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## FoodChek™ - Salmonella

### Sampling Kit Product Information

#### Intended Use:

FoodChek™ - Salmonella is a lateral flow immunomagnetic screening assay for the rapid detection with high efficiency of *Salmonella* species belonging to group B to E. The method has been validated according to the Performance Tested Methods<sup>SM</sup> of the AOAC-RI in eggs and derivatives (whole liquid eggs, liquid egg white (liquid egg albumen), shell eggs, dried whole eggs and dried egg yolks) and environmental surfaces samples (stainless steel, plastic, rubber, ceramic tiles and sealed concrete).

The FoodChek™ - Salmonella test was validated with *Salmonella enterica* serovars of somatic groups B-E. This includes the most common serovars from both food and non-food sources. Any positive result can be confirmed through the confirmation procedures found in either the BAM or the MLG. If a presumptive-positive result cannot be confirmed using somatic groups B-E antisera, then the use of other somatic group antisera should be considered.

The assay cassette, a lateral flow separation device, that has the testing sample loaded into the sample port of the cassette that is then allowed to laterally flow in the device followed by analysis in the FoodChek™ MICT Reader. The cassette has a printed label attached that contains written and bar-coded identity information, the expiry date, and the required values for automated analysis by the FoodChek™ MICT Reader. Cat # FCR-004.

#### Principle of Operation:

The cassette is composed of a conjugate pad that contains nano-sized magnetic particles conjugated to a specific antibody that will bind the complimentary antigen. The test comprises a second antibody in a narrow strip called the capture zone. Capillary flow moves the loaded sample through the sample pad onto the conjugate pad, where the target bacteria will bind to the antibody-coated particles. This antigen-antibody immune complex now flows onto the test strip to the capture zone. The result is an accumulation of specific magnetic particles in the capture zone. If the target pathogen is absent, immune complexes do not form and particles do not accumulate at the capture line, and the test result is negative. Further downstream, a “Control Line” that has been placed in a strip format, but with different reagents, acts to verify that the test has performed correctly. The cassette is read in an instrument, the “FoodChek™ MICT Reader” that is capable of detecting very low concentrations of magnetic particles. The instrument compares the detection signal with a positive threshold value encoded in a barcode on the individual cassette, and then reports a



positive or negative result. The results are displayed on the instrument's liquid crystal display (LCD) screen and printed. In addition to all analysis parameters, the barcode also encodes the test name, lot number and expiry date that are printed along with the test result.

## **Contents:**

A box of 20 assay cassettes (cat. # FCSM-004) intended for 20 independent analytical procedures.

A box of 20 non-bactericidal, non-bacteriostatic 8×4×0.3 cm sterile cellulose sampling sponge.

A box of 20 tubes of 10 mL of Dey-Engley Neutralizing buffer (D/E).

One cleaning cassette.

## **Additional Materials Required:**

### **All samples**

1. Actero™ Salmonella Enrichment Media (Actero™ Salmonella) – The medium will be selling in bottle of 500 g of dehydrated medium accompanied of ready-to-used supplements (cat. # FCM-009) or in 1 L polycarbonate bottle of prepared medium (cat. # FCM-017) or in FoodChek MediaBox™ that provides fully prepared, fresh, sterile media in an easy to handle, stackable storage box with an internal bladder. Available in 5 L (cat. # FCM-047) and 10 L (cat. # FCM-048)
2. FoodChek™ MICT v2 Reader (cat. # FCR-004) – available from FoodChek™ Systems Inc.
3. Distilled/deionized, sterile water. Any source.
4. Graduated cylinders with a capacity range between 90 mL to 3 L.
5. Sterile stomacher bags.
6. Polypropylene tube with cap. Any source.
7. Disposable transfer pipettes. Any source.
8. Micropipette able to dispense 150 µL.
9. Pipette tips fitting with the micropipette. Any source.
10. Stomacher (optional). Available from multiple sources such as Seward, Fisher Scientific.
11. Regular laboratory equipment is also required.



## Procedure:

### General Preparation

#### Preparations of Samples for Testing with FoodChex™ - Salmonella cassettes

#### Enrichment Media Preparation

1. Prepared the Actero™ Salmonella Enrichment Media following the manufacturer instruction.
2. Warm media to  $39 \pm 0.5^\circ\text{C}$ . Note: for optimum assay performance it is important that the media is at  $39 \pm 0.5^\circ\text{C}$  before use.

#### Environmental Surface Samples (Stainless Steel, Plastic, Rubber, Ceramic Tile and Sealed Concrete)

1. Add to the non-bactericidal, non-bacteriostatic  $8 \times 4 \times 0.3$  cm sterile cellulose sampling sponge, the content of a tube of D/E buffer provided with the kit.
2. Wipe the surface to be tested with one side of the sponge (with excess liquid gently squeezed out) in a horizontal direction (approximately 10 cm), and with the other side in a vertical direction (approximately 10 cm) back and forth (one stroke back and one stroke forward) to cover the entire area of  $100 \text{ cm}^2$ .
3. Place each surface sampled sponge in a sterile sample bag, and keep at  $4 \pm 2^\circ\text{C}$  until it is ready for testing. The sample should be tested within 8 h.
4. When ready to test, pre-warm the prepared Actero™ Salmonella Enrichment Media at  **$39^\circ\text{C}$** .
5. Add  **$90 \pm 5 \text{ mL}$**  of the pre-warmed Actero™ Salmonella Enrichment Media to each sponge sample in its sample bag.
6. Stomach the sample for **30 seconds at 265 rpm** in a Stomacher® 400. Hand mixing, is an acceptable alternative for stomaching. To hand mix, massage each sponge that is in the sealed stomacher bag for approximately one minute.
7. For the enrichment phase, close the bags and incubate the samples in an incubator for  **$18 \pm 0.5 \text{ h}$**  at  **$39 \pm 0.5^\circ\text{C}$** . Adherence to temperature is important for accurate results.
8. At the end of the enrichment period, mix sample thoroughly and transfer  **$10.0 \pm 0.1 \text{ mL}$**  of the enriched sample to a tube. Cap the tube.
9. Keep the tube for cultural confirmation of any positive result obtained with FoodChex™ - Salmonella assay.



## Analysis of Samples Using FoodChek™ - Salmonella cassettes

1. Bring the required number of cassettes to room temperature at least 30 min prior to use.
2. Turn on the FoodChek™ reader. Initialization takes a few minutes. When the instrument is ready for use, display will show four pictograms. Touch the pictogram that represents a cassette.

Note: For better accuracy, warm the reader for 1 h. It is recommended that the MICT® reader can be left on at all times.

3. Mix the sample and, using a micropipette, transfer 150 µL directly to the sample port of a FoodChek™ - Salmonella cassette. Change pipette tips between samples.
4. Allow the assays to develop for 30 min at room temperature before reading in the FoodChek™ reader. Note: interpreting results before 25 min or after 35 min may yield inaccurate results.
5. Open the door on the front of the FoodChek™ MICT v2 Reader and insert the cassette.
6. Closing the reader door initiates the reading process and generates an output on the LCD screen and a printed result on paper tape.

## Interpretation and Test Result Report

1. **Results Output.** The results are indicated on both the instrument LCD display and the instrument printout. These results are reported as being either “Positive” or “Negative”. If an Invalid or Indeterminate result is obtained, see FoodChek Instrument User Manual for further instructions/troubleshooting.
2. **Negative Result.** A negative result should be interpreted as the sample **NOT** being contaminated with *Salmonella* belonging to group B to E.
3. **Positive Result.** A positive result should be interpreted as the sample being **possibly** contaminated with *Salmonella*.
4. **Confirmation of Positive Results.** Since, FoodChek™ Salmonella is a screening test for *Salmonella* spp. (from group B to E confirmed), all positive samples should be culturally confirmed by an approved USDA/FSIS (<http://www.fsis.usda.gov/wps/wcm/connect/700c05fe-06a2-492a-a6e1-3357f7701f52/MLG-4.pdf?MOD=AJPERES>) or FDA confirmatory method <http://www.fda.gov/Food/FoodScienceResearch/LaboratoryMethods/ucm070149.htm>



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## **Product Storage and Shelf Life:**

The FoodChek™ - Salmonella assay should be stored at a temperature ranging between 2–8°C. The expiry date is indicated on the box.

## **Disposal:**

Dispose all materials used and the enrichment media by autoclaving or according to an approved practice. Ensure that all bio hazardous waste is disposed of according to local, municipal, provincial, state and/or federal regulations.

## **Precautions:**

Biosafety level 2 procedures should be exercised (BMBL, <http://www.cdc.gov/biosafety/publications/bmbl5/BMBL.pdf>). Extreme care should be taken in handling test samples, enrichment broths and cassettes. All enrichment broths may contain various pathogens whether they contain *Salmonella* spp. or not.

## **Terms and Conditions:**

FoodChek Systems Inc. makes no representations and warranties concerning its products other than those stated herein. All Product(s) delivered hereunder by FoodChek Systems Inc., its affiliates or any other person on its behalf shall, at the time of delivery, be manufactured to meet FoodChek Systems Inc.'s specifications and all applicable laws. All other terms, conditions and warranties, including any warranty of merchantability, quality, fitness or suitability for a particular or intended purpose, implied by common law or statute, (implied warranties) are expressly excluded.

FoodChek Systems Inc. warrants its new equipment to the original Customer only for a period of one (1) year after date of delivery against defects in material and workmanship and defects arising from failure to conform to FoodChek Systems Inc.'s specifications applicable on the date of delivery. FoodChek Systems Inc.'s sole obligation under this warranty shall be to replace or repair the defective product or part, for any defect found to have occurred under normal use during the one (1) year period. This warranty does not cover replacement of products damaged due to misuse, abuse, alteration, self-repair, loss or theft.

## **Catalogue Number:**

FCSM-001: FoodChek™ - Salmonella Sampling Kit



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**For further information please contact:**

FoodChek Systems Inc.  
Suite 450, 1414 – 8 St. S.W.  
Calgary, Alberta, Canada  
T2R 1J6  
Tel: 1-877-298-0208

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**FoodChek™**

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