluskey@ams.usda.gov](mailto:Patrick.J.McCluskey@ams.usda.gov).

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## 1. GENERAL INFORMATION

Fumo-V AQUA is VICAM's rapid flow lateral strip test for the quantification of total fumonisins in the range of 0.50 -30 parts per million (ppm) 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>	Fumo-V AQUA
<b>Product Number:</b>	176004175
<b>Effective Date of Instructions:</b>	8/21/2018
<b>Conformance Range:</b>	0.50-30 ppm
<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 Fumo-V AQUA premix solution for 1 minute
<b>Test Format:</b>	Lateral flow strip
<b>Detection Method:</b>	Vertu Reader, Model Vertu

## **2. PREPARATION OF TESTING MATERIALS AND EQUIPMENT**

- a. Turn on the power for the Vertu incubator. Pre-set temperature to 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 “scan” on the display, and then press the center key. You will then hear 3 beeps and see “measure” highlighted on the display.
- c. Calibrate the Vertu reader daily or whenever a new test strip lot is used by scanning in the barcode provided with each lot of test strips. You will hear a beep when the code is accepted. Make sure the lot number displayed on the reader is the same lot number as the strips and is for the Fumo-V AQUA incubation method at 30°C. Bar code will have “G” in the name.
- d. Remove from the refrigerator only the number of strip packets to be used that day, and let them equilibrate to room temperature for about 45 minutes. Do not open packets until ready to run the test.

## **3. SAMPLE PREPARATION AND EXTRACTION PROCEDURES**

### **Extraction procedures for corn (including dent or field corn, corn meal, corn flour, cracked corn, corn grits or polenta, and corn screenings)**

- a. Weigh 50 grams ( $\pm 0.2\text{g}$ ) of ground sample into a 1-quart stainless steel blender jar.
- b. Add 250 mL AQUA premix solution to the blender jar.
- c. Blend the sample for 1 minute at high speed.
- d. Pour most or all of the extract into a funnel lined with VICAM fluted filter paper (product # 600001522), and filter into a clean extraction cup. Do not filter for longer than 5 minutes. This filtered extract can be used within 2 hours, if kept in a closed container.

## **4. TEST PROCEDURES**

### **a. Test Procedure for 0.50-18 ppm Quantitation Range**

- (1) Place a test vial in the rack and add 200  $\mu\text{L}$  (add 100  $\mu\text{L}$  twice using a 100  $\mu\text{L}$  pipettor) of filtered extract. Cap vial.
- (2) Open the strip test packet and remove the Fumo-V cartridge. Place the vial from step (1) and the cassette into the Vertu incubator. Close the plastic incubator cover and incubate at 30°C for 3 minutes.

- (3) Transfer 100 µL (using a 100 µL pipettor) of the pre-warmed extract from step (2) to the circular opening on the pre-warmed Fumo-V strip cassette. Do not remove the strip test vial or cassette from the incubator. Dispense at a rate slightly faster than 1 drop per second, so that the entire addition takes less than 15 seconds. Be sure to hold the pipette vertically. The pipette tip can touch the bottom of the cassette.
- (4) Close the incubator cover, develop the strip at 30°C for exactly 7 minutes, and quickly insert the Fumo-V cassette into the Vertu reader (circular opening side in first). Press the center key on the reader to take a reading.
- (5) The result will be displayed on the screen. To print the result, move the cursor to "P" in the upper left hand corner of the display using the arrow keys and then press the center key.
- (6) 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 barcode.

**b. Test Procedure for 18-30 ppm Quantitation Range**

- (1) If the reader displays "> Range", dilute the filtered extract (from step 3.d) fivefold with AQUA premix solution. Pipet 400 µL (using 1000 µL adjustable pipettor set at 400 µL) of AQUA premix to a strip test vial and then add 100 µL filtered extract (using a 100 µL pipettor) to the vial. Vortex for few seconds to mix well.
- (2) Follow steps (1)-(6) of the Test Procedure for the 0.50-18 ppm quantitation range, above, to analyze the diluted extract.
- (3) Multiply the displayed result on the reader by the dilution factor (X5) to obtain the true level of contamination.

## **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@ams.uds.gov](mailto:Patrick.J.McCluskey@ams.uds.gov)).

## **6. STORAGE CONDITIONS AND PRECAUTIONS**

**a. Storage Conditions.**

- (1) Test strips must be stored refrigerated (2° - 8°C) and brought to room temperature before use (may take about 45 minutes). Only remove the strips needed for the day from the refrigerator.

**b. Precautions.**

- (1) Prolonged exposure of the test strips to high temperatures may adversely affect the test results. Protect strips from direct sunlight.
- (2) Do not open the test strip package until ready to use the strips.
- (3) Do not run tests 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.
- (6) Do not filter the extract for more than 5 minutes.
- (7) Read the strip as soon as the 7 minute incubation is completed.

**7. EQUIPMENT AND SUPPLIES**

**a. Supplied with Fumo-V AQUA Kit (25 tests) part #176004175**

- (1) Fumo-V Strips (25)
- (2) Micro-Pipette Tips, 100 µL
- (3) Fluted Filter Paper
- (4) Strip Test Vials
- (5) Extraction cups
- (6) Fumo-V AQUA FGIS Barcode
- (7) Fumo-V AQUA FGIS Instructions

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

- (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 1 QT. Jar, 110V, part #20200

- (5) Digital Timer, part #G4036
- (6) Micro-Pipettor, 100 µL, part #600001108
- (7) 1mL Adjustable Pipettor (100-1000µL), part #600001360
- (8) Filter Funnel, 105 mm (4 pack), part #36022
- (9) Strip Test Vial Rack, part #600001107
- (10) Graduated Cylinder, 250 mL, part #20250
- (11) AQUA Premix Solution, 4L, part #100000345
- (12) AQUA Premix Solution, 20L, part #100000347
- (13) Strip Test Vials (for sample >18 ppm), part #600000813
- (14) Extra Stainless Steel 1 Qt. Blender Jar, part #20213
- (15) Micro-Pipette Tips for 1mL Adjustable Pipettor (100-1000µL), pack of 100,  
part #20656

## **8. REVISION HISTORY**

### **Effective 8.21.2018**

Certificate was issued on 8.21.2018