CompactDry™ YM

Simple and Easy Dry Medium for Yeasts and Molds

*** Background**

Yeasts and molds can cause various degrees of food decomposition. Invasion and growth may occur on virtually any type of food if environmental conditions are not limiting. Commodities such as corn, small grains, legumes, nuts, and fleshy fruits can be invaded prior to harvesting as well as during storage. Yeasts and molds are distributed widely in decaying plant materials, soil, and air. Their presence on unprocessed plant and animal foodstuffs is almost assured by harvesting, handling, distribution, and storage practices used in food industries, and inadequate preservation of these foodstuffs can result in mycological spoilage. Detection and enumeration of yeasts and molds in food is an integral part of any good quality assurance program and can reflect the effectiveness of sanitation practices, processing schemes, and distribution conditions.

To save operator time and allow a trained laboratory scientist to perform the microbial count test without difficulty, Shimadzu Diagnostics developed the CompactDry™ based on 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 an emergency and field testing.
3) Sample diffuses automatically and evenly into the plate: No need for mixing and dilution after sampling.
4) Dried plate with 18 month shelf life after manufacturing at room temperature: Easy to store. Once a liquid sample is added, the dry coated medium transforms into a gel and the plate is ready to incubate.
5) Blue color development by a chromogenic enzyme substrate: Easy to read the results. Isolated colonies can be subcultured individually to other media.
6) Good correlation with spread plate method: Maintain the continuity of data accumulated.

*** Certification by third parties**

The CompactDry™ YM has been compared to FDA BAM Chapter 18 for Yeasts, Molds and Mycotoxins (2001) and certifie by the AOAC Research Institute *Performance Tested Methods*℠ (PTM) Program (Certificate No. 100401) for enumeration of yeasts and molds in food products (fresh apples, frozen bluberries, dried banana chips, fresh grapefruit and orange juice). A matrix extension comparing the CompactDry™ YM to ISO 21527-1:2008 for cooked daily turkey, fresh whole tomatoes, Wensleydale cheese, sliced white bread and mayonnaise was approved in 2015.

Test Kit Components

1) CompactDry™ YM Plates

***Additional Reagents and Supplies Required, Not Provided**

1) 0.1 % Peptone water – Peptone at 1 g / L, pH 7.0 ± 0.2, autoclave 15 min at 121°C
2) Maximum recovery diluent (MRD) – Prepare according to ISO 21527-1:2008.
3) Filtered Stomacher™ bags

***Apparatus**

1) Blender or Stomacher™ or equivalent for homogenizing sample.
2) Pipets – 1 mL
3) Incubator – 25 ± 1°C

***Operating Procedure**

***Sample Preparation**

1) Prepare appropriate diluent: 0.1% peptone water for fruit product or MRD for other matrices and orange juice. Autoclave for sterilization.
2) Viable count in solid foodstuffs
   For fruit products, weigh 25-50 g of sample and add the appropriate amount of 0.1% peptone water to the weighted sample to achieve 10^{-1} dilution. Homogenize in a stomacher for 2 min ± 15 s For daily turkey, fresh whole tomatoes, cheese, bread and mayonnaise, weigh 10 g of sample and add 90 mL MRD. Homogenize in a stomacher for 1 min ± 10 s.
3) Viable count in liquid foodstuffs for orange juice, use without dilution, dilute 25-50 g in 9 x volumes in 0.1% peptone water (BAM method) or dilute 1 mL in 9 mL of MRD (ISO method) or dilute further if viable count is > 150 cfu / plate. Vortex to mix.
4) Viable count in swab test sample (not included in AOAC PTM certification)
   Use wiping solution (without dilution or diluted if necessary in MRD) obtained from the cotton swab. It is recommended to use CompactDry Swab PBS (450002-PBS-0500) available as an optional kit.

***Direction for CompactDry™ YM**

1) Open aluminum pouch, and remove 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.
3) Remove the lid from the plate, pipette 1 mL of sample (to be diluted further if necessary) in the middle of the dry sheet, and replace lid. Sample diffuses automatically and evenly over the entire sheet (total medium of 20 cm^2) to transform it into gel within seconds.
4) Write the appropriate information on the memorandum section. Invert the lidded plate and place in incubator at 25 ± 1°C for 3 – 7 days.
5) From backside of the plate, count the number of colored colonies (blue) and "cottony" colonies 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) The enumeration range of the CompactDry™ YM is 1 – 150 cfu/plate. Dilute samples further in the appropriate diluent as necessary to achieve a concentration level in the countable range.

***Precautions for use**

1) Do not use CompactDry™ YM for human or 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 carry over of tiny pieces of foodstuffs onto the surface of the medium.
5) If more than 10^4 cfu/ml were innoculated onto a plate, no distringuishable colored colonies will form and the entire plate will become colored.
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.
7) If a diluent with high buffering capacity (e.g. buffered peptone water (BPW) is used for this product, the coloration of colonies may be weakened. Please use the diluents such as saline solution, phosphate buffered solution, or peptone salt solution. For surface sampling, it is recommended to use CompactDry Swab PBS (450002-PBS-0500) available as an optional kit.

*** Interpretation**

The CompactDry™ YM plate consists of a special spread sheet containing nutrients, antibiotics to inhibit bacterial growth, a chromogenic enzyme substrate, X-phos, and a cold water-soluble gelling agent in a unique plastic dish. Yeasts and molds form green/blue colonies. While most colonies are some shade of green/blue, any colored colony should be counted. In addition, mold colonies may have a diffuse or cottony appearance.

*** Precaution for interpretation**

1) The full plate size is 20 cm^2. The backside contains carved grids of 1 cm × 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 can be obtained by averaging the number of colonies per large grid (1 cm × 1 cm), counted from several grids, and multiplying by 20. Alternatively, when large numbers of colonies are present, the total viable count can be obtained by averaging the number of colonies per small grid (0.5 cm × 0.5 cm) and multiplying by 80.
2) If more than 10^4 cfu/mL were inoculated onto a CompactDry™ YM plate, no distinguishable colored colonies will form and the entire plate may become colored.

*** 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 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 and sealed with tape to avoid light and moisture.
   5) Cap tightly after inoculation to avoid dehydration of gelled medium.
2. **Safety Precautions**
   1) Wash immediately with water if 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 into contact with the specimen as infectious.
3. **Precautions for disposal of waste**
   Sterilize any medium, reagent and 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: Store at room temperature (1 – 30 °C)
Shelf life:Eighteen (18) months after manufacturing.
Shelf life is printed on both label of outer box and aluminum pouch.

Package

CompactDry™ YM	40 plates	Code HS8802
CompactDry™ YM	100 plates	Code HS8801

Further information

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