



# PRODUCT SPECIFICATION SHEET

## M-FC Agar Base (DM781)

### Intended Use

M-FC Agar Base (DM781) is recommended for detection and enumeration of faecal coliforms using MF technique at higher temperatures (44.5°C).

### Product Summary and Explanation

Fecal coliforms (i.e., those found in the feces of warm-blooded animals) are differentiated from coliforms from environmental sources by their ability to grow at  $44.5 \pm 0.5^\circ\text{C}$ .<sup>(1)</sup> Geldreich et al<sup>(2)</sup> designed M-FC Agar Base, for the detection and enumeration of faecal coliforms using the membrane filter technique without prior enrichment. M-FC Agar Base is recommended by APHA<sup>(3)</sup> and by various other standards for detection of faecal coliforms.<sup>(4-6)</sup> APHA recommends the membrane filtration procedure, delayed incubation for faecal coliforms and the two-layer agar method for recovering injured fecal coliforms. AOAC International specifies m FC Agar for detecting total coliforms and fecal coliforms in foods.

### Principles of the Procedure

M-FC Agar Base contains proteose peptone and tryptose which provide nitrogen, carbon, minerals and necessary nutrients for the growth of faecal coliforms. Yeast extract supplies B-complex vitamins that stimulate bacterial growth. Lactose is the carbon source as well as fermentable carbohydrate in the medium. Bile salts inhibit the growth of contaminating gram-positive microorganisms. Aniline blue is a triphenyl methane dye which suppresses the growth of many gram-positive microorganisms. The differential indicator system combines aniline blue and rosolic acid.

### Formula / Liter

Ingredients	Gms / Liter
Tryptose	10.00
Proteose peptone	5.00
Yeast extract	3.00
Lactose	12.50
Bile salts mixture	1.50
Sodium chloride	5.00
Aniline blue	0.10
Agar	15.00
Final pH: $7.4 \pm 0.2$ at $25^\circ\text{C}$	
Formula may be adjusted and/or supplemented as required to meet performance specifications	

### Precautions

1. For Laboratory Use only.
2. IRRITANT. Irritating to eyes, respiratory system, and skin.

### Directions

1. Suspend 52.1 grams of the medium in one liter of distilled water containing 10 ml 1% Rosolic Acid (MS181).
2. Heat to boiling to dissolve the medium completely. DO NOT AUTOCLAVE.
3. Cool to  $45^\circ\text{C}$  and pour into sterile Petri plates.





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## Quality Control Specifications

<b>Dehydrated Appearance</b>	Light yellow to greyish yellow, may have slight green or blue tinge homogeneous free flowing powder
<b>Prepared Medium</b>	After Addition of 1% Rosolic Acid : Red coloured slightly opalescent gel forms in Petri plates
<b>Reaction of 5.21% solution</b>	pH : 7.4 ± 0.2 at 25°C
<b>Gel Strength</b>	Firm, comparable with 1.5% Agar gel

**Expected Cultural Response:** Cultural characteristics observed with added 1% Rosolic Acid (MS181) after an incubation at different temperatures for 22-24 hours.

Sr. No.	Organisms	Results to be achieved			
		Inoculum (CFU)	Growth at 35-37°C	Growth at 45.5°C	Colour of colony (on Membrane filter)
1.	<i>Enterococcus faecalis</i> ATCC 29212	>=10 <sup>3</sup>	inhibited	inhibited	--
2.	<i>Escherichia coli</i> ATCC 25922	50-100	good-luxuriant	good-luxuriant	blue
3.	<i>Salmonella Typhimurium</i> ATCC 14028	50-100	good-luxuriant	inhibited	pinkish
4.	<i>Shigella flexneri</i> ATCC 12022	50-100	good-luxuriant	inhibited	pinkish

The organisms listed are the minimum that should be used for quality control testing.

## Test Procedure

1. Membrane filters, through which water sample is passed are aseptically placed onto M-FC Agar base plates.
2. If total coliforms are to be estimated, incubation is carried out at 35-37°C whereas if faecal coliform count is to be estimated, incubation is done at 44-45°C.
3. Refer appropriate references for specific test procedures.

## Results

Coliforms will form blue colonies whereas non-coliforms will form gray coloured colonies on M-FC Agar Base. Refer appropriate references and test procedures for interpretation of results.

## Storage

Store the sealed bottle containing the dehydrated medium at 10 - 30°C. Once opened and recapped, place container in a low humidity environment at the same storage temperature. Protect from moisture and light.

## Expiration

Refer to the expiration date stamped on the container. The dehydrated medium should be discarded if not free flowing, or if the appearance has changed from the original color. Expiry applies to medium in its intact container when stored as directed.

## Limitations of the Procedure

1. A few non-fecal coliform colonies may be observed on m FC media due to the selective action of the elevated temperature and the addition of the Rosolic Acid.
2. It may be useful to elevate the temperature to 45 ± 0.2°C to eliminate *Klebsiella* strains from the fecal coliform group.





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- For identification, organisms must be in pure culture. Morphological, biochemical and/or serological tests should be performed for final identification.
- Consult appropriate texts for detailed information and recommended procedures.

### Packaging

Product Name : M-FC Agar Base

Product Code : DM781

Available Pack sizes : 500gm

### References

- Collee J. G., Fraser A. G., Marmion B. P., Simmons A., (Eds.) Mackie and McCartney, Practical Medical Microbiology, 1996, 14th Edition, Churchill Livingstone.
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- Eaton A. D., Clesceri L. S. and Greenberg A. W., (Eds.), 2005, Standard Methods for the Examination of Water and Wastewater, 21st Ed., APHA, Washington, D.C.
- Official Methods of Analysis of AOAC International, 2000, 17th Ed., AOAC International, Gaithersburg, Md.
- U.S. Environmental Protection Agency, 1992, EPA-814B-92-2002, Office of Ground Water and Technical Support Division, USEPA, Cincinnati, Ohio.
- Bordner R. H., Winter J. A. and Scarpino P. V. (Eds.), 1978, EPA-600/8-78-017, Environmental Monitoring and Support Laboratory, Office of Research and Development, U.S. Environmental Protection Agency, Cincinnati, Ohio.

### Further Information

For further information please contact your local MICROMASTER Representative.



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