

## Technical Information

### Minimal Broth Davis w/o Dextrose

#### Product Code: DM 1390

**Application:** 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

#### Principle & Interpretation

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 <sup>(1)</sup>. These mutants can also be isolated by the use of Penicillin as described by Davis and Lederberg <sup>(2)</sup>. *Bacillus subtilis* mutants can be isolated by these techniques and by the Penicillin technique also, (Nester et al) <sup>(3)</sup>.

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

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 (DM1389) and Minimal Broth Davis without Dextrose (DM1390). 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.

#### Medhlogy

Suspend 10.6 grams of powder media in 990 ml distilled water. Shake well & 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% Dextrose solution. Mix well and dispense as desired.

#### Quality Control

##### Physical 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 range 6.80-7.20

##### Cultural Response/Characteristics

DM1390: Cultural characteristics observed after an incubation at 35-37°C for 18-24 hours.



Dehydrated Culture Media  
Bases / Media Supplements

**Organism**

*Escherichia coli* ATCC 13762

*Escherichia coli* ATCC 23724

**Growth**

Good-luxuriant

luxuriant

## Storage and Shelf Life

**Dried Media:** Store below 30°C in tightly closed container and use before expiry date as mentioned on the label.

**Prepared Media:** 2-8<sup>o</sup> in sealable plastic bags for 2-5 days.

## Further Reading

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.

## Disclaimer :

- User must ensure suitability of the product(s) in their application prior to use.
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