

MC-Media Pad® solution

Comparison of different convenience solution products for indicator organism testing in food and beverage samples

The MC-Media Pad® is a convenient method for the rapid routine testing of microbial contamination of raw and in-process food and beverage materials, and finished products. The MC-Media Pad® solution is composed of a series of ready-to-use pads for total count and specific detection and enumeration of indicator organisms.

Each MC-Media Pad® comprises a fabric pad coated with a dedicated culture media formulation, placed on an adhesive support and covered with a transparent gas permeable lid.

The MC-Media Pad® solution has been specifically developed for the testing of 1 mL food samples.

The performance of the following MC-Media Pad® tests was challenged with 3 comparable convenient testing products (Product A, Product B and Product C) in the market:

MC-Media Pad® Rapid Aerobic Count, MC-Media Pad® Coliform, MC-Media Pad® E. coli / Coliform, MC-Media Pad® Yeast / Mold.



Method

Food and Beverage Matrix selection

4 challenging food and beverage products were tested: dried soup, cola, chocolate pudding and mozzarella purchased at a local store were selected to cover 4 different food product families.

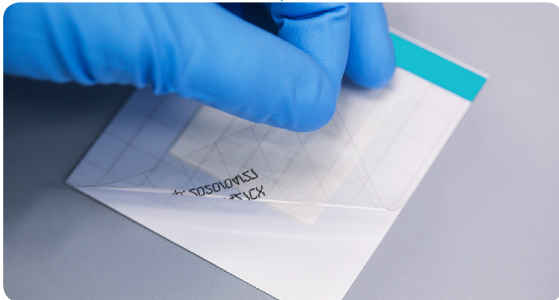
Sample Preparation

Portions of 10 g or 10 mL of each food sample were added to a stomacher bag or blender cup. 90 mL of diluents (sterile 0.9% NaCl-solution (Sodium chloride - Merck Cat. 1.06400.1000)) were then also added to the homogenizer bag or blender cup and stomached or homogenized for 2 mins (Enrichment Sample Homogenizer ESH - Merck Cat. 5.42765.0001). Each sample homogenate was then inoculated with 20 to 80 CFUs of a mixture of *Escherichia coli* ATCC® 25922, or *Salmonella typhimurium* ATCC® 14028 for MC-Media Pad® Rapid Aerobic Count, MC-Media Pad® Coliform, MC-Media Pad® E. coli / Coliform, or with *Saccharomyces cerevisiae* ATCC® 9763 and *Mucor racemosus* ATCC® 42647 for MC-Media Pad® Yeast / Mold.

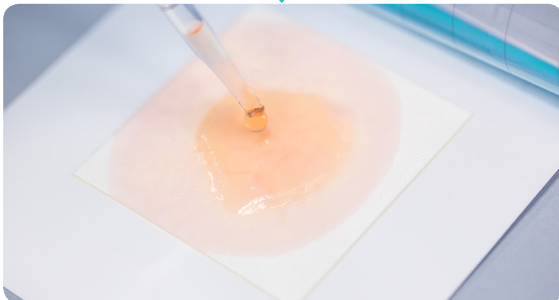
MC-Media Pad® Protocol and Competitor Product Protocol



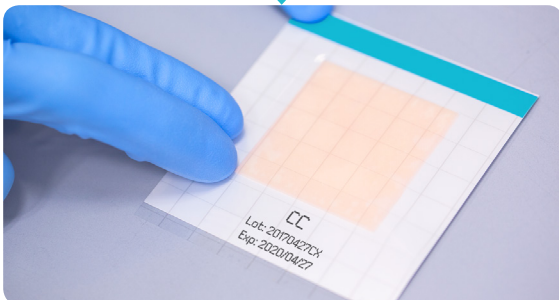
Remove MC-Media Pad® from aluminum pouch



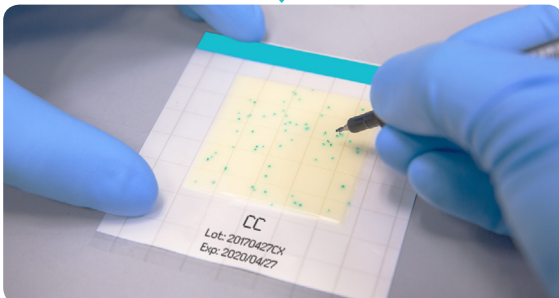
**Label the MC-Media Pad®
Open the cover film diagonally**



**Dispense 1 mL of food sample onto
the center of the pad. Sample diffuses
automatically into whole pad**



**Close cover film then incubate according
to application conditions**



**After incubation, count colonies
in CFU**

Other products have been tested according to the procedures described in the individual package inserts.

Result interpretation

Each test was performed in triplicate, and recovery calculated as a percentage versus control plates: TSA (Merck Cat. 146431) for MC-Media Pad® Rapid Aerobic Count, MC-Media Pad® Coliform, MC-Media Pad® E. coli / Coliform and SDA (Merck Cat. 146236) for MC-Media Pad® Yeast / Mold.

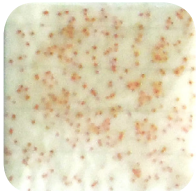
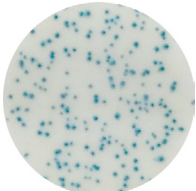
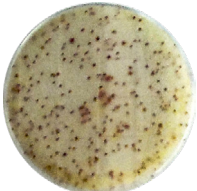
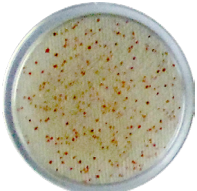
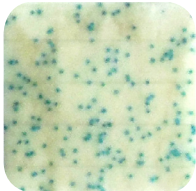
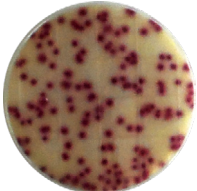
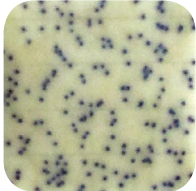
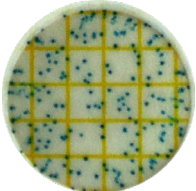
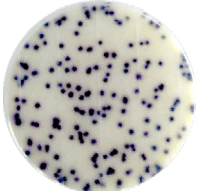
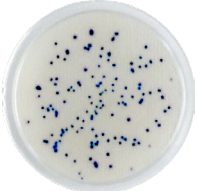
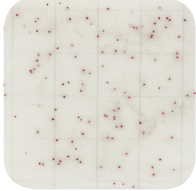
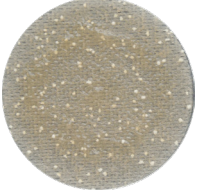
The following color code is used to demonstrate the results

 Recovery between 80% and 120%
  Recovery between 60% and 80%
  Recovery below 60%

RESULTS

Chocolate pudding

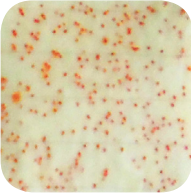
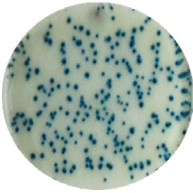
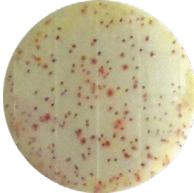
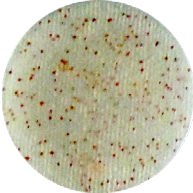
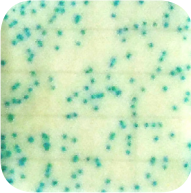
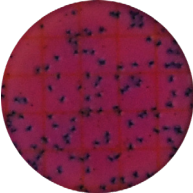
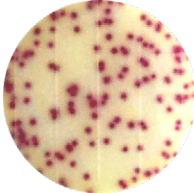
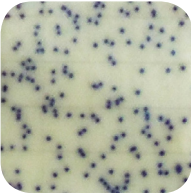
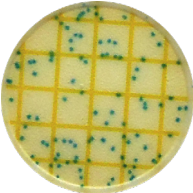
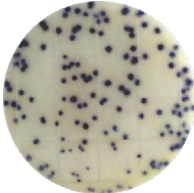
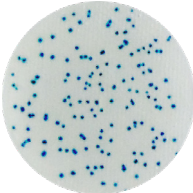
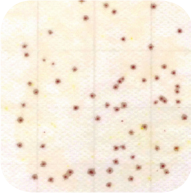
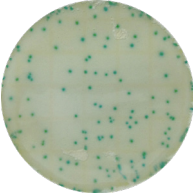
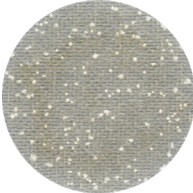
Chocolate pudding	MC-Media Pad®	Product A	Product B	Product C
Total count				
Coliform				Reference not available
E. coli / Coliform				
MC-Media Pad® Yeast / Mold	 <i>S. cerevisiae</i>	 Colonies not visible after 48 h	 Colonies not visible after 48 h	
	 <i>M. racemosus</i>		Not countable Smeared colonies	 Colonies not visible after 48 h

Chocolate pudding	MC-Media Pad®	Product A	Product B	Product C
Total count				
Coliform				Reference not available
E. coli / Coliform				
MC-Media Pad® Yeast / Mold				

Dried soup

Dried soup	MC-Media Pad®	Product A	Product B	Product C
Total count				
Coliform				Reference not available
E. coli / Coliform				
Yeast / Mold	 <i>S. cerevisiae</i>			
	 <i>M. racemosus</i>		Difficult to count*	

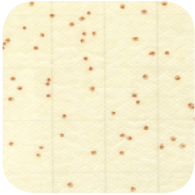
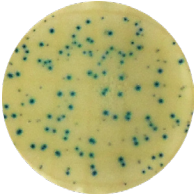
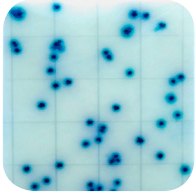
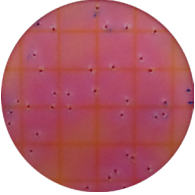
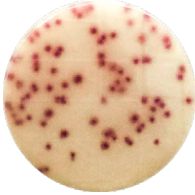
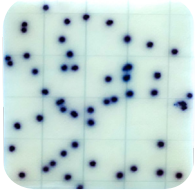
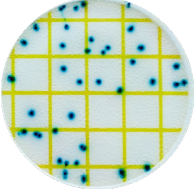
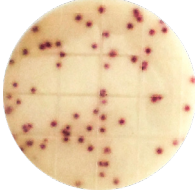
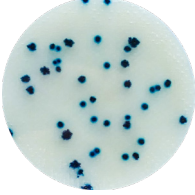
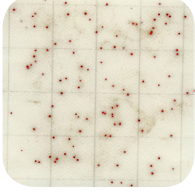
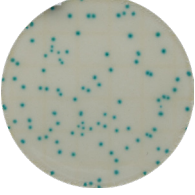
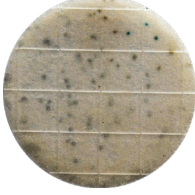
* Colonies are not colored or difficult to see

Dried soup	MC-Media Pad®	Product A	Product B	Product C
Total count				
Coliform				Reference not available
E. coli / Coliform				
Yeast / Mold				

Cola

Cola	MC-Media Pad®	Product A	Product B	Product C
Total count				
Coliform				Reference not available
E. coli / Coliform				
Yeast / Mold	 <i>S. cerevisiae</i>			
	 <i>M. racemosus</i>		Difficult to count*	

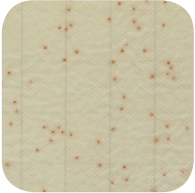
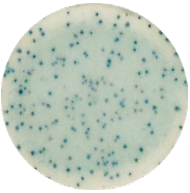
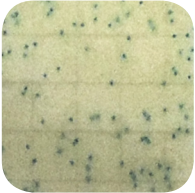
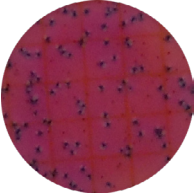
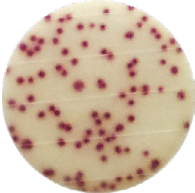
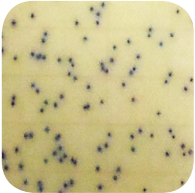
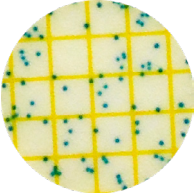
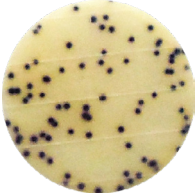
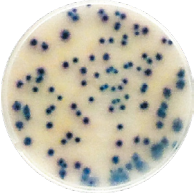
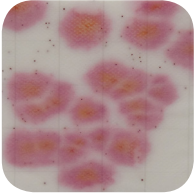
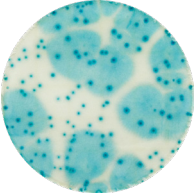
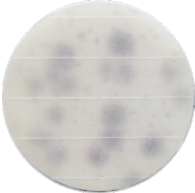
* Colonies are not colored or difficult to see

Cola	MC-Media Pad®	Product A	Product B	Product C
Total count				
Coliform				Reference not available
E. coli / Coliform				
Yeast / Mold				

Mozzarella

Mozzarella	MC-Media Pad®	Product A	Product B	Product C
Total count				
Coliform				Reference not available
E. coli / Coliform				
Yeast / Mold	 <i>S. cerevisiae</i>			
	 <i>M. racemosus</i>		 Difficult to count*	

* Colonies are not colored or difficult to see

Mozzarella	MC-Media Pad®	Product A	Product B	Product C
Total count				
Coliform				Reference not available
E. coli / Coliform				
Yeast / Mold				

conclusion:

This study demonstrates that MC-Media Pad® tests can be used to detect and easily enumerate indicator organism contamination in a broad range of food and beverage matrices showing a growth performance equivalent or better to other convenient solutions in the market. In addition to the comparable performance, MC-Media Pad® tests provide some benefits over existing products in terms of color-coding, handling, time to results for yeast & molds, and improved read-out using chromogenic substance to allow fast and convenient detection of microbial contamination.

Ordering Information

Name	Description	International standards	Quantity	Order Number
MC-Media Pad® Rapid Aerobic Count	Convenient culture media for rapid enumeration of aerobic microbial contamination	• AOAC® Performance TestedSM, cert.-no. 091702 • ISO 16140 Certification, MicroVal cert.-no. 2015LR52 • QC strain selection acc. to ISO 11133	100 Pads	1.32359.0001
MC-Media Pad® Coliform	Convenient culture media for enumeration of coliform bacteria	• AOAC® Performance TestedSM, cert.-no. 100402 • QC strain selection acc. to ISO 11133	100 Pads	1.32356.0001
MC-Media Pad® E. coli / Coliform	Convenient culture media for simultaneous enumeration of <i>Escherichia coli</i> and coliform bacteria	• AOAC® Performance TestedSM, cert.-no. 070901	100 Pads	1.32357.0001
MC-Media Pad® Yeast / Mold	Convenient culture media for enumeration of total yeast and mold count	• AOAC® Performance TestedSM, cert.-no. 111401 • AOAC® Official Method of Analysis, no. AOAC 2018.02 • ISO 16140 Certification, MicroVal cert. no. 2015LR5 • QC strain selection acc. to ISO 11133	100 Pads	1.32360.0001
Optional accessories				
Enrichment Sample Homogenizer ESH	Paddle Homogenizer, Maximum volume of food sample: 400 mL			5.42765.0001

[SigmaAldrich.com/MC-MediaPad](https://sigmaaldrich.com/MC-MediaPad)

Merck KGaA
Frankfurter Strasse 250
64293 Darmstadt, Germany

To place an order or receive technical assistance

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