

Read instructions carefully before starting test

Reveal[®]

for Beef

For the qualitative detection of raw beef 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[®] for Beef is an immunochromatographic lateral flow assay used for the rapid, qualitative detection of beef meat in raw meats and processed raw meat products, such as sausages or burgers. The test can detect as little as 0.5% beef meat in a non-target meat matrix.

Reveal for Beef is intended for use by quality control personnel or other personnel familiar with handling meat samples only in an industrial food manufacturing/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 beef in raw meat or raw meat products. The limit of detection of the test is 0.5% raw beef meat in a non-target raw meat matrix.

Using environmental swabs, levels of 150 µg/100 cm² of beef protein can be detected.

When analyzing rinses, beef 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 Beef has been tested on a panel of raw meat cross-reactants. Cross-reactivity is expected in raw meat from the bovine family. No cross-reactivity against meat from non-target species such as horse, pork, poultry or sheep was observed. Cross reactivity was observed against venison meat. Reveal for Beef validation report is available on request; please contact your Neogen representative.

ASSAY PRINCIPLES

Reveal for Beef is a single-step lateral flow immunochromatographic assay. The sample extract is wicked through a reagent zone, which contains antibodies specific for beef serum albumin proteins conjugated to coloured particles. If beef serum albumins are present, they will be captured by the conjugated antibodies. The beef-antibody-particle complex is then wicked onto a membrane that contains a zone of antibody specific for beef proteins. This zone captures the complex, allowing the particles to concentrate and form a visible line. If no beef 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 beef, ensuring the strip is working properly.

MATERIALS PROVIDED

1. 10 Reveal for Beef lateral flow test strips
2. 10 clear sample cups
3. 10 vials of sample diluent
4. 10 disposable 100 μ L fixed volume pipettes
5. 10 disposable 200 μ L 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 \pm 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 beef 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 Beef is a qualitative test and should only be used as a preliminary screen for the presence of raw beef. 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 ELISA assay or 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.

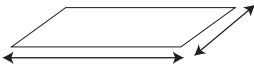
TEST PROCEDURE FOR RAW MEAT SAMPLES

1. Take the appropriate number of sample diluent vials and sample cups from the test kit. Label cups and 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 Beef 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 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).

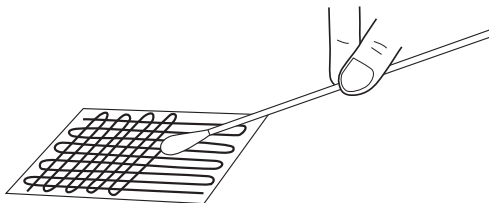
1. Estimate a swabbing area of approximately 10 cm x 10 cm. Alternatively, use the swab to collect samples of contamination from problem areas (e.g., of processing equipment).



2. Gather the sample with the swab, using one of the following methods:

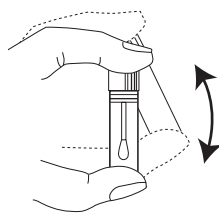
For dry surfaces: Remove a sterile swab from the packaging and wet the surface with 100 µL deionized or distilled water using a disposable 100 µL fixed volume pipette. Swab a 10 x 10 cm area by using a crosshatch technique revolving the swab on the surface. Repeat this swabbing procedure using movements 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.

- 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**.
- Using a disposable **100 µL** fixed volume pipette, transfer **100 µL** of the sample extract from the sample diluent vial into a new sample cup.
- Place a new Reveal for Beef 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 liquid and begins to wick.



EXTRACTION AND TEST PROCEDURE FOR RINSE WATERS

- Obtain a representative rinse water sample.
- Using a **200 µL** disposable fixed volume pipette, add **200 µL** of the rinse water sample and transfer into a sample diluent vial.
- Secure the cap of the sample diluent vial and shake for **10 seconds**.
- Using a disposable **100 µL** fixed volume pipette, transfer **100 µL** of the sample extract from the sample diluent vial into a new sample cup.
- Place a new Reveal for Beef 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 liquid and begins to wick.

READING RESULTS

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

Negative Result

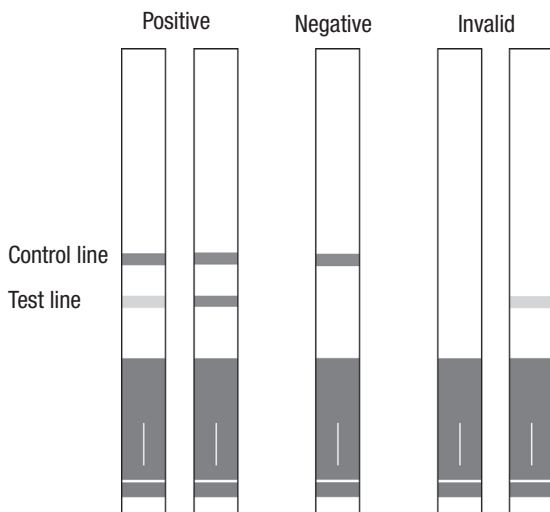
No line at the test line position: Level of beef is below detection limit (see Limitations section) or not present in the sample. Control line present.

Positive result

Any intensity of a red line at the test line position: Level of beef 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 Assistance 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 foodsafety.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.

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, 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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