

## TECHNICAL DATA SHEET

# BCP DEXTROSE AGAR

### ENUMERATION OF SPORES

## 1 INTENDED USE

BCP Dextrose Tryptone Agar (also known as BCP Glucose agar) is used to enumerate mesophilic and thermophilic aerobic bacterial spores (especially *Bacillus stearothermophilus*, responsible for flat sour) in raw materials and in ingredients used in canning non-acid products (pH > 4,5). It is also used in surface samples and canning process water

The typical composition conforms to that defined in the standard NF V08-602.

## 2 HISTORY

The medium was developed by the National Canners Association laboratories for the enumeration of mesophilic and thermophilic aerobic bacteria in the sugar used in canned food.

## 3 PRINCIPLES

Soluble starch, a protective agent, favors spore germination.

Bacteria which acidify the medium by metabolizing glucose result in the pH indicator, bromocresol purple, turning yellow.

Non-acidifying colonies are blue.

## 4 TYPICAL COMPOSITION

The composition can be adjusted in order to obtain optimal performance.

For 1 liter of media :

- Peptone .....	10,0 g
- Glucose .....	5,0 g
- Soluble starch.....	2,0 g
- Bromocresol purple .....	40,0 mg
- Bacteriological agar.....	15,0 g

pH of the ready-to-use media at 25°C : 7,0 ± 0,2.

## 5 PREPARATION

### Preparation of dehydrated media :

- Dissolve 32,0 g of dehydrated media (BK042) in 1 liter of distilled or demineralized water.
- Slowly bring to boiling, stirring with constant agitation until complete dissolution.
- Divide into tubes or vials.
- Sterilize in an autoclave at 121 °C for 15 minutes.
- Cool and maintain the molten media at 44-47 °C.

✓ **Reconstitution:**  
32,0 g/L

✓ **Sterilization:**  
15 min at 121 °C

## Use of ready-to-melt media :

- With the ready-to-use media BM168 (or if the media is prepared in advance from the dehydrated product), melt the agar for the minimum amount of time necessary to achieve total liquefaction.
- Cool and maintain in molten state at 44-47°C.

## 6 INSTRUCTIONS FOR USE

### Enumeration of heat-resistant bacterial spores (V08-602)

- Heat the product to test 10 minutes at 95-100°C in order to destroy vegetative cells and activate spores.
- Transfer 1 mL of the sample and its serial dilutions to 2 sterile Petri plates. .
- Pour in roughly 15 mL of the molten agar held at 44-47 °C.
- Homogenize by swirling.
- Let solidify on a cold surface.
- Add a 5 mL overlay of the same media and let solidify.
- Incubate at 37 ± 1 °C, for 48 ± 2 hours for the detection of mesophilic aerobic bacteria.
- Incubate the second plate at 55 ± 1°C for 48 ± 2 hours for the detection of thermophilic aerobic bacteria.

✓ **Inoculation:**  
1 mL in a double layer

✓ **Incubation :**  
48 ± 2 h at 37 ± 1 °C  
48 ± 2 h at 55 ± 1 °C

### Enumeration of mesophilic and thermophilic *Bacillus* and other aerobic bacterial spores

- Heat the product to test in order to destroy vegetative cells and activate spores.
- Transfer the inoculum to sterile Petri dishes.
- Pour in 15 mL of medium maintained at 44-47°C.
- Homogenize by swirling.
- Let solidify on a cold surface.
- Incubate at :
  - 30 °C for 5 days to enumerate mesophilic *Bacillus* spores ;
  - 55 °C for 5 days to enumerate thermophilic *Bacillus* spores after first pouring several drops of sterile paraffin oil in the cover of the plates to obtain a tight seal.

✓ **Inoculation:**  
1 mL in poured plate

✓ **Incubation :**  
5 days at 37 °C  
5 days at 55 °C

### NOTE :

To avoid the over-drying of plates at 55°C, it is possible to add several drops of sterile paraffin oil in the cover of the plates to obtain a tight seal.

## 7 RESULTS

Enumerate separately the yellow acidifying colonies and the blue non-acidifying colonies.

See ANNEX 1 : PHOTO SUPPORT.

## 8 QUALITY CONTROL

**Dehydrated media** : beige green powder, free-flowing and homogeneous.

**Ready-to-use media** : violet agar.

Typical culture response after 48 hours of incubation (V 08-602, NF EN ISO 11133) :

Microorganisms		Incubation	Growth (Productivity Ratio : $P_R$ )
<i>Bacillus licheniformis</i>	WDCM 00068	37°C	$P_R \geq 70\%$
<i>Geobacillus stearothermophilus</i>	WDCM 00069	55°C	$P_R \geq 70\%$

## 9 STORAGE / SHELF LIFE

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**Dehydrated media** : 2-30 °C.

**Ready-to-melt media in vials** : 2-8 °C.

The expiration date is indicated on the label.

**Prepared media in tubes or vials (\*)** : 180 days at 2-8 °C.

(\*) Benchmark value determined under standard preparation conditions, following manufacturer's instructions.

## 10 PACKAGING

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**Dehydrated media** :

500 g bottle ..... BK042HA

**Ready-to-melt media** :

10 x 200 mL vials ..... BM16808

## 11 BIBLIOGRAPHY

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National Canners Association. 1933. Bacterial Standards for Sugar.

NF V08-602. Mai 2011. Microbiologie des aliments. Dénombrement des spores dans les produits alimentaires avant traitement d'appertisation par comptage des colonies.

## 12 ADDITIONAL INFORMATION

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The information provided on the labels take precedence over the formulations or instructions described in this document and are susceptible to modification at any time, without warning.

Document code : BCP GLUCOSE\_EN v9

Creation date : 11-2000

Updated : 05-2017

Origin of revision : Modification of instructions for use : addition of the enumeration protocol of Bacillus.

## ANNEX 1 : PHOTO SUPPORT

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### BCP Dextrose Agar

The enumeration of spores of aerobic mesophilic and thermophilic bacteria (notably *Bacillus stearothermophilus*).

#### Results :

Growth obtained after 48 hours of incubation at 55 °C.



#### ***Bacillus thermophile***

Characteristic colony :  
small yellow colony (media  
acidification) on violet  
background of agar.