NORTH CAROLINA DEPARTMENT OF AGRICULTURE
AND CONSUMER SERVICES
MEAT AND POULTRY INSPECTION DIVISION
Raleigh, North Carolina

Steve Troxler, Commissioner

MPID NOTICE	**2-26**	**2-11-2026**

INSTRUCTIONS FOR PERFORMING KIS™ TESTS IN STATE PLANTS WITH THE CHARM VIAL INCUBATOR

I. PURPOSE

This notice provides inspection program personnel (IPP) instructions on using the four-hole Charm vial incubator provided in some State-inspected slaughter establishments for performing Kidney Inhibition Swab (KIS™) tests.

II. REFERENCE

FSIS Directive 10,800.2 dated 2/14/22, FSIS KIS Test Instructions dated July 2010

III. PROCEDURES

A. Charm Vial Incubator – Setup Instructions



1. Plug in the Charm Vial Incubator using the mini-USB cable and power supply provided with the unit. The LED on the device near the power cord will blink green.

2. Allow the device to heat for approximately 20 minutes. The green LED will convert from blinking to solid when operating temperature (64 °C) is reached.



3. Once the green LED remains solid, the device is ready to use.

B. KIS™ Test Supplies

1. The following supplies are needed to perform KIS™ testing:

   a. Heating Block (Charm Vial Incubator as used in State-inspected plants)
   b. KIS™ Test Devices
   c. Deionized or Distilled Water
   d. Negative Control Tablets
   e. Small bottle for reconstituting the negative/kidney control tablets in deionized or distilled water
   f. Pipette for delivering 1 mL of deionized or distilled water into the small bottle
   g. Timer
   h. Ink Pen/Permanent Marker
   i. A test tube rack or something similar for holding the KIS™ Test devices



2. If general supplies are needed to perform testing (i.e., permanent markers, a test tube rack), please contact your Area Supervisor.

3. If KIS™ test supplies (i.e., swabs, kidney negative control tablets, small bottle, distilled or deionized water) are needed for your location (i.e., supplies have been depleted or are expired), please contact the Regional Veterinary Medical Officer assigned to the establishment.

C. KIS™ Test Instructions when using the Charm Vial Incubator

1. Preparing and Storing the Negative Control Solution

   a. A KIS™ Test device designated as the Negative Control Swab must be analyzed alongside each batch of KIS™ Tests run.

   b. Make the negative control solution by adding 1 kidney negative control tablet and 1 mL of distilled or deionized water to the small bottle provided and shake it for 10 seconds.

   c. Allow the solution to sit and shake it again after 5 minutes to ensure the tablet is dissolved.

   d. Use a permanent marker to label the vial with the date the solution was made. The negative control solution can be stored under refrigeration and used for up to 5 days.

2. Preparation of the KIS™ Test Devices for Testing

   See Attachment 1: KIS™ Test Device Description for a description of the parts of a KIS™ test device.

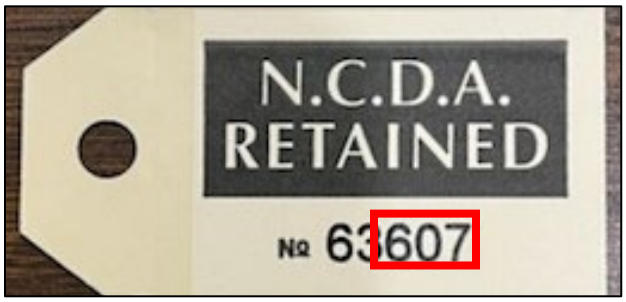
a. For each whole carcass selected for KIS™ testing, one kidney from that carcass will be tested. Remove from the packaging the number of KIS™ Test devices that correspond to the number of kidneys to be tested. You will need one additional KIS™ Test device to designate as Negative Control. For example, if two carcasses were identified for a KIS™ test, you would need a total of 3 KIS™ Test devices.

NOTE: The Charm Vial Incubator has the capacity to run 1 negative control device and 3 sample devices at one time. If there are more than 3 kidneys to be tested, additional batches can be prepared and run after the completion of the first cycle. Each additional batch will require a newly prepared Negative Control device.

b. Label each device with a unique identifier using a permanent marker.

i. Label the Negative Control device as “Negative Control.”

ii. Label each KIS™ Test device corresponding to the kidney tested by writing at least the last 3 digits of the N.C.D.A Retained Tag number.



c. Prior to swabbing, especially if you have multiple kidneys to test, it is helpful to loosen the caps on the KIS™ Test devices and line up the kidneys in the order to be tested, the same order as the devices. Use a test tube rack for storing multiple KIS™ Test devices while preparing and analyzing samples.

3. Utilizing the KIS™ Test devices for Testing the Kidneys

a. Ensure the N.C.D.A Retained Tag number written on the KIS™ Test device corresponds to the N.C.D.A Retained Tag number associated with the kidney being tested.

b. Next, remove the cap containing the swab off of the KIS™ Test device and use the cookie cutter end of the tube housing to make a circular cut into the kidney (approximately ½ inch deep).

c. Place the cotton tip end of the swab into the cut area and swirl it around for approximately 30 seconds or until the cotton tip is fully saturated with kidney fluid. If the cotton tip then has any remaining whitish area, reinsert the cotton

tip end of the swab in the cut area to cover those areas with kidney fluid. In the rare event any particulates are on the cotton tip, carefully remove them avoiding any contamination of the swab.

d. Place the swab back into the corresponding labeled tube housing, but do not pierce the top foil of the vial yet. Place the labeled device back in the test tube rack.

e. Repeat steps 1 through 4 in this section for each kidney to be tested.

4. Preparation of the KIS™ Test Devices for Incubation

a. For the KIS™ Test device labeled as the Negative Control, remove the cap containing the swab from the tube housing and place it into the negative control solution for 10 seconds. Place the swab back into the negative control tube housing, but do not pierce the top foil of the vial yet. Place the labeled device back in the test tube rack.

b. Next, using the corresponding swab(s) prepared in Step 3 above, pierce the top foil on each sample vial and the Negative Control vial. Hold the KIS™ Test device upright, and while pressing downward, slowly activate by engaging the cap with tube housing threads into the tube body. Screw the swab down halfway so that the swab only pierces through the top foil seal and goes into the clear liquid but not through the bottom foil. Refer to Attachment 1 for help identifying the components of the device.



NOTE: Care should be taken to avoid piercing the bottom seal. If the bottom seal is accidentally pierced, screw the swab completely down and wait two minutes. The test is still viable.

c. Start the two-minute timer. Repeat above for all the swabs. Each swab should sit in the top clear liquid layer for two minutes before moving to the next step.

d. After the two minutes are up, completely screw down the swab so it is directly above the purple agar. Hold the KIS™ Test device vertically and lightly tap 5 times on a hard surface to force any residual liquid down on top of the purple agar.



e. Retract the KIS™ Test device swab by twisting the cap counterclockwise until you can no longer twist the device and lightly tap the vial 5 times again. You should see fluid on top of the purple agar. Repeat for all swabs to be tested.



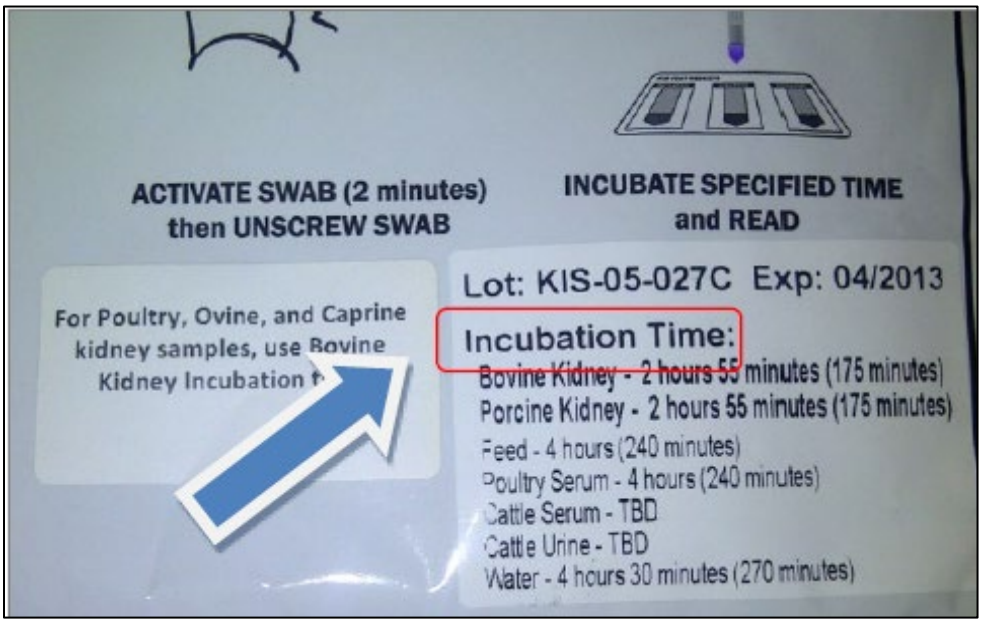


5. KIS™ Test Devices Incubation Protocol when using the Charm Vial Incubator

   a. Insert the Negative Control and all the KIS™ Test devices into the incubator. If the lower vials have become loose, tighten and secure in the tube housing before being inserted into the heating block.

   b. Remove the KIS™ Test devices and Negative Control when the time indicated on the KIS™ Test device package label has been reached. Allow the tests to cool by placing them in the test tube rack to maintain an upright position (i.e., the same position they were in while in the Charm Vial Incubator) for a few minutes prior to determining the results. ***Remember to unplug the incubator once the KIS™ Test devices are removed from the incubator. The machine will remain on indefinitely if not un-plugged and could create a fire hazard.***

   NOTE: Incubation times can be different for each species. Also, incubation times can vary for each lot of testing supplies. See the image below for an example of a KIS™ Test device package label with incubation times. Always reference the label to know how long to incubate the swabs. In the unlikely event you have identified multiple species that need a KIS™ Test run on the same day and the incubation times are different, consult your Supervisor for further guidance.



   NOTE: The procedures in the KIS™ Test Instructions Booklet from FSIS for establishments utilizing the Digital Dry Block Incubator require you to subtract 15 minutes from the time on the label above when utilizing the automatic shut-off feature on the device to allow for a cool-down period of the incubator and the inserted KIS™ Test devices (also known as the Timed Mode). The Charm Vial Incubator does not require this time adjustment.

c. Once the devices have cooled, approximately 10-15 minutes, you can interpret the results for each device. See Attachment 2: Interpreting KIS™ Test Results when making a positive or negative determination.

IV. ADDITIONAL RESOURCES

A. The following reference materials were used in the development of these instructions:

- KIS™ Test Instructions by the United States Department of Agriculture, Food Safety Inspection Service, July 2010
- How To Perform a KIS Test Video by USDA-FSIS on IPP Help

B. The following reference materials are also useful in learning more about KIS™ testing, scheduling directed residue sampling tasks in response to a positive KIS™ result, etc.

- FSIS Directive 10,800.1: Residue Sampling, Testing and Other Verification Procedures under the National Residue Program for Meat and Poultry Products
- FSIS Directive 10,800.2: Residue Sampling and Testing Under the National Residue Program for Meat and Poultry Products

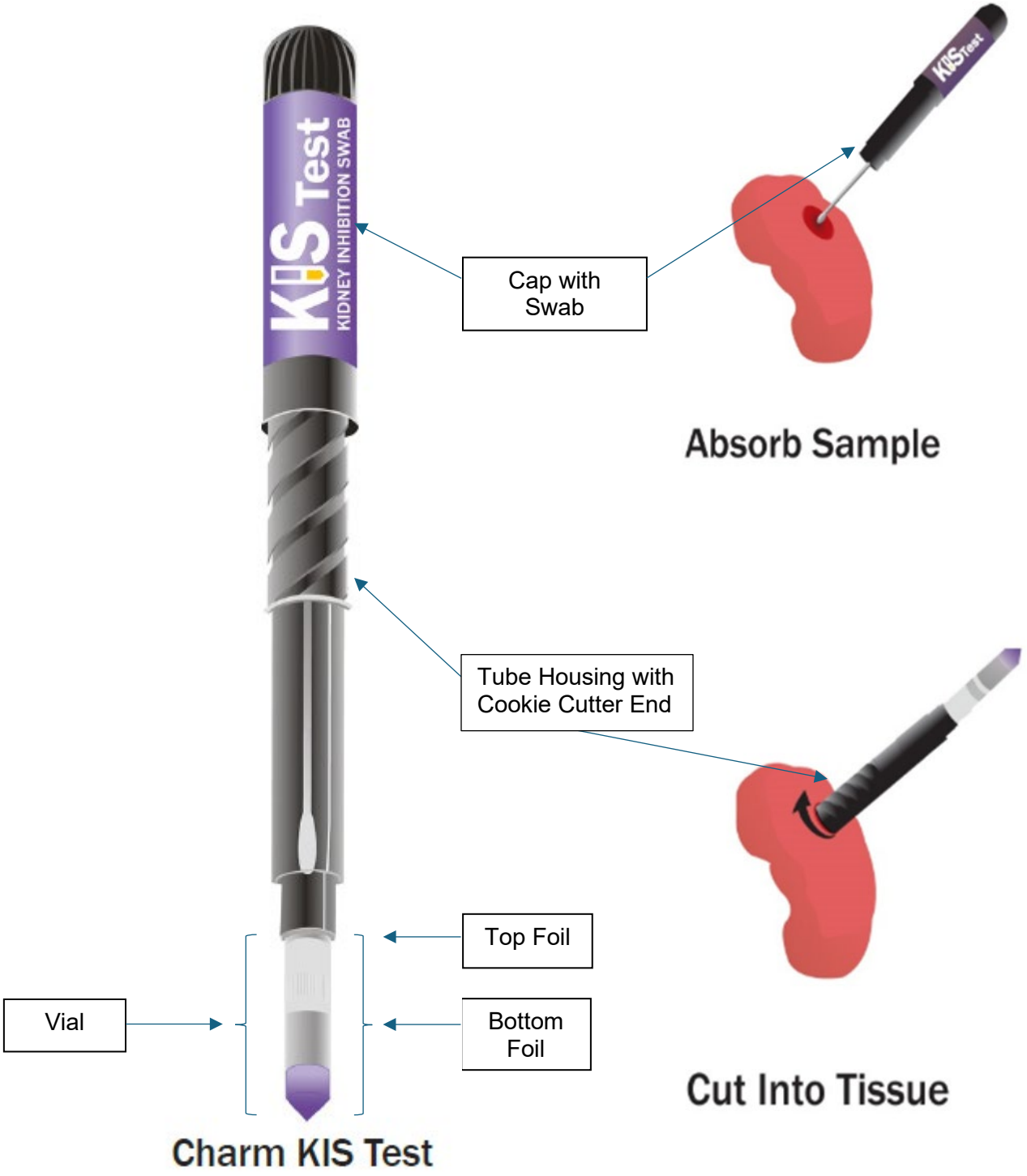
V. ADDITIONAL INFORMATION

If you have any questions or need additional information, contact your supervisor.

Dr. Karen Beck
State Director

DISTRIBUTION:	**SUBJECT CATEGORY:**
MPID In-Plant, Supervisory Personnel, Veterinarians	Slaughter

Attachment 1: KIS™ Test Device Description



Attachment 2: Interpreting KIS™ Test Results

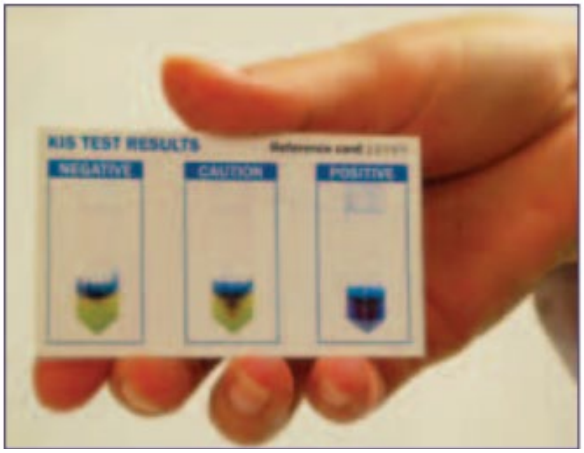
Read results under cool white, fluorescent light and compare them to the color chart below. Do not read color under direct sunlight. The Negative Control swab must be yellow for the sample results to be considered valid.



- Yellow or yellow/green colors are **negative**.



- Blue/purple colors are **positive**. Assure purple color throughout vial.



- Yellow or yellow/green in lower half of vial with blue/purple or brown in upper half of vial are **CAUTION**. These samples **shall** be interpreted as **negative since there is not a consistent blue/purple color throughout the tube**.