CompactDry™ ECO

Simple and Easy Dry Medium for *Escherichia coli* only

∗Background

It is important to detect and measure microorganisms in foodstuffs and environment to monitor the degree of the exposure as the possibility of food poisoning, especially *Escherichia coli* (*E. coli*) is the appropriate degree of fecal pollution.

Pour Plate method has been widely used to determine the microbial count. The method requires much of time and complicated operations such as preparation of hot agar kept at 45 – 50 °C and mixing and dilution uniformly.

To save the time of operator and make it possible for anyone to perform the microbial count test without difficulty, Shimadzu Diagnostics Corporation has successfully developed CompactDry™ based on new concept and technology that may applicable for almost all food industries, which requires a simple and easy manipulation to add a drop of specimen on the device.

*Features and Benefits

1) Small and compact plate: Need only small physical spaces for storing, testing and incubating.
2) Ready to use and portable plate: No needs to prepare medium, which eliminates the waste of medium as well as the apparatus to prepare the medium. Good for an emergency and a field test.
3) Sample diffuses automatically and evenly into the plate: No needs of mixing and dilution after sampling.
4) Dried plate with 24 month shelf life at room temperature: Easy to store. Once a liquid sample is dropped, the dry coated medium transforms into gel and the plate is ready to incubate.
5) *E. coli* colonies are blue in color. Isolated colonies can be subcultured individually to the other media.
6) Good correlation with pour plate method: Maintain the continuity of data accumulated.

∗ Intended Use

This product is intended for use by microbiologists for the enumeration of *Escherichia coli* only in food and related samples.

∗ Test Kit Components

1) CompactDry™ ECO Plates

*Additional Reagents and Supplies Required, Not Provided

1) Butterfield's phosphate-buffered diluent (BPBD) – Prepare according to AOAC 966.24.
2) Maximum recovery diluent (MRD) – Prepare according to ISO 4832:2006.
3) Filtered Stomacher bags

Apparatus

1) Stomacher or equivalent for homogenizing sample.
2) Pipets – 1 mL
3) Incubator – capable of maintaining 35 ± 1°C or 37 ± 1°C

Operating Procedure

Preparation of specimen

1) Prepare appropriate diluent: Butterfield's phosphate-buffered diluent (BPBD) or Maximum recovery diluent (MRD) is recommended. Autoclave for sterilization.
2) Viable count in solid foodstuffs
   Add diluent to the solid sample. Homogenize by Stomacher for 1 min ± 10s.
3) Viable count in water or liquid foodstuffs
   Use without dilution, dilute 1 mL in 9 mL diluent, or dilute further in case of viable count is expected to be >250 CFU/mL. Vortex to mix.
4) Viable count in swab test sample
   Use wiping solution (without dilution or diluted if necessary in diluent) obtained from the cotton swab. It is recommended to use CompactDry Swab PBS (450002-PBS-0500) available as an optional kit.

∗ Direction for CompactDry™ ECO

1) Open aluminum pouch, and take out a set of 4 plates.
2) Detach necessary number of plate(s) from a set of four by bending up and down while pressing the lid. Use a connected set of four plates when serial dilution measuring is intended. Write the appropriate information on the memorandum section.
3) Remove the lid from the plate, pipette 1 mL of sample in the middle of the dry sheet and replace the lid. Specimen diffuses automatically and evenly over the entire sheet (20 cm^2) to transform it into a gel.
4) Invert the lidded plate and place in incubator at 35 ± 1°C or 37 ± 1°C for 24 ± 2 hours.
5) From the backside of the plate, count the number of blue colonies in the medium. White paper placed under the plate can make colony count easier.

Precaution for use

1) Do not use CompactDry™ ECO for human and animal diagnosis.
2) During inoculation, do not touch the surface of medium.
3) During incubation, keep lid tight to avoid any possible dehydration.
4) Use of filtered stomacher bags is recommended to eliminate risks of carryover of tiny pieces of foodstuffs onto the surface of the medium.
5) The enumeration range is 1 – 250 cfu/plate. Dilute samples further in the appropriate diluent as necessary to achieve a concentration level in the countable range.
6) If the nature of sample affects the reaction of the medium, inoculate the sample only after the factor has been eliminated by means such as dilution, pH adjustment, or others. This may include samples with high viscosity, deep color, or too high or too low pH.

Interpretation

E. coli form blue colonies due to chromogenic enzyme substrate, X-gluc contained in the medium.

*Precaution for interpretation

1) *E. coli* O157 do not produce beta-glucuronidase, thus cannot be detected on CompactDry™ ECO. *E. coli* O157 form white colonies on CompactDry™ ECO.
2) If more than 10^4 cfu/mL were inoculated onto a plate, no distinguishable colored colonies will form and the entire plate may become colored.
3) The medium size is 20 cm^2, and the back of container has a carved grid of 1 cm x 1 cm to make colony counting easier. When it is difficult to count the colonies due to a great large number of colonies grown in the medium, the total colony number can be obtained by multiplying 20 by an average number of colonies per grid (1 cm x 1 cm) calculated from representative grids.

*Warning and Direction for Use

1. General precautions

1) Read and follow precisely the warnings and directions for use described in the package insert and/or label.
2) Do not use the product after its expiration date. The quality of the product is not guaranteed after its shelf life.
3) Do not use product that contains any foreign materials, is discolored or dehydrated, or has a damaged container.
4) Use plates as soon as possible after opening. Any unused plates should be returned to the aluminum pouch sealed with tape to avoid light and moisture, and stored at room temperature.
5) Lid tightly after inoculation to avoid dehydration of gelled medium.

2. Safety Precautions

1) Wash immediately with water medium or reagent comes into contact with eyes or mouth. Consult a physician.
2) Manipulations with microorganisms involve certain risks of laboratory-acquired infections. Practice manipulations under the supervision of trained laboratory personnel with biohazard protection measures.
3) Treat laboratory equipment or medium that comes in contact with the sample as infectious and sterilize appropriately.

3. Precautions for disposal of waste

Sterilize any medium, reagent or materials by autoclaving or boiling after use, and then dispose as industrial waste according to local laws and regulations.

4. User Responsibility

1) It is the user's responsibility in selecting any test method to evaluate a sufficient number of samples with particular foods and microbial challenges to satisfy the user that the chosen test method meets the user's criteria.
2) It is the user's responsibility to determine that any test methods and results meet its customers' or suppliers' requirements. The user must train its personnel in proper testing techniques.
3) It is the user's responsibility to validate the performance of this method for use with any non-certified matrix.

5. Limitation of Warranties

CompactDry™ plates are manufactured at an ISO 9001:2015 facility.

If any CompactDry™ plate is proven to be defective by fault of the manufacturer or its authorized distributors, they may replace or, at their discretion, refund the purchase price of any plate. These are the exclusive remedies.

Storage and Shelf life

Storage : Keep at room temperature (1 – 30℃)
Shelf life: Twenty four (24) months after manufacturing.
Shelf life is printed on both label of outer box and aluminum pouch.

∗ Further information

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