

## Technical Information

### Differential Reinforced Clostridial Broth Base

**Product Code: DM 1549**

**Application:** Differential Reinforced Clostridial Medium is used for the cultivation of *Clostridia* from water.

#### Composition\*\*

Ingredients	Gms / Litre
Peptic digest of animal tissue	10.000
Beef extract	10.000
Yeast extract	1.500
Starch	1.000
Sodium acetate, hydrated	5.000
Glucose	1.000
L-Cysteine hydrochloride	0.500
Final pH ( at 25°C)	7.2±0.2

#### Principle & Interpretation

Hirsch and Grinstead <sup>(1)</sup> devised Differential Reinforced Clostridial Medium to initiate the growth from small inoculum and get a higher Clostridial count. Later, Barnes and Ingram <sup>(2)</sup> used the medium to develop vegetative cells in assays of *Clostridium perfringens*. This medium is developed for the isolation of sulphite-reducing Clostridia from food and for their enumeration in water by multiple tube method. Differential Reinforced Clostridial Broth is used to determine the count of sulphite reducing bacteria by MPN technique <sup>(3)</sup>. Peptic digest of animal tissue, beef extract, yeast extract, starch, sodium acetate provide essential nutrients for bacterial metabolism. Glucose is the fermentable carbohydrate and serves as carbon and energy source. L-cysteine hydrochloride acts as reducing agent. Sodium sulphite and ferric citrate are added as indicators. Sulphite reducing clostridia produce sulphide from sulphite, which results in the formation of black coloured medium.

#### Methodology

Suspend 29 grams of powder media in 1000 ml distilled water. Shake well & heat to dissolve the medium completely. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes. Just before use add 0.5 ml filter sterilized solution, prepared by mixing equal volumes of 4% w/v solution of sodium sulphite and 7% w/v ferric citrate, to 25 ml of single strength medium or 0.4 ml and 2 ml to 10 ml and 50 ml of double strength medium respectively. Mix well.

## Quality Control

### Physical Appearance

Cream to yellow homogeneous free flowing powder

### Colour and Clarity of prepared medium

Light yellow coloured, clear solution without any precipitate

### Reaction

Reaction of 2.9% w/v aqueous solution at 25°C. pH : 7.2±0.2

### pH range

7.00-7.40

### Cultural Response/Characteristics

DM 1549: Cultural characteristics observed in an anaerobic atmosphere, with added 4% w/v solution of Sodium sulphite and 7% w/v Ferric citrate after an incubation at 30-35°C within 1 week.

Organism	Inoculum (CFU)	Growth	H <sub>2</sub> S production
<i>Clostridium perfringens</i> ATCC 13124	50-100	Good-luxuriant	positive reaction, blackening of medium
<i>Clostridium sporogenes</i> ATCC 11437	50-100	Good-luxuriant	positive reaction, blackening of medium

## 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>0</sup> in sealable plastic bags for 2-5 days.

## Further Reading

1. Hirsch A. and Grinstead E., 1954, J. Dairy Res. 21:101
2. Barnes E. M. and Ingram M., 1956, J. Appl. Bacteriol., 19(1):117.
3. 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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