CompactDry™ TC

Simple and Easy Dry Medium for Total Viable Count

*Background

It is important to detect and measure the total viable count in foodstuffs and the food environment to monitor the degree of cleanliness as well as sanitary safety. The pour plate method has been widely used to determine microbial counts. The pour plate method is time consuming and complicated, requiring operations such as preparation of hot agar maintained at 45 - 50℃, and uniform mixing and dilution. To save operator time and make it possible for anyone to perform the microbial count test without difficulty, Shimadzu Diagnostics Corporation developed the CompactDry™ based on a new concept and technology applicable to the food industry. CompactDry™ 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 need to prepare medium, which eliminates the waste of medium as well as the apparatus to prepare the medium. Good for emergency and field testing.
3) Sample diffuses automatically and evenly into the plate: No need to mix and dilute after sampling.
4) Dried plate with 24 month shelf life at room temperature: Easy to store. Once a liquid sample is added, the dry coated medium transforms to gel and the plate is ready to incubate.
5) Clear color development by redox indicator: Easy to read the results. Isolated colonies can be subcultured individually to 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 total viable count in food and related samples.

*Certification by AOAC

The CompactDry™ TC has been compared to AOAC *Official Method*℠ 966.23 and certified by the AOAC Research Institute *Performance Tested Methods*℠ Program (Certificate No. 010404) for enumeration of total viable count in raw meat (raw ground beef, raw ground pork, raw pork and raw lamb and veal). A matrix extension comparing the CompactDry™ TC to ISO 4833:2003 for cooked chicken, fresh pre-washed bagged shredded iceberg lettuce, frozen cod filets, instant non-fat dry milk, and pasteurized 2% milk was approved in 2015.

A matrix extension to raw chicken breast with enumeration at 24h and 48h and a modification for raw ground beef for enumeration at 24h compared to FSIS MLG Chapter 3.02 were approved in 2020.

Test Kit Components

1) CompactDry™ TC Plates

* Additional Reagents and Supplies Required, Not Provided

1) Butterfield's phosphate-buffered diluent (BPBD) – Prepare according to AOAC 966.23
2) Maximum Recovery Diluent (MRD) – Prepare according to ISO 4833:2003
3) Filtered Stomacher bags

*Apparatus

1) Blender or Stomacher™ or equivalent for homogenizing sample
2) Pipets – 1 mL
3) Incubator – 35 ± 1°C (raw meat products) or 30 ± 1°C (all other matrices)

* Operating Procedure

Preparation of specimen

1) Prepare appropriate diluent: Butterfield's phosphate-buffered diluent (BPBD) for raw meat products or Maximum Recovery Diluent (MRD) for other claim matrices. Autoclave for sterilization.
2) Viable count in solid foodstuffs
   For raw meat, weigh 50 g of sample and add 450 mL BPBD to the sample. Homogenize by blender for 2 min ± 15 s. For cooked chicken, fresh lettuce or frozen fish, weigh 10g of sample and add 90 mL MRD to the sample. Homogenize by stomacher for 1 min ± 15 s. For milk powder, weigh 10g of sample and add 90 mL MRD pre-warmed to 45 ± 1°C. Slowly swirl and shake until sample is dissolved.
3) Viable count in liquid foodstuffs
   For pasteurized milk, use without dilution, dilute 1 mL in 9 mL MRD, or dilute further if viable count is > 300 CFU/plate. Vortex to mix
4) Viable count in swab test sample (not included in AOAC PTM certification)
   Wiping solution which is obtained from cotton swab, is used without dilution or diluted in MRD. It is recommended to use CompactDry Swab PBS (450002-PBS-0500) available as an optional kit.

* Direction for CompactDry™ TC

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 set of four plates being connected when serial dilution measuring is intended.
3) Remove cap from plate, pipette 1 mL of sample (to be diluted further if necessary) in the middle of the dry sheet, and replace the lid. Specimen diffuses automatically and evenly over the entire sheet (total medium of 20 cm^2) to transform it into a gel within seconds.
4) Write the appropriate sample information in the memorandum section. Invert the cap plate and place in incubator at 35 ± 1°C for raw meat or 30 ± 1 °C for all other matrices. Incubate 48 ± 3 h.
5) From the backside of the plate, count the number of colonies (colored and colorless) in the medium. White paper placed under the plate can make colony counting easier. For large numbers of colonies, use the grids carved on the backside consisting of 1 cm x 1 cm, or 0.5 cm x 0.5 cm, at the four corners.
6) Enumeration range of CompactDry™ TC is 1–300 cfu/plate. Specimen should be diluted in buffer to obtain a concentration level less than 300 cfu/plate.

*Precaution for use

1) Do not use CompactDry™ TC for human and animal diagnosis.
2) To avoid microbial contamination, do not touch the surface of the dry sheet medium during inoculation.
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) If more than 10^4 cfu/ml were inoculated onto a plate, no distinguishable colored colonies will form and the entire plate will become colored.
6) If the nature of the 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 other. This may include samples with high viscosity, that are colored, that react with the redox indicator, or that have too high or too low pH.

*Interpretation

1) The medium consists of non-selective medium and the redox indicator 2,3,5-Triphenyl Tetrazolium Chloride (TTC). Colonies grown on CompactDry™ TC are almost all red colored.
2) The full plate size is 20 cm^2. 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 viable count could 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 viable count could 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.
3) Since some microorganisms may not reduce TTC to develop red/pink color, colonies may develop on CompactDry™ TC that are not necessarily red. All colonies should be counted.

* 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. Quality of the product is not warranted 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. Return any unused plates to the aluminum pouch and seal with tape to avoid light and moisture. CompactDry™ TC (for total viable count) is sensitive to light, which affects the color development of colonies.
5) Cap tightly after inoculation to avoid dehydration of gelled medium.

* 2. Safety Precautions

1) If medium or reagent comes into contact with eyes or mouth, immediately wash with water and consult a physician.
2) Manipulations with microorganisms involve certain risks of laboratory acquired infections. Manipulations should be carried out under the supervision of trained laboratory personnel with biohazard protection measures.
3) Treat any laboratory equipment or medium that comes into contact with the specimen 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 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 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 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.

Expiration date is printed on outer box label and aluminum pouch label.

Package

CompactDry™ TC	40 plates	Code HS8772
CompactDry™ TC	100 plates	Code HS8771

Further information

Customer Support Section
Shimadzu Diagnostics Europe
3 Rue d'Alexandrie, 75002 Paris, France
Tel: +33.9.75.49.10.07
support@diagnostics-eu.shimadzu.com
https://www.diagnostics-eu.shimadzu.com

Manufactured by
Shimadzu Diagnostics Corporation
3-24-6, Ueno, Taito-ku, Tokyo, 110-0005, Japan

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