# Technical Information

## Glucose Azide Broth

## Product Code: DM 1982

**Application: -** Glucose Azide Broth is used for the enumeration of faecal Streptococci by MPN technique from water and sewage.

## Composition**

| Ingredients | Gms / Litre |
|---|---|
| Peptic digest of animal tissue | 10.000 |
| Yeast extract | 3.000 |
| Sodium chloride | 5.000 |
| Dipotassium phosphate | 5.000 |
| Monopotassium phosphate | 2.000 |
| Dextrose | 5.000 |
| Sodium azide | 0.250 |
| Bromo cresol purple | 0.030 |
| Final pH ( at 25°C) | 6.7±0.2 |

**Formula adjusted, standardized to suit performance parameters

## Principle & Interpretation

Fecal *Streptococcus* is a group of bacteria normally present as commensal in the intestinal tract of warm-blooded animals other than human. The fecal Streptococcus group consists of a number of species of the genus Streptococcus such as *Streptococcus faecalis, Streptococcus faecium, Streptococcus avium, Streptococcus bovis, Streptococcus equines* and others. They tend to persist longer in the environment than faecal coliforms. They have been used with fecal coliforms to differentiate if fecal contamination is of humans' origin or that of other warm-blooded animals. Glucose Azide Broth is recommended by Hannay and Norton [(1)] for enumeration of faecal streptococci by MPN technique from water, sewage,foods and other materials suspected to be contaminated with sewage.

Glucose Azide Broth is a highly nutritious medium due to its content of peptic digest of animal tissue, yeast extract and dextrose, which provide nitrogenous compounds, carbon, sulphur, amino acids and trace ingredients. Sodium chloride maintains osmotic balance of the medium. Sodium azide suppresses the growth of gram-negative organisms and thereby allows the selective growth of faecal Streptococci.

Prior to inoculation, warm the tubes of Glucose Azide Broth to 44-45°C by heating in a water bath. Inoculate the tubes containing Glucose Azide Broth with heavy inocula from all the positive presumptive test tubes. MacConkey Broth purple (DM1083) is generally used for the presumptive test. Incubate inoculated Glucose Azide Broth tubes at 44-45°C for 24-48 hours. Tubes showing yellow colour change, due to acid production are subcultured onto Bile Esculin Azide Agar (DM1493) for confirming the presence of faecal streptococci [(2)].

## Methodology

Suspend 30.28 grams of powder media in 1000 ml distilled water. Shake well & heat to dissolve the medium completely. Dispense 5 ml amounts in 16 x150 mm test tubes and sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes. For large inocula of 5 ml or more quantities, prepare double strength medium.

*Warning: Sodium azide has a tendency to form explosive metal azides with plumbing materials. It is advisable to use enough water to flush of the disposables.*

## Quality Control

**Physical Appearance**

Light yellow to beige homogeneous free flowing powder

**Colour and Clarity of prepared medium**

Purple coloured, clear solution without any precipitate

**Reaction**

Reaction of 3.03% w/v aqueous solution at 25°C. pH : 6.7±0.2

**pH range** 6.50-6.90

**Cultural Response/ characteristices**

DM 1982: Cultural characteristics observed after an incubation at 35-37°C for 18-24 hours.

| Organism | Inoculum (CFU) | Growth | Colour change to yellow |
|---|---|---|---|
| *Enterococcus faecalis ATCC 29212* | 50-100 | good-luxuriant | positive |
| *Enterococcus hirae ATCC 8043* | 50-100 | good-luxuriant | positive |
| *Staphylococcus aureus ATCC 25923* | >=$10^3$ | inhibited | negative |
| *Escherichia coli ATCC 25922* | >=$10^3$ | inhibited | negative |

## 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$^{o}$ in sealable plastic bags for 2-5 days.

## Further Reading

1. Hannay C. L., Norton I. L., 1947, Proc. Soc. Appl. Bacteriol.1: 59

2. Collee J. G., Duguid J. P., Fraser A. G., Marmion B. P., (Eds) Mackie and McCartney, Practical Medical Microbiology, 1989, 13th Edition, Churchill Livingstone

## Disclaimer :

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