

# MRS BROTH

## INTENDED USE

Remel MRS Broth is a liquid medium recommended for use in the cultivation of *Lactobacillus* species and in the differentiation of gram-positive cocci.

## SUMMARY AND EXPLANATION

In the 1950s, tomato juice agar was used to isolate *Lactobacillus* species from food products. Rogosa et al. recommended a medium for isolation of lactobacilli from oral and fecal specimens, but it was found to be inadequate for recovery of *Lactobacillus* spp. from dairy products.<sup>1</sup> In 1960, de Man, Rogosa, and Sharpe modified the formulation by eliminating tomato juice, creating a superior medium which supported the growth of slower-growing lactobacilli.<sup>2</sup> This medium, named for de Man, Rogosa, and Sharpe, became known as MRS Broth. Recently, MRS Broth has been used to aid in the differentiation of gram-positive cocci on the basis of gas production.<sup>3-6</sup>

## PRINCIPLE

Gelatin peptone and beef extract provide essential nutrients and amino acids necessary for the growth of lactobacilli. Yeast extract is a source of B-complex vitamins and enhances bacterial growth. Dextrose provides a ready source of energy. Dipotassium phosphate aids in the maintenance of osmotic equilibrium. Polysorbate 80 supplies fatty acids required for the metabolism of lactobacilli. Ammonium citrate and sodium acetate are selective agents which inhibit the growth of certain organisms, including gram-negative bacteria and molds.

## REAGENTS (CLASSICAL FORMULA)\*

Dextrose.....	20.0 g	Ammonium Citrate.....	2.0 g
Gelatin Peptone .....	10.0 g	Dipotassium Phosphate .....	2.0 g
Beef Extract.....	8.0 g	Polysorbate 80.....	1.0 g
Sodium Acetate.....	5.0 g	Magnesium Sulfate.....	0.2 g
Yeast Extract.....	4.0 g	Manganese Sulfate .....	0.05 g
		Demineralized Water.....	1000.0 ml

pH 6.2 ± 0.2 @ 25°C

\*Adjusted as required to meet performance standards.

## PRECAUTIONS

This product is For Laboratory Use only. It is not intended for use in the diagnosis of disease or other conditions.

## PREPARATION OF DEHYDRATED CULTURE MEDIUM

1. Suspend 52 g of medium in 1000 ml of demineralized water.
2. Heat to boiling with agitation to completely dissolve.
3. Dispense into appropriate containers and sterilize by autoclaving at 121°C for 15 minutes or following established laboratory procedures.

## PROCEDURE

1. Consult current editions of appropriate references for the recommended procedure for sample preparation, inoculation, and testing.<sup>7-8</sup>
2. Incubate aerobically for the proper time duration at the appropriate temperature following established laboratory procedures.

## QUALITY CONTROL

Each lot number of MRS Broth has been manufactured, packaged, and processed in accordance with current Good Manufacturing Practice regulations. All lot numbers have been tested using the following quality control organisms and have been found to be acceptable. Testing of control organisms should be performed in accordance with established laboratory quality control procedures.

### CONTROL

*Lactobacillus acidophilus* ATCC® 4356  
*Lactobacillus fermentum* ATCC® 9338  
*Lactobacillus johnsonii* ATCC® 33200  
*Lactobacillus rhamnosus* ATCC® 9595

### INCUBATION

Aerobic, up to 72 h @ 33-37°C  
Aerobic, up to 72 h @ 33-37°C  
Aerobic, up to 72 h @ 33-37°C  
Aerobic, up to 72 h @ 33-37°C

### RESULTS

Good growth  
Good growth  
Good growth  
Good growth

## BIBLIOGRAPHY

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Refer to the front of Remel *Technical Manual of Microbiological Media* for **General Information** regarding precautions, product storage and deterioration, specimen collection, storage and transportation, materials required, quality control, and limitations.

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