

# A New Choice in Beverage Testing



*The beverage industry's traditional water testing methods are effective for scientific and safety purposes but can be time and labor intensive as well. Most labs testing bottled water or process water have relied on agar-based methods for decades. Recently, a more efficient method was found with the "go-to" bacteria-testing application, which food-processing companies have relied on for the last quarter-century.*

**By Robert Young**

One such technology is 3M Petrifilm Plates: sample-ready plates that contain nutrients and a gelling agent. Entering the market in 1984, the plate was widely viewed as a step forward in the way food processors and manufacturers evaluate the quality and safety of their products.

The technology came from the mind of a 3M inventor who was searching for relief from the task of preparing and pouring agar plates. He found an answer in the highly absorbent gel used in, of all places, adult diapers. He speculated that this gel might be a good medium to grow bacteria—and he was

right. All that was left was to add nutrients and an indicator to help visualize microbial colonies. Figure 1 shows a diagram of the anatomy of the standard 3M Petrifilm Plate that resulted from the inventor's idea.

Twenty-seven years later, the testing plates have become a testing standard in the food business. More than 200 evaluations have been completed from worldwide validation agencies and peer-review publications since the product's introduction. In early 2011, the plates were evaluated for use by the beverage industry.

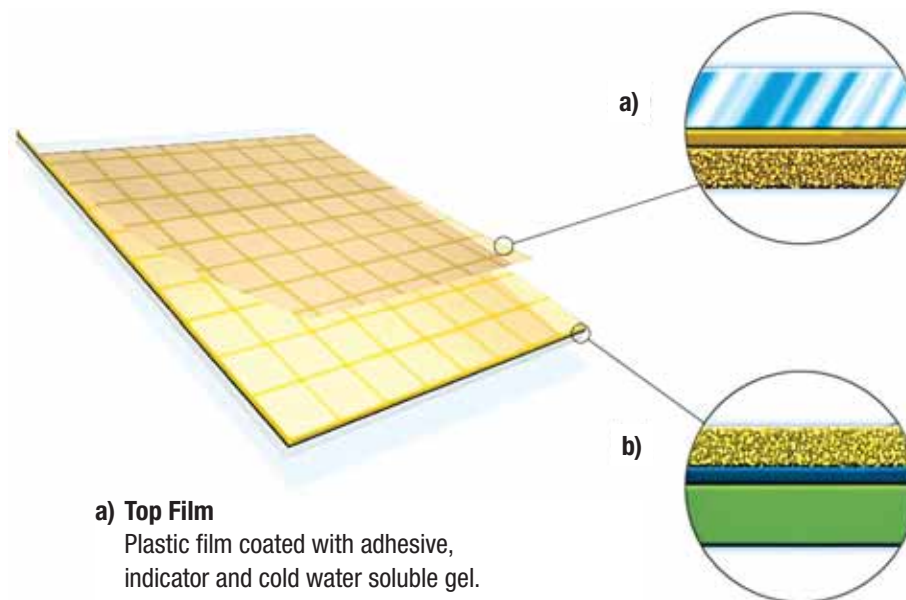
## Expanding to Water Testing

The idea to expand the plates' uses originated from food industry customers who voiced displeasure with having to stock separate media to test process water and food. Realizing that water testing was a natural extension of food testing, 3M began feasibility research and found the results compared well to current bottled water testing methods. Work began immediately on the new microorganism enumeration technology.

In 2011, the company introduced Petrifilm Aqua Plates to the commercial market for testing heterotrophic

Prepared testing plates increase efficiency and reduce contamination risks

**Figure 1. 3M Petrifilm Aqua Aerobic Count Plate**



**a) Top Film**  
Plastic film coated with adhesive, indicator and cold water soluble gel.

**b) Bottom Film**  
Plastic-coated paper printed with a grid, adhesive standard methods nutrients and cold water soluble gel.

count, coliform, yeast and mold, and Enterobacteriaceae.

Specific benefits of using the new method vary depending on a bottler's current test methods, but the Petrifilm Aqua Plates offer consistency, enhanced productivity and savings in lab space, energy use and waste. The products have an 18-month shelf life, which is longer than preprepared agar plates, giving peace of mind to lab managers concerned with expiration dates and available lab space.

### Productivity

One benefit of the Petrifilm Aqua Plates is improvement in productivity. Beverage companies that prepare their own agar pour plates can see an improvement in productivity with ready-to-use testing plates. By eliminating the process of making agar, technician time can be redirected toward more value-adding activities, such as sampling, monitoring production and HACCP programs.

An industry study conducted with 292 food-processing plants demonstrated an 80% increase in technician productivity after converting from agar to sample-ready testing plates. Disposable filter funnel or Colilert users could also see a reduction in cost and a 90% saving in space relative to their current methods.

### Consistency

Consistency is another benefit of the ready-to-use testing plates. In the bottled water industry, where microorganisms are rarely detected, technicians have to be extraordinarily careful not to introduce contaminants and organisms into the testing process.

Using agar-based methods, technicians must carefully place the filter onto the agar plate. Accurate colony enumeration can be difficult when air trapped between the filter and the agar influences colony growth.

Petrifilm Aqua Plates can take out some of the human variable, which can lead to these problems because every step in a process adds an opportunity for contamination. By removing test preparation steps, technicians are able to cut down on possible contamination.

### Conclusion

Sample-ready testing plates can offer a reliable, consistent alternative to current water testing methods. These products can offer labs a way to cut down on preparation and testing time, lab space

and lab waste, as well as overall costs. For bottled water and food-processing companies looking to improve water-testing processes, these new methods can be a positive change. *wqp*

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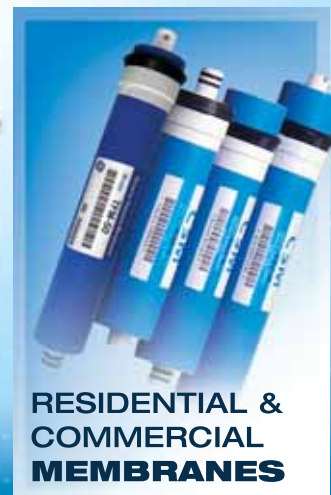
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