

3M™ Petrifilm™ Yeast and Mold Count Plates

Introduction

The Petrifilm™ Yeast and Mold Count Plate is a ready-made system for the enumeration of yeast and molds. The plates contain nutrients supplemented with antibiotics, a cold water-soluble gelling agent, and a dye to enhance the visualization of growth on the plate.

Concepts

- Microbiology
- Plate counting

Materials

Petrifilm Yeast and Mold Count Plates
Petrifilm Spreader

Pipet
Incubator

Safety Precautions

Wear chemical-resistant gloves while working with microbial organisms. After use, Petrifilm Yeast and Mold Count Plates will contain viable cultures. Do NOT reopen the Petrifilm plates or handle unnecessarily. Wash hands thoroughly with soap and water before leaving the laboratory. Extreme caution should be exercised when handling culture materials, and students should be trained in aseptic techniques. Always clean work areas and wash hands after working with microbiological materials.

Procedures

1. Place the Petrifilm Yeast and Mold Count Plate on a flat surface. (See Figure 1.)
2. Lift the top film, hold the pipet perpendicular to the plate, and carefully dispense 1 mL of sample onto the center of the bottom film. (See Figure 2.)
3. Release the top film down onto the sample. (See Figure 3.)

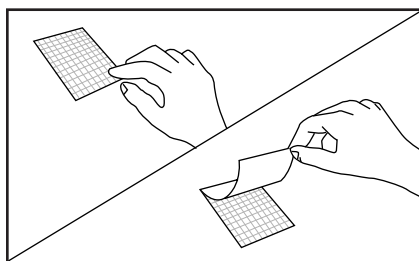


Figure 1.

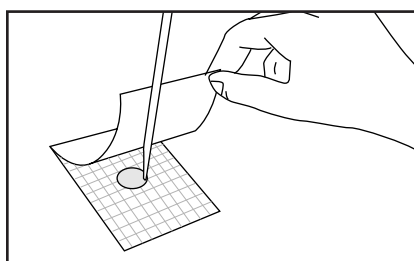


Figure 2.

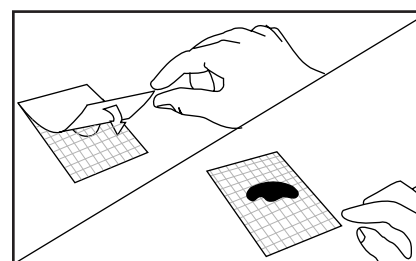


Figure 3.

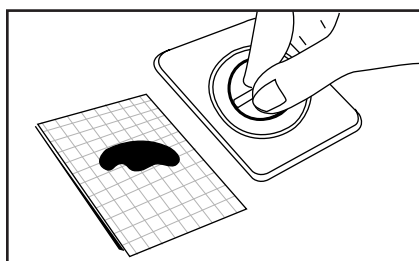


Figure 4.

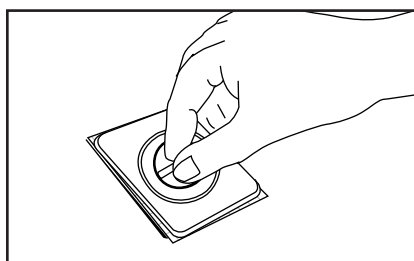


Figure 5.

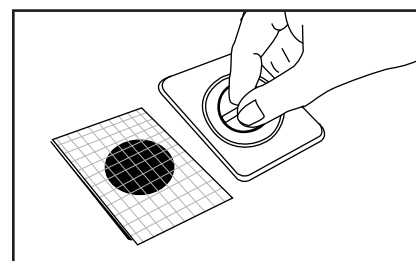


Figure 6.

4. Lift the plastic spreader using its circular handle. Align the center of the spreader with the approximate center of the plate. Distribute sample evenly by using a gentle downward pressure on the center of the spreader. (See Figures 4 and 5.) Do not slide the spreader across the film.
5. Remove the spreader and leave the plate undisturbed for one minute to permit solidification of the gel. (See Figure 6.)
6. Incubate the plates in a horizontal position with the clear side up at 20–25 °C. Plates can be stacked up to 20 high. Observe plates for growth at both three and five days.
7. Petrifilm Yeast and Mold Count Plates can be counted on a standard colony counter. Yeast colonies will be blue-green or off-white in color and will form small defined colonies. Mold colonies tend to be larger and more diffuse than the yeast colonies. The mold colonies are usually blue in color, but they may assume their natural pigmentation (i.e., black, yellow, green, etc.).
8. To isolate colonies for further identification, lift the top film and pick the colony from the gel using sterile techniques.

Disposal

After use, Petrifilm Yeast and Mold Count Plates will contain viable yeast and/or mold cultures. Do not separate or handle the plates unnecessarily. Treat them using sterile techniques even though the amount of media available for growth is very limited. Opening the plates and soaking them in 10% bleach solution or autoclaving them should precede their disposal in the garbage.

Tips

- Store unopened Petrifilm Yeast and Mold Count Plate foil pouches at or below 46 °F (8 °C).
- After opening, return unused plates to the foil pouch. Seal the pouch by folding and taping the open end.
- Store resealed foil pouches in a cool dry place. Use plates within one month after opening.
- Exposure of Petrifilm Yeast and Mold Count Plates to temperatures and/or humidities above 75 °F (25 °C) and 50% relative humidity can affect the performance of the plates.

Discussion

It is easy to count yeast and mold colonies on Petrifilm Yeast and Mold Count Plates. An indicator dye stains yeast and mold colonies to provide contrast for easier counting. To differentiate yeast and mold colonies on Petrifilm Yeast and Mold Count Plates look for one or more of the following typical characteristics:

Yeast

- Small colonies
- Colony has defined edges
- Pink-tan to blue-green in color
- Colony may appear raised
- Usually no focus in middle of colony

Mold

- Large colonies
- Colony has diffuse edges
- Variable colors
- Colonies appear flat
- Usually a focus (dark center) in center of colony

Proper incubation time and temperature are important to ensure growth of yeast and mold. Yeasts and molds are generally slow-growing and sensitive to high temperatures. To ensure proper growth, incubate your count plates at 20–25 °C (room temperature) and check the plates for growth at both three and five days. Since mold colonies grow between the films, inspecting the plates will not dislodge the spores and cause additional colonies.

Connecting to the National Standards

This laboratory activity relates to the following National Science Education Standards (1996):

Unifying Concepts and Processes: Grades K–12

Evidence, models, and explanation

Form and function

Content Standards: Grades 9–12

Content Standard C: Life Science, matter, energy, and organization in living systems; behavior of organisms

Acknowledgments

Petrifilm materials are a 3M manufactured product and are to be used for non-commercial research and development purposes only.

Materials for *Petrifilm Yeast and Mold Count Plates* are available from Flinn Scientific, Inc.

Catalog No.	Description
FB1172	Petrifilm Yeast and Mold Count Plate
FB1114	Yeast and Mold Spreader

Consult your *Flinn Scientific Catalog/Reference Manual* for current prices.