

CompactDry “Nissui” 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 cone, 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, Nissui 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 AOAC

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

Test Kit Components

- 1) CompactDry “Nissui” 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 products or MRD for other matrixes and orange juice. Autoclave for sterilization.
- 2) Viable count in solid foodstuffs
For fruit products, weigh 25-50g of sample and add the appropriate amount of 0.1% peptone water to the weighed sample to achieve 10⁻¹ dilution. Homogenize in a stomacher for 2 min ± 15 s. For deli 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 9x volume of 0.1% peptone water (BAM method) or dilute 1 mL in 9 mL 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.

Direction for CompactDry YM

- 1) Open aluminum bag, 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 cap from the plate, pipette 1 mL of sample (to be diluted further if necessary) in the middle of the dry sheet, and replace cap. Sample diffuses automatically and evenly over the entire sheet (total medium of 20 cm²) to transform it into gel within seconds.
- 4) Write the appropriate information on the memorandum section. Invert the capped plate and place in incubator at 25 ± 1 °C . Incubate 3 to 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.

Precaution 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 cap 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 10⁴ CFU/mL were inoculated onto a CompactDry YM plate, no distinguishable colored colonies will form and the entire plate may become colored.
- 6) If the nature of sample does affect the reaction of the medium, inoculate the sample only after the factor has been eliminated by such means as dilution, pH adjustment, or other. This may include samples with high viscosity, that are colored, that react with the redox indicator, or have too high or too low pH.

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 blue colonies. While most colonies are some shade of 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 cm². 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.

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 bag 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 9001:2008 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: Eighteen (18) months after manufacturing.
Shelf life is printed on both label of outer box and aluminum bag.

Package

CompactDry “Nissui” YM 40 plates	Code 06746
CompactDry “Nissui” YM 240 plates	Code 06747

* Further information

Customer Support Section

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