

CompactDry™ CFR

Simple and Easy Dry Medium for Coliform (Rapid type)

Background

It is important to detect and determine the bacterial number of coliforms in foodstuffs and environment to monitor the degree of cleanliness and ensure sanitary safety. The mixing and dilution culture method has been widely used to determine microbial counts, however, significant time and complicated operations are required, such as: preparing hot agar, uniform mixing of dilutions and smearing. To reduce the operating time and make it possible for anyone to perform the bacteria culture test without difficulty, we have successfully developed a new device based on original concept and technology.

CompactDry™ CFR is a medium for rapid determination of coliform by the combination chromogenic and fluorescent substrates. It is recommended for cases where rapid measurements are needed, when compared to the standard CompactDry™ CF.

Features and Benefits

- 1) Small and compact plate: only small physical spaces are required for storing, testing and incubating.
- 2) Ready to use and portable plate: No need 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.
- 4) Easy to store: 12-month shelf life at room temperature.
- 5) Measurable after incubation for 16-18 hours
- 6) Blue/blue-green colonies for coliforms are observed, and picking colonies off is easy.
- 7) There is a good correlation with the pour plate method, which helps maintain the continuity of accumulated data.

Test Kit Components

- 1) CompactDry™ CFR Plates

Additional Reagents and Supplies Required, Not Provided

- 1) Diluent according to ISO 6887
- 2) Filtered Stomacher bags

Apparatus

- 1) Blender or Stomacher™ or equivalent for homogenizing sample
- 2) Pipets – 1 mL
- 3) Incubator – 35°C±1°C

Operating Procedure

Preparation of specimen

- 1) Viable count in solid foodstuffs
Prepare test sample with reference to ISO 6887 and ISO 7218. Homogenize a 10 g test portion in 90 mL of diluents using a stomacher. Drop 1 ml of specimen (to be further diluted if necessary) in the middle of a dry sheet of CompactDry™ CFR.
- 2) Viable count in liquid foodstuffs
Drop 1 ml of specimen (to be diluted if necessary) in the middle of a dry sheet of CompactDry™ CFR.

Direction for CompactDry™ CFR

- 1) Open aluminium pouch and remove a set of 4 plates.
- 2) Detach the quantity required from a set of four by alternating bending the plate up and down whilst pressing the lid. When inoculating a series of diluted samples, utilize a set of four connected plates.
- 3) Remove the lid from the plate and add 1 ml of specimen to the center of a dry sheet. The specimen diffuses automatically and evenly throughout the sheet (a medium size of 20 cm²), which transforms into a gel.
- 4) Invert the capped plate after replacing the lid, and then incubate for 16-18 hours at 35 ± 1°C.
- 5) Count blue/blue-green colonies for coliforms.
- 6) Enumeration range of CompactDry™ CFR is 1-250 CFU/plate. Specimen should be diluted in the appropriate diluent to obtain a concentration level in the countable range.

Precaution for use

- 1) Do not use CompactDry™ CFR for human and animal diagnosis.
- 2) During inoculation, do not touch the surface of medium and/or tip of dropper, and be careful to avoid any contamination by falling microorganism.
- 3) During incubation, keep lid tight to avoid any possible dehydration.
- 4) It is recommended to use a stomacher bag with a filter to eliminate risks of carry-over of tiny pieces of foodstuffs into the surface of the medium.
- 5) If the nature of the specimen affects the result, the specimen should be inoculated onto the CompactDry™ only after any interfering factors have been eliminated, this can be done by carrying out additional dilutions, for example. Interfering factors can include: specimens with high viscosity, reactivity with chromogens, deep colour, and too high or too low pH.

Interpretation

Coliforms form blue/blue-green colonies due to chromogens contained in the medium.

Precaution for interpretation

- 1) White paper placed under the plate can be useful for counting.
- 2) If bacteria of more than 10⁴ cfu are inoculated in a plate, no independent colonies are formed, and the whole medium gets stained.
- 3) Some non-target bacteria may also grow and form white colonies on this plate. Only blue/blue-green colonies should be counted.
- 4) The full plate size is 20 cm². The backside contains carved grids of 1 cm x 1 cm and 0.5 cm x 0.5 cm to make colony counting easier. If large numbers of colonies are present on the medium, the total count can be obtained by averaging the number of colonies per large grid (1 cm x 1 cm), counted from several grids, and multiplying by 20. Alternatively, the total count can be obtained by averaging the number of colonies per small grid (0.5 cm x 0.5 cm), counted from several grids, and multiplying by 80. This provides an estimated count only and is outside the scope of the validation.
- 5) Coliforms begin to appear at 6 hours of incubation as blue-white fluorescence signals under 365 nm UV light in a dark box, suggesting tentative coliform positive. Continue incubating the plates to detect blue/blue-green colonies indicating coliform positive.
- 6) When testing samples containing large amounts of microorganisms with β-galactosidase, such as fermented dairy products, the entire surface of the plate may develop a blue color. Dilute the sample and retest.
- 7) Follow ISO 7218 for calculation of cfu/g.
- 8) Wear UV-protective equipment (glasses, gloves, etc.) using UV lamp because the UV light are harmful to skin and eyes. Avoid using UV lamp in locations where people other than the user are present.

Scope of validation

- 1) CompactDry™ CFR is certified by MicroVal as equivalent to the following reference method:
ISO 4832:2006 Microbiology of food and animal feeding stuffs. Horizontal method for the enumeration of coliforms. Colony-count technique.
- 2) An incubation temperature of 37°C was used for the reference method for all sample types.
- 3) The validation has been carried out according to ISO 16140-2:2016.
- 4) The scope of the validation is: heat processed milk and dairy products, raw milk and dairy products.
- 5) Maximum Recovery Diluent (MRD) and additional diluents, such as sodium citrate diluent, were used in accordance with ISO 6887.
- 6) Refer to the MicroVal certificate and study report for detailed information.

Warning and Direction for Use

1. General precautions

- 1) Read and follow precisely the warning and direction for use described in the package insert and/or label.
- 2) Do not use the product after its expiration date. The quality of expired products is not warranted.
- 3) Do not use the product that contains any foreign materials, is discoloured or dehydrated, or has a damaged container.
- 4) After opening the aluminium pouch, any unused plates should be put back into the aluminium pouch and sealed with tape to avoid light and moisture and use up as soon as possible.
- 5) Securely close the lid after inoculation of the plate to prevent the gelled medium from drying out.
- 6) Use good laboratory practices according to ISO 7218.

2. Safety Precautions

- 1) If the media or reagents come into contact with your eyes or mouth, promptly rinse with plenty of water and seek medical advice.
- 2) Working with microorganisms always carries a risk of laboratory-acquired infections. These procedures should be conducted under the guidance of an experienced specialist, using appropriate biohazard protection measures.
- 3) Any laboratory equipment and medium that has been in contact with specimen should be regarded as infectious in the laboratory.

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 for disposal of such material.

4. User Responsibility

- 1) It is 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 recommended that the user follows ISO 16140-3:2021 for the verification of an alternative method.
- 3) 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.
- 4) 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 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°C).

Shelf life: Twelve (12) months after manufacturing.

Shelf life is printed on outer box label and aluminum pouch label.

Package

CompactDry™ CFR 1400 plates..... Code 54070

Further information

Customer Support Section

Shimadzu Diagnostics Corporation

3-24-6, Ueno, Taito-ku, Tokyo 110-8736 JAPAN

Tel: +81-3-5846-5707/FAX: +81-3-5846-5629

E-mail: contact@sdc.shimadzu.co.jp

Website: <https://corp.sdc.shimadzu.co.jp/english/>

Manufactured by

Shimadzu Diagnostics Corporation

3-24-6, Ueno, Taito-ku, Tokyo, 110-0005, Japan

Creation date: May 2024
(4E05)