



## PRODUCT SPECIFICATION SHEET

### Violet Red Bile Broth (DM440)

#### Intended Use

Violet Red Bile Broth (DM440) is recommended for detection and enumeration of coliforms from water and food.

#### Product Summary and Explanation

The coliform group of bacteria includes aerobic and facultatively anaerobic gram-negative non-sporeforming bacilli that ferment lactose and form acid and gas at 35°C within 48 hours. *Enterobacteriaceae* members comprise the majority of the group but other lactose fermenting organisms may also be included. Procedures to detect, enumerate and presumptively identify coliforms are used in testing foods and dairy products.<sup>(1-3)</sup> Violet Red Bile Broth, a modification of MacConkeys original formulation<sup>(4)</sup> is used for the enumeration of *coli-aerogenes* bacterial group. The selective inhibitory components crystals violet and bile salts and the indicator system lactose, and neutral red constitutes to reliable elements of this medium. Thus, the growth of many unwanted organisms is suppressed, while tentative identification of sought bacteria can be made. Violet Red Bile Broth is similar to VRBA except that the agar is recommended by APHA.<sup>(5, 6)</sup> Selectivity of the medium can be increased by incubation under anaerobic conditions and/ or at elevated temperature, i.e. equal to or above 42°C.<sup>(7-9)</sup> Lactose non-fermenters and late lactose fermenters produce pale coloured medium. Other related gram-negative bacteria can be suppressed by incubation at >42°C or by anaerobic incubation. Incubation may be carried out at >42°C for 18 hours, 32°C for 24-48 hours or 4°C for 10 days depending on the temperature characteristics of the organisms to be recovered.<sup>(7)</sup>

#### Principles of the Procedure

Violet Red Bile Broth contains peptic digest of animal tissue and yeast extract which acts as sources of carbon, nitrogen, vitamins and other essential growth nutrients. Lactose is the fermentable carbohydrate, utilization of which leads to acid production. Neutral red is a pH indicator which detects the acidity so formed. Crystal violet and bile salts mixture help to inhibit the accompanying gram-positive and unrelated flora. Sodium chloride maintains the osmotic equilibrium.

#### Formula / Liter

Ingredients	Gms / Liter
Peptic digest of animal tissue	7.00
Biopeptone	3.00
Bile salts mixture	1.50
Lactose	10.00
Sodium chloride	5.00
Neutral red	0.30
Crystal violet	0.002
Final pH: 7.4 ± 0.2 at 25°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 26.53 grams of the medium in one liter of distilled water.
2. Heat with stirring to boiling, to dissolve the medium completely.
3. DO NOT AUTOCLAVE.
4. Cool to 45°C and dispense into sterile tubes containing the inoculums.





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### Quality Control Specifications

Dehydrated Appearance	Light yellow to pinkish beige homogeneous free flowing powder
Prepared Medium	Reddish purple coloured clear solution in tubes
Reaction of 2.65% Solution	pH : 7.4 ± 0.2 at 25°C
Gel Strength	Not Applicable

**Expected Cultural Response:** Cultural characteristics observed after an incubation at 35-37°C for 18-24 hours.

Sr. No.	Organisms	Results to be achieved		
		Inoculum (CFU)	Growth	Colour of Medium
1.	<i>Escherichia coli ATCC 25922</i>	50 - 100	good-luxuriant	pink to pinkish red
2.	<i>Enterobacter aerogenes ATCC 13048</i>	50 - 100	good-luxuriant	pink to pinkish red
3.	<i>Salmonella Enteritidis ATCC 13076</i>	50 - 100	good-luxuriant	colourless to orangish yellow
4.	<i>Staphylococcus aureus ATCC 25923</i>	>=10 <sup>3</sup>	inhibited	--

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

### Test Procedure

Refer to appropriate references for standard test procedures.

### Results

1. Lactose fermenters produce pink to pinkish red coloured medium.
2. Lactose non-fermenters produce colorless to orangish yellow colonies.

### 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. Violet Red Bile Broth is not completely specific for enterics; other accompanying bacteria may give the same reaction.
2. The medium will grow gram-negative bacilli other than members of the *Enterobacteriaceae*.
3. For identification, organisms must be in pure culture. Morphological, biochemical and/or serological tests should be performed for final identification.
4. Consult appropriate texts for detailed information and recommended procedures.

### Packaging

Product Name : Violet Red Bile Broth

Product Code : DM440

Available Pack sizes : 500gm





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## References

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4. MacConkey A., 1905, J. Hyg., 5, 333-379
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9. Mossel D. A. A. et al, 1986, J. Appl. Bacteriol., 60:289.

## Further Information

For further information please contact your local MICROMASTER Representative.



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DM440PSS,QAD/FR/024,Rev.00/01.01.2018

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