



## Minimal Broth Davis w/o Dextrose

M390

Minimal medium is recommended for the isolation and characterization of nutritional mutants of *Escherichia coli*.

### Composition\*\*

Ingredients	Gms / Litre
Dipotassium phosphate	7.000
Monopotassium phosphate	2.000
Sodium citrate	0.500
Magnesium sulphate	0.100
Ammonium sulphate	1.000
Final pH ( at 25°C)	7.0±0.2

\*\*Formula adjusted, standardized to suit performance parameters

### Directions

Suspend 10.6 grams in 990 ml distilled water. Heat to boiling to dissolve the medium completely. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes. Add 10 ml of sterile 10% sterile Dextrose solution. Mix well and dispense as desired.

### Principle And Interpretation

Minimal media can be supplemented with the desired additives to study nutritional characters of the nutritional mutants. Minimal media are the formulations of Davis (2) as described by Lederberg (1).

Minimal medium contains the necessary nutrients only for the growth of wild type *Escherichia coli* strains. By the random isolation method described by Lederberg, nutritional mutants derived from irradiated cultures of wild type *Escherichia coli* can be isolated (1). These mutants can also be isolated by the use of Penicillin as described by Davis and Lederberg (2). *Bacillus subtilis* mutants can be isolated by these techniques and by the Penicillin technique also, as described by Nester et al (3).

Dipotassium and monopotassium phosphates provide buffering to the medium. Magnesium sulphate and ammonium sulphate are sources of ions that simulate metabolism.

A cell suspension of wild type *Escherichia coli* is irradiated and cultured on Minimal Agar and incubated at 35°C for 24 hours. The isolated colonies are cultured in tubes of Minimal Broth Davis (M389) and Minimal Broth Davis without Dextrose (M390). After 24 hours incubation at 35°C growth in the Minimal Broth, Davis and absence of growth in the Minimal Broth Davis without Dextrose indicates a mutant.

### Quality Control

#### Appearance

White to cream homogeneous free flowing powder

#### Colour and Clarity of prepared medium

Colourless clear solution in tubes

#### Reaction

Reaction of 1.06% w/v aqueous solution at 25°C. pH : 7.0±0.2

#### pH

6.80-7.20

#### Cultural Response

M390: Cultural characteristics observed after an incubation at 35-37°C for 18-24 hours.

#### Organism

#### Growth

#### Cultural Response

*Escherichia coli* ATCC  
13762

luxuriant

*Escherichia coli* ATCC luxuriant  
23724

### Storage and Shelf Life

Store below 30°C in tightly closed container and the prepared medium at 2 - 8°C. Use before expiry date on the label.

### Reference

1. Lederberg, 1950, Methods in Med. Res., 3:5.
2. Davis, 1949, Proc. Natl Acad. Sci, 35:1.
3. Nester, Schafer and Lederberg, 1963, Genetics, 48:529.

Revision : 2 / 2015

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