

*Read instructions carefully before starting test*

# Reveal<sup>®</sup> for Sheep

**For the qualitative detection of raw sheep meat**

*REFRIGERATE AT 2–8°C (35–46°F) • DO NOT FREEZE*

## **SPECIES IDENTIFICATION**

Preventing adulteration is important for economic, regulatory, health, and ethical reasons. The identification of species is performed to assure consumers that the products they purchase are safe, wholesome, and properly labelled.

## **INTENDED USE**

Reveal<sup>®</sup> for Sheep is an immunochromatographic lateral flow assay used for the rapid, qualitative detection of sheep meat in raw meats and processed raw meat products, such as sausages or burgers. The test can detect as little as 0.5% sheep meat in a non-target meat matrix.

Reveal for Sheep is intended for use by quality control personnel or other personnel familiar with handling meat samples only in an industrial food manufacturing or preparation context. Because of the problems of adequate sampling and extraction of meats, it is not suitable for the testing of foods to be consumed in the home or in a restaurant by consumers.

## **LIMIT OF DETECTION**

The test is highly sensitive and specifically designed to screen for low levels of raw sheep in raw sheep or raw meat products. The limit of detection of the test is 0.5% raw sheep meat in a non-target raw meat matrix.

Using environmental swabs, levels of 150 µg/100 cm<sup>2</sup> of sheep protein can be detected.

When analyzing rinses, sheep protein residues are detectable at a level of 100 µg/mL. The presence of cleaners and sanitizers can affect limit of detection (LOD) in rinses.

Reveal for Sheep has been tested on a panel of raw meat cross-reactants. Cross-reactivity is expected in raw meat from the ovine family. No cross-reactivity against meat from non-target species such as horse, pork, poultry, or beef was observed. The Reveal for Sheep validation report is available on request; please contact your NEOGEN<sup>®</sup> representative.

## **ASSAY PRINCIPLES**

Reveal® for Sheep is a single step lateral flow immunochromatographic assay. The sample extract is wicked through a reagent zone, which contains antibodies specific for sheep serum albumin proteins conjugated to coloured particles. If sheep serum albumins are present, they will be captured by the conjugated antibodies. The sheep antibody particle complex is then wicked onto a membrane that contains a zone of antibody specific for sheep proteins. This zone captures the complex, allowing the particles to concentrate and form a visible line. If no sheep is present, no line will form. The membrane also contains a control zone where an immune complex present in the reagent zone is captured by an antibody, forming a visible line. The control line will always form regardless of the presence of sheep, ensuring the strip is working properly.

## **MATERIALS PROVIDED**

1. 10 Reveal for Sheep lateral flow test strips
2. 10 clear sample cups
3. 10 vials of sample diluent
4. 10 disposable 100 µL fixed volume pipettes
5. 10 disposable 200 µL fixed volume pipettes

## **MATERIALS REQUIRED BUT NOT PROVIDED**

1. Extraction containers to contain 10 mL deionized or distilled water for extraction
2. Deionized or distilled water
3. Reveal sample cup rack (NEOGEN® item 9475)
4. Timer (NEOGEN item 9426)
5. Mincer or knife to finely chop sample
6. Scale capable of weighing 0.5–400 g ± 0.1 g (NEOGEN item 9427)
7. Measuring cylinder capable of measuring 10 mL
8. Reveal for Meat Speciation Swabbing Kit (NEOGEN Item 9541, contains 50 swabs)

## **STORAGE**

Store kit components refrigerated at 2–8°C (35–46°F) to ensure full shelf life. Do not freeze. Test strips should remain capped in their original sample tubes until used to ensure optimal performance.

## **LIMITATIONS**

A negative test cannot exclude the possibility that the food contains sheep since it may be distributed unevenly in the food product and may be below the detection limit of the test with that specific sample.

Reveal for Sheep is a qualitative test and should only be used as a preliminary screen for the presence of raw sheep. This test is not suitable for cooked meats. Due to variations in processing, cured and fermented meat products should be validated prior to routine use. The validity of results obtained with the test should preferably be viewed in conjunction with data from an alternative method, such as an enzyme-linked immunosorbent assay (ELISA) or polymerase chain reaction (PCR).

## PRECAUTIONS

1. The test strips must remain inside the stay dry tube before use.
2. Store test kit refrigerated at 2–8°C (35–46°F) when not in use. Do not freeze.
3. Remove test kits and allow to equilibrate at room temperature (18–30°C, 64–86°F) before use (20–30 minutes out of refrigerator).
4. Do not use kit contents beyond expiration date.
5. Gloves and other protective apparel should be worn at all times to handle raw meat and during test procedure.
6. To avoid cross-contamination, use clean pipettors, extraction container, and sample diluent vial for each sample.

## EXTRACTION PROCEDURE FOR RAW MEAT SAMPLES

The sample should be collected according to accepted sampling techniques.

1. Obtain a representative meat sample. Mince or finely chop meat sample until homogenous.
2. Add 1 g prepared meat sample to 10 mL of distilled or deionized water.  
**Note:** Following validation, extraction of larger sample sizes may be applicable when using an extraction ratio of 1 part meat sample to 10 parts distilled or deionized water.
3. Vigorously shake for 1 minute.
4. Use the sample supernatant as the sample extract for testing.
5. Discard extracts after completion of analysis.

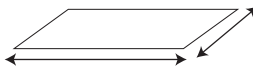
## TEST PROCEDURE FOR RAW MEAT SAMPLES

1. Take the appropriate number of sample diluent vials and sample cups from the test kit. Label the cups and the vials on the outside for identification, if necessary.
2. Remove the cap from the sample diluent vial. Using an 200 µL fixed volume pipette, transfer 200 µL of the sample supernatant into the sample diluent vial.
3. Re-cap the sample vial and mix by shaking for 10 seconds.
4. Using an 100 µL fixed volume pipette, transfer 100 µL of the sample extract from the sample diluent vial into a new clear sample cup.
5. Place a new Reveal® for Sheep test strip with the sample end down into the sample cup and set timer for 5 minutes. Ensure the test strip comes into contact with the liquid and begins to wick.

## EXTRACTION AND TEST PROCEDURE FOR SWABS

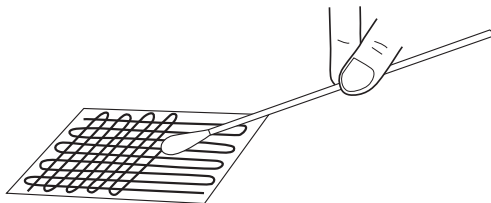
**Note:** Swabs are not included in the test kit and can be ordered separately (NEOGEN® item 9541).

1. Estimate a swabbing area of approximately 10 cm x 10 cm. Alternatively, use the swab to collect samples of contamination from problem areas (e.g., of processing equipment).

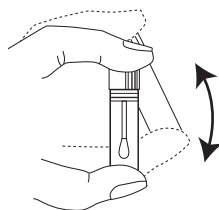


2. Gather the sample with the swab, using one of the following methods:  
**For dry surfaces:** Remove a sterile swab from the packaging and wet the surface with 100 µL deionized or distilled water using a disposable 100 µL fixed volume pipette. Swab a 10 x 10 cm area by using a crosshatch technique revolving the swab on the surface. Repeat this swabbing procedure using movements at right angles to those used in the first swabbing.

**For wet surfaces:** Remove a sterile swab from the packaging and swab a 10 x 10 cm area by using a crosshatch technique revolving the swab on the surface. Repeat this swabbing procedure using movements at right angles to those used in the first swabbing. Do not moisten surface prior to use.



3. Place the swab into the sample diluent vial and carefully break off the moistened end at the prescored mark so that it remains in the vial.
4. Secure the cap of the sample diluent vial, taking care to ensure that the stem does not prevent the tube from being properly sealed. Shake for 1 minute.
5. Using a disposable 100  $\mu\text{L}$  fixed volume pipette, transfer 100  $\mu\text{L}$  of the sample extract from the sample diluent vial into a new sample cup.
6. Place a new Reveal<sup>®</sup> for Sheep test strip with the sample end down into the sample cup and set a timer for 5 minutes. Ensure the test strip comes into contact with the liquid and begins to wick.



#### **EXTRACTION AND TEST PROCEDURE FOR RINSE WATERS**

1. Obtain a representative rinse water sample.
2. Using a 200  $\mu\text{L}$  disposable fixed volume pipette, add 200  $\mu\text{L}$  of the rinse water sample and transfer it into a sample diluent vial.
3. Secure the cap of the sample diluent vial and shake for 10 seconds.
4. Using a disposable 100  $\mu\text{L}$  fixed volume pipette, transfer 100  $\mu\text{L}$  of the sample extract from the sample diluent vial into a new sample cup.
5. Place a new Reveal for Sheep test strip with the sample end down into the sample cup and set timer for 5 minutes. Ensure the test strip comes into contact with the liquid and begins to wick.

## READING RESULTS

Test results should be read within 1 minute of completion of the 5 minute incubation.

### Negative result

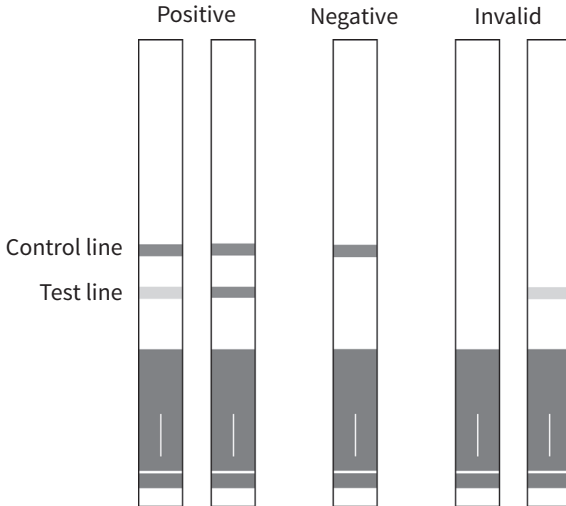
No line at the test line position: Level of sheep is below detection limit (see the Limitations section) or not present in the sample. Control line present.

### Positive result

Any intensity of a red line at the test line position: Level of sheep is above detection limit. Control line present.

### Invalid results

If a red line does not appear at the control line position, then the test is invalid.



## CUSTOMER SERVICE

NEOGEN® Customer Service and Technical Services can be reached by using the contact information on the back of this booklet. Training on this product, and all NEOGEN test kits, is available.

## SDS INFORMATION AVAILABLE

Safety data sheets (SDS) are available for this test kit, and all of NEOGEN's test kits, on NEOGEN's website at [NEOGEN.com](http://NEOGEN.com), or by calling NEOGEN at 800.234.5333 or 517.372.9200.

## TERMS AND CONDITIONS

For NEOGEN's full terms and conditions, please visit [NEOGEN.com/en/terms-and-conditions](http://NEOGEN.com/en/terms-and-conditions).

## WARRANTY

NEOGEN Corporation makes no warranty of any kind, either expressed or implied, except that the materials from which its products are made are of standard quality. If any materials are defective, NEOGEN will provide a replacement of the product. Buyer assumes all risk and liability resulting from the use of this product. There is no warranty of merchantability of this product or of the fitness of the product for any purpose. NEOGEN shall not be liable for any damages, including special or consequential damage, or expense arising directly or indirectly from the use of this product.





## TESTING KITS AVAILABLE FROM NEOGEN

### Natural Toxins

- Aflatoxin, ergot alkaloids, DON, ochratoxin, zearalenone, T-2/HT-2 toxins, fumonisin, histamine

### Foodborne Bacteria

- *E. coli* O157:H7, *Salmonella*, *Listeria*, *Listeria monocytogenes*, *Campylobacter*, *Staphylococcus aureus*, *Salmonella enteritidis*

### Sanitation

- ATP, yeast and mold, total plate count, generic *E. coli* and total coliforms, protein residues

### Food Allergens

- Almonds, coconut, crustaceans, eggs, gliadin, hazelnut, milk, mustard, peanuts, sesame, soy, walnuts, multi-treenut

### Genetic Modification

- CP4 (Roundup Ready®)

### Ruminant By-products

- Meat and bone meal, feed

### Species Identification

- Raw and cooked meat samples



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