

## 91903 Bryant and Burkey Medium (Bryant Burkey Broth) NutriSelect® Plus

Bryant and Burkey Medium is used for detecting and enumerating spores of lactate fermenting *Clostridium* in milk and dairy products.

### Composition:

Ingredients	Grams/Litre
Casein enzymic hydrolysate	15.0
Yeast extract	5.0
Beef extract	7.5
Sodium acetate	5.0
L-Cystine hydrochloride	0.50
Resazurin	0.0025

Final pH 5.9 +/- 0.2 at 25°C

Store granulated media between 10-30°C in tightly closed container and the prepared medium at 15-25°C. Avoid freezing and overheating. Once opened keep powdered medium closed to avoid hydration. Use before expiry date on the label.

Appearance(color): Faint yellow to yellow to brown, free flowing powder

Color and Clarity: Light amber coloured, clear solution when hot, becomes pink-red upon cooling

### Directions:

Suspend 33 grams in 1000 ml distilled water containing 5 grams of Sodium lactate. Heat if necessary to dissolve the medium completely. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes.

### Principle and Interpretation:

Bryant and Burkey Medium is used to enumerate the spores of gasogenic clostridia that are responsible for swelling of cheese in dairy industry (2, 3). In normal conditions of use, the medium facilitates the growth of other microorganisms as well such as *Clostridium sporogenes* or *Clostridium butyricum* which are not directly related to cheese alteration. Germination and growth of butyric acid bacteria (BAB) causes severe defects in cheese with silage being the main source of BAB spores in cheese milk (1). Clostridia spores being heat resistant can contaminate cheese brines. Growth of clostridia result in the production of gas which swells the cheese causing a defect known as butyric swelling, resulting in bad taste. The main species causing this butyric swelling defect is *Clostridium tyrobutyrium*.

Recommended technique for estimation of *Clostridium* is to enumerate the spores by the MPN method. Resazurin is a redox indicator and should remain colorless after heating the inoculum in the medium. Any increase in oxygen levels is reflected by the appearance of a pink color. The nutrient composition of the basal medium, particularly of casein enzymic hydrolysate, yeast extract, beef extract and L-cysteine HCl help in rapid growth of *Clostridium* species. Sodium acetate promotes spore germination (5) and improves the selectivity of the medium. Sodium lactate is fermented under anaerobic conditions by *Clostridium tyrobutyricum*.



Cultural characteristics observed after an incubation at 35-37°C for 6 days under anaerobic conditions.

Organisms (ATCC)	Growth	Gas production
<i>Clostridium tyrobutyricum</i> (25755)	++	positive

References:

1. Vissers M. M. M., Drichuis F., Giffel T., John P. D., Lankveld J. M. G., 2007, J. Dairy Sci., 90:928
2. Bergeres J. L. and Sivela S., 1989, Detection and enumeration of Clostridial spores related to cheese quality-Classical and new methods, FIL-IDF Bull. 51:18-23.
3. Bryant M. P. and Burkey L. A., 1956, J. Bacteriol., 71: 43-46.
4. Touraille C. and Bergere J. L., 1974, Biochimie, 56: 404-422.

**Precautions and Disclaimer**

This product is for R&D use only, not for drug, household, or other uses. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.

