Perfringens Agar Base (T. S. C. / S. F. P. Agar Base)

**Intended Use:**

Perfringens Agar Base with the addition of selective supplement and enrichment, it is used for the presumptive identification and enumeration of *Clostridium perfringens*.

**Composition**

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>Gms / Litre</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tryptose</td>
<td>15.000</td>
</tr>
<tr>
<td>HM peptone B #</td>
<td>5.000</td>
</tr>
<tr>
<td>Soya peptone</td>
<td>5.000</td>
</tr>
<tr>
<td>Yeast extract</td>
<td>5.000</td>
</tr>
<tr>
<td>Sodium metabisulphite</td>
<td>1.000</td>
</tr>
<tr>
<td>Ferric ammonium citrate</td>
<td>1.000</td>
</tr>
<tr>
<td>Agar</td>
<td>15.000</td>
</tr>
<tr>
<td>Final pH (at 25°C)</td>
<td>7.6±0.2</td>
</tr>
</tbody>
</table>

**Formula adjusted, standardized to suit performance parameters**
# Equivalent to Beef extract

**Directions**

Suspend 23.5 grams in 475 ml purified / distilled water. Heat to boiling to dissolve the medium completely. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes. Cool to 45-50°C. Add 25 ml of Egg Yolk Emulsion (FD045) and rehydrated contents of 1 vial of S.F.P. Supplement (FD013) / T.S.C. Supplement (FD014). Alternatively if fluorogenic detection is desired add rehydrated contents of Clostridium perfringens supplements (FD243) instead of FD013 / FD014. Mix well before pouring into sterile Petri plates.

**Principle And Interpretation**

Tryptose Sulphite Cycloserine Agar (TSC) was originally formulated by Harmon et al (1) for the enumeration of *C. perfringens* from food. TSC Agar has been documented as one of the most useful media for the quantitative recovery of *C. perfringens* while suppressing growth of other facultative anaerobes (2). Perfringens Agar Base is also recommended by APHA (7). Perfringens Agar Base can be made selective either by addition of D-cycloserine (FD014) (1, 2) or Kanamycin and Polymyxin B (FD013) (8). TSC Agar Base (with FD014) or SFP Agar Base (with FD013) is comparable in performance for isolation of *C. perfringens* (3, 6).

Tryptose, Soya peptone, yeast extract, HM peptone B provide nitrogenous compounds, carbon, sulphur, vitamin B complex and trace elements essential for clostridial growth. Sodium metabisulphite and ferric ammonium citrate act as an indicator of sulphite reduction, indicated by black coloured colonies. D-Cycloserine (FD014), Kanamycin and Polymyxin B (FD013) help in the selective isolation of *C. perfringens* by inhibiting accompanying flora. Egg yolk emulsion serves as a source of lecithin utilized by *C. perfringens* (M837).

**Type of specimen**

Clinical- stool, abscess; Food samples

**Specimen Collection and Handling**

For clinical samples follow appropriate techniques for handling specimens as per established guidelines (4, 5).
For food samples, follow appropriate techniques for sample collection and processing as per guidelines (7).
After use, contaminated materials must be sterilized by autoclaving before discarding.
Warning and Precautions
In Vitro diagnostic use. Read the label before opening the container. Wear protective gloves/protective clothing/eye protection/face protection. Follow good microbiological lab practices while handling specimens and culture. Standard precautions as per established guidelines should be followed while handling clinical specimens. Safety guidelines may be referred in individual safety data sheets.

Limitations
1. Further biochemical and serological tests must be carried out for further identification.
2. Some organism may show poor growth due to nutritional variation.

Performance and Evaluation
Performance of the medium is expected when used as per the direction on the label within the expiry period when stored at recommended temperature.

Quality Control

Appearance
Light yellow to brownish yellow homogeneous free flowing powder

Gelling
Firm, comparable with 1.5% Agar gel

Colour and Clarity of prepared medium
Basal medium : Amber coloured clear to slightly opalescent gel. After Addition of Egg Yolk Emulsion (FD045) : Yellow coloured opaque gel forms in Petri plates

Reaction
Reaction of 4.7% w/v aqueous solution at 25°C. pH : 7.6±0.2

pH
7.40-7.80

Cultural Response
Cultural characteristics observed under anaerobic condition with added TSC Supplement (FD014)/S.F.P Supplement (FD013)/Clostridium Perfringens Supplement (FD243) and Egg Yolk Emulsion (FD045), after an incubation at 35-37°C for 18-24 hours.

<table>
<thead>
<tr>
<th>Organism</th>
<th>Inoculum (CFU)</th>
<th>Growth</th>
<th>Recovery</th>
<th>Sulphite Reduction</th>
<th>Lecithinase/Haloes</th>
<th>Fluorescence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clostridium perfringens</td>
<td>50-100</td>
<td>luxuriant</td>
<td>&gt;=50%</td>
<td>Positive, blackening of medium</td>
<td>Positive reaction, opaque zone around the colony</td>
<td>Positive Reaction</td>
</tr>
<tr>
<td>ATCC 12924</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

| Clostridium sordellii     | >=10⁴          | inhibited   | 0%       |                    |                    |                       |
| ATCC 9714                 |                |             |          |                    |                    |                       |

Storage and Shelf Life
Store between 10-30°C in a tightly closed container and the prepared medium at 2-8°C. Use before expiry date on the label. On opening, product should be properly stored dry, after tightly capping the bottle inorder to prevent lump formation due to the hygroscopic nature of the product. Improper storage of the product may lead to lump formation. Store in dry ventilated area protected from extremes of temperature and sources of ignition Seal the container tightly after use. Use before expiry date on the label.
Product performance is best if used within stated expiry period.

Disposal
User must ensure safe disposal by autoclaving and/or incineration of used or unusable preparations of this product. Follow established laboratory procedures in disposing of infectious materials and material that comes into contact with clinical sample must be decontaminated and disposed of in accordance with current laboratory techniques (4,5).

Please refer disclaimer Overleaf.
Reference


Original Date: 2015
Revision: 20/2019

Disclaimer:

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