

Petrifilm™ Aerobic Count Plates



“a world of learning”

Description

The Petrifilm Aerobic Count Plate from 3M is a ready-made culture medium system for the enumeration of aerobic bacteria commonly found in food and beverages, and on work surfaces. Petrifilm Aerobic Count Plates contain Standard Methods nutrients, a cold water gelling agent and triphenyl tetrazolium chloride (TTC), an indicator that colours bacterial colonies red.

Directions For Use

1. Place the Petrifilm Aerobic Count Plate on a flat surface (see fig 1).
2. Lift the top film, hold the pipette perpendicular to the plate and carefully dispense 1mL of sample or sterile hydrating solution onto the centre of the bottom film (see fig 2). Sterile hydrating solution is used when you intend to test a surface by direct contact
3. Release the top film and allow it to drop onto the liquid (see fig 3).
4. Orient the plastic all-purpose spreader with the ridge side down (smooth side up) and place it on the top film over the liquid sample. Press gently on the centre of the spreader to distribute the sample evenly (see fig 4). Avoid sliding or twisting the spreader on the film. Remove the spreader and leave the plate undisturbed for one minute to allow the gel to solidify.
5. Plates treated with sterile hydrating solution should be allowed to gel for at least one hour, but may be stored in a refrigerator for up to 1 week before being used to test a surface.
6. Incubate inoculated plates in a horizontal position (clear side up) at 35°C for 2-3 days. Plates may be stacked up to 20 high and placed in a press-seal bag (see fig 5).

Interpretation

1. AC plates will indicate nearly all aerobic and facultative anaerobic bacteria in a sample. Other terms used for the Aerobic Count include Total Viable Count (TVC), Standard Plate Count (SPC) and Plate Count (PC). Count all red colonies regardless of size or intensity.
2. Express the count in terms of the number of colony forming units (cfu) per sample.
3. High concentrations of colonies will cause the entire growth area to be coloured red or pink. If this occurs, further dilution of the sample is required to obtain an accurate count.
4. While yeasts and moulds are capable of growing on the AC Plate, they generally do not appear within the 2-3 day incubation time. Any that do can be differentiated from bacteria since they do not produce a red colour.

Storage

Store unopened packs of Petrifilm Aerobic Count plates in a freezer. Allow the pack to come to room temperature before opening. After opening and removing the plates you need, the pack may be resealed with tape and/or placed in a press-seal bag and returned immediately to the freezer.

After removal from the pack, plates should be kept in cool dry conditions (below 25°C and 50%RH) and used within one month.



Figure 1



Figure 2



Figure 3



Figure 4



Figure 5

Petrifilm™ Aerobic Count Plates

Suggested Experiments

Bacterial populations on fingers and the effectiveness of washing.

In this experiment, you will measure the effectiveness of one or more sanitisers or other cleaning agents by testing for the presence of aerobic bacteria before and after cleaning. First of all, decide how many plates you would like to expose. For example, consider one per student or arrange several different cleaning agents and use one plate for each different cleaner. Allow an extra plate to serve as an unexposed control. Discuss the reasons for using a control with your students.

Hydrate the plates using sterile diluent and a sterile pipette and allow them to gel. This should be done at least one hour before use, but may be done up to one week in advance.

Using a marker pen, divide the plate in two by drawing a line down the centre of the top film. Label one side "unwashed" and the other "washed". See fig 6.

Peel back the top film and gently press the three middle fingers directly onto the underside of the top film, touching only the half labelled "unwashed". See fig 7. Allow the top film to return to its original position.

Thoroughly wash or sanitise both hands (see fig 8) then immediately repeat the contact procedure using the same three fingers, but this time touch only the half labelled "washed".

Carefully allow the top film to return to its original position then incubate at 35°C for 2-3 days. All bacterial colonies will appear as red dots on the plates.

This comparison demonstrates quite graphically the benefits of washing and sanitising hands. Compare a range of cleaning methods and products ranging from soap to a topical antibacterial rub such as Avargard Chlorhexidine Alcohol rub.

After incubation, plates can be sealed in a press-seal bag and frozen for future reference. Alternatively, they can be photographed and disposed of.

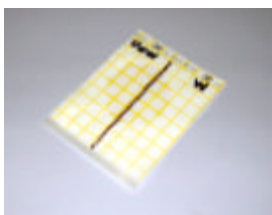


Figure 6



Figure 7



Figure 8

Safety and Disposal

Following inoculation, plates presented to the class for examination and counting should be taped shut or placed in a press-seal bag to keep them isolated. Follow good laboratory practice and have students thoroughly wash their hands after handling microbiological samples and equipment. Adequate antibacterial hand wash and hand rub sanitiser solutions should be provided.

Plates with viable colonies must be disposed of in a responsible way such as by autoclaving or soaking in an appropriate disinfectant. Alternatively, you can use a contract collection service such as that provided by Stericorp.

More Information

To receive a full colour "pdf" version of these notes, please email a request to sales@southernbiological.com.

For further information about Aerobic Count plates and other Petrifilm products, please visit the "Catalogue" section of our web site. You'll find more suggestions for student experiments as well as further details on sample preparation, usage techniques and interpretation of results.

To attend a participative hands-on workshop on how to successfully introduce Petrifilm to your school science curriculum, consult the "Events" section of our web site to check times and locations.

In addition, we would welcome a call to our office if you have any remaining questions relating to Petrifilm and its uses.

Acknowledgement

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