























## Product Instructions

-  (EN) Heterotrophic Count Plate
-  (FR) Test Flore Hétérotrophe
-  (DE) Heterotrophe Zählplatte
-  (IT) Piastra per il conteggio degli eterotrofi
-  (ES) Placa para recuento de heterotrófos
-  (NL) Heterotrophic Telplaat
-  (SV) Heterotrophic Count Plate
-  (DA) Heterotrof Tælleplade
-  (NO) heterotrofe bakterier
-  (FI) Heterotrofen Kasvatusalusta
-  (PT) Placa Para Contagem de Heterotrócos
-  (EL) Ετεροτροφικό Πλακίδιο Καταμέτρησης
-  (PL) Płytko Do Oznaczania Liczby Drobnoustrojów Heterotropowych
-  (HU) Heterotróf mikroorganizmusok számának meghatározására szolgáló lemez
-  (CS) Test na stanovení celkového počtu heterotrofních organismů
-  (RO) Placă de numărare microorganisme heterotrofe
-  (RU) Тест-пластина для подсчета гетеротрофных бактерий
-  (TR) Heterotrof Canlı Sayım Plakası
-  (JA) 一般生菌数(従属栄養細菌)測定用プレート
-  (ZH) 异养菌总数测试片
-  (TH) Heterotrophic Count Plate
-  (KO) 종속 영양균 측정용 플레이트

## Product Instructions

# Aqua | Heterotrophic Count Plate

### Description

The 3M™ Petrifilm™ Aqua Heterotrophic Count (AQHC) Plate is a sample-ready culture medium system which contains Standard Methods nutrients, a cold-water-soluble gelling agent, and a tetrazolium indicator that facilitates colony enumeration. Petrifilm AQHC Plates are used for the enumeration of heterotrophic bacteria in the bottled water industry. Petrifilm AQHC Plate components are decontaminated though not sterilized. 3M Food Safety is certified to ISO (International Organization for Standardization) 9001 for design and manufacturing.

### ⚠ Cautions

3M has not documented Petrifilm AQHC Plates for use in industries other than bottled water. For example, 3M has not documented Petrifilm AQHC Plates for testing surface and municipal waters, or waters used in the pharmaceutical or cosmetic industries. The use of Petrifilm AQHC Plates to test water samples in compliance with local water testing regulations is at the sole discretion and responsibility of the end-user.

Petrifilm AQHC Plates have not been tested with all possible bottled water samples, testing protocols or with all possible strains of microorganisms.

Do not use Petrifilm AQHC Plates in the diagnosis of conditions in humans or animals.

For information on documentation of product performance, visit our website at [www.3M.com/foodsafety](http://www.3M.com/foodsafety) or contact your local 3M representative or distributor.

### User Responsibility

No one culture medium will always recover the exact same strains or enumerate a particular strain exactly as does another medium. In addition, external factors such as sampling methods, testing protocols, preparation time and handling may influence recovery and enumeration.

**It is the user's responsibility in selecting any test method to evaluate a sufficient number of water samples and microbial challenges to satisfy the user that the chosen test method meets the user's criteria.**

It is also the user's responsibility to determine that any test methods and results meet its customers' or suppliers' requirements.

As with any culture medium, Petrifilm AQHC Plate results do not constitute a guarantee of quality of bottled water products that are tested with the plates.

⚠ The user must train its personnel in current proper testing techniques: for example, Good Laboratory Practices<sup>1</sup> or ISO 17025<sup>2</sup>.

### Disclaimer of Warranties / Limited Remedy

UNLESS OTHERWISE PROHIBITED BY LAW, 3M DISCLAIMS ALL EXPRESS AND IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, ANY WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR USE. If any 3M Petrifilm Plate is proven to be defective, 3M or its authorized distributor will replace or, at its option, refund the purchase price of any plate. These are your exclusive remedies. You must promptly notify 3M within sixty days of discovery of any suspected defect in a product and return the product to 3M. Please call Customer Service (1-800-328-1671 in the U.S.) or your official 3M Food Safety representative for a Returned Goods Authorization.

### Limitation of 3M Liability

UNLESS OTHERWISE PROHIBITED BY LAW, 3M WILL NOT BE LIABLE TO USER OR OTHERS FOR ANY LOSS OR DAMAGE, WHETHER DIRECT, INDIRECT, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES, INCLUDING, BUT NOT LIMITED TO, LOST PROFITS. Except where prohibited by law, in no event shall 3M's liability under any legal theory exceed the purchase price of the plates alleged to be defective. Customer may have additional rights and should seek advice in country of purchase.



## Storage and Disposal

Store **unopened** Petrifilm Plate pouches refrigerated or frozen at temperatures lower than or equal to 8°C (46°F). Just prior to use, allow unopened pouches to come to room temperature before opening. Return unused plates to pouch. Seal by folding the end of the pouch over and applying adhesive tape. **To prevent exposure to moisture, do not refrigerate opened pouches.** Store resealed pouches in a cool dry place for no longer than one month. It is recommended that resealed pouches of Petrifilm Plates be stored in a freezer (see below) if the laboratory temperature exceeds 25°C (77°F) and/or the laboratory is located in a region where the relative humidity exceeds 50% (with the exception of air-conditioned premises).

To store opened pouches in a freezer, place Petrifilm Plates in a sealable container. To remove frozen Petrifilm Plates for use, open the container, remove the plates that are needed and immediately return remaining plates to the freezer in the sealed container. Plates should not be used past their expiration date. Do not store open pouches in a freezer with an automatic defrost cycle, as this could damage the plates due to repeated exposure to moisture.

Do not use plates that show discoloration. Expiration date and lot number are noted on each package of Petrifilm Plates. The lot number is also noted on individual plates.

⚠ After use, Petrifilm AQHC Plates may contain microorganisms that may be a potential biohazard. Follow current industry standards for disposal.

## Instructions for Use – Filtered Water Sample Testing

### Hydrate Petrifilm AQHC Plates

1. Place the Petrifilm AQHC Plate on a flat, level surface (Figure A).
2. Lift the top film and dispense 1 mL of an appropriate sterile hydration diluent onto the center of the bottom film (Figure B). Appropriate sterile hydration diluents include distilled water, deionized (DI) water and reverse osmosis (RO) water.
3. Drop the top film down onto the sample (Figure C).
4. Place the plastic spreader with the recessed side down on the center of the plate (Figure D). Press gently on the center of the spreader to distribute the diluent evenly. Spread the diluent over the entire Petrifilm Plate growth area before the gel is formed. Do not slide the spreader across the film.
5. Remove the spreader and allow the plates to remain closed for a minimum of 1 hour before use.
6. Store hydrated Petrifilm AQHC Plates in a sealed pouch or plastic bag. Protect plates from light and refrigerate at 2-8°C (36-46°F) for up to 14 days.

### Water Filtration and Plate Incubation

1. Following standard procedures for water analysis, membrane filter water sample using a 47 mm, 0.45 micron pore size Mixed Cellulose Ester (MCE) filter.
2. Carefully lift the top film of the Petrifilm AQHC Plate. Avoid touching the circular growth area. Place the filter in the center of the hydrated area (Figure E).
3. Slowly replace top film onto the filter. Minimize trapping air bubbles and creating gaps between the filter and the Petrifilm AQHC Plate.
4. Lightly apply pressure by using the Petrifilm Plate spreader or sliding a finger lightly across the entire disk area (including edges) to ensure uniform contact of the filter with the gel and to eliminate any air bubbles (Figure F).
5. Incubate Petrifilm AQHC Plates at 35°C ± 2°C for 48 ± 3 hours in a horizontal position with the clear side up in stacks of no more than 20.

## Instructions for Use – Direct Plating Method

1. Place the Petrifilm AQHC Plate on a flat, level surface (Figure A).
2. Lift the top film and with the pipette perpendicular dispense 1 mL of bottled water sample onto the center of bottom film (Figure B).
3. Drop the top film down onto the sample (Figure C).
4. Place the plastic spreader with the recessed side down on the center of the plate (Figure D). Press gently on the center of the spreader to distribute the sample evenly. Spread the inoculum over the entire Petrifilm Plate growth area before the gel is formed. Do not slide the spreader across the film.



5. Remove the spreader and leave the plate undisturbed for at least one minute to permit the gel to form.
6. Incubate Petrifilm AQHC Plates at  $22^{\circ}\text{C} \pm 2^{\circ}\text{C}$  for  $68 \pm 4$  hours and  $36^{\circ}\text{C} \pm 2^{\circ}\text{C}$  for  $44 \pm 4$  hours<sup>3</sup> in a horizontal position with the clear side up in stacks of no more than 20.

## Interpretation

1. Petrifilm AQHC Plates can be counted using a standard colony counter or other illuminated magnifier. Count all red colonies regardless of size or color intensity (Figure G).

Note: With direct plating bottled water samples, some colonies may be associated with a pink halo.

2. Some organisms can liquefy the gel, allowing them to spread out and obscure the presence of other colonies. If liquefied gel interferes with counting, an estimated count should be made by counting the unaffected areas.
3. Direct Plating: If the Petrifilm AQHC Plates contains greater than 300 colonies an estimated count can be made by counting the number of colonies in two or more representative squares and determining the average number per square. Multiply the average number by 20 to determine the estimated count per plate (Figure H).
4. High concentrations of colonies on the Petrifilm AQHC Plates will cause the entire growth area to become red or pink (Figure I). Occasionally, on overcrowded plates, the center may lack visible colonies, but many small colonies can be seen on the edges. When any of these occurs, record results as too numerous to count (TNTC). When an actual count is required, plate at a higher dilution.
5. Colonies may be isolated for further identification. Lift the top film and pick the colony from the gel or the filter surface. (Figure J). For filtered samples, the filter may adhere to either the top film or the bottom film. If the filter adheres to the top film, separate the filter from the top film and pick colonies. Test using standard procedures.

**Note:** Delayed counting of Petrifilm AQHC Plates with or without filters is not recommended.

For further information refer to the appropriate Petrifilm Plate "Interpretation Guide." If you have questions about specific applications or procedures, please visit our website at [www.3M.com/foodsafety](http://www.3M.com/foodsafety) or contact your local 3M representative or distributor.

## References

1. U.S. Food and Drug Administration. Code of Federal Regulations, Title 21, Part 58. Good Laboratory Practice for Nonclinical Laboratory Studies.
2. ISO/IEC 17025. General requirements for the competence of testing and calibration laboratories.
3. ISO 6222. Water Quality – Enumeration of culturable micro-organisms – Colony count by inoculation in a nutrient agar culture medium.
4. American Public Health Association. 1998. Standard Methods for the Examination of Water and Wastewater, 20<sup>th</sup> Ed.

Refer to the current versions of the standard methods listed above.

## Explanation of Symbols

[www.3M.com/foodsafety/symbols](http://www.3M.com/foodsafety/symbols)

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# Figures

