Perfringens Agar Base (T.S.C.)

Perfringens Agar Base (T.S.C.) recommende for the enumeration of *Clostridium perfringens* from food. The composition and performance criteria of this medium are as per the specifications laid down in ISO 7937:1985.

**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>Papaic digest of soyabean meal</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**

**Directions**

Suspend 21 grams in 500 ml distilled water. Heat to boiling to dissolve the medium completely. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes. Cool to 50°C and add rehydrated contents of one vial of TSC Supplement (FD014). Alternatively if fluorogenic detection is desired add rehydrated contents of Clostridium perfringens supplements (FD243). When used for membrane filtration method do not use 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 (3). Perfringens Agar Base (with 20.0 g/l agar) can be made selective either by addition of D-cycloserine (FD013) (1, 2) or kanamycin and polymyxin B (FD014) (4). TSC Agar Base (with FD013) or SFP Agar Base (with FD014) are comparable in performance for isolation of *C. perfringens* (5, 6). Perfringens Agar Base (M837I) is recommended for enumeration of *C. perfringens* from foods by ISO Committee (7).

Tryptose, papaic digest of soyabean meal, yeast extract, beef extract 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. Kanamycin and polymyxin B (FD014) help in the selective isolation of *C. perfringens* by inhibiting accompanying flora. Homogenized food samples can be directly streaked on the surface of plates or can be pre-enriched in Cooked Meat Medium (M149) before streaking.

**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**
Amber coloured clear to slightly opalescent gel.

**Reaction**
Reaction of 4.2% 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) or Clostridium Perfringens Supplement (FD243) and Egg Yolk Emulsion (FD045), after an incubation at 35-37°C for 18-24 hours.

### Cultural Response

<table>
<thead>
<tr>
<th>Organism</th>
<th>Inoculum (CFU)</th>
<th>Growth</th>
<th>Recovery</th>
<th>Sulphite Reduction</th>
<th>Fluorescence</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Clostridium perfringens</em> ATCC 12924</td>
<td>50-100</td>
<td>luxuriant</td>
<td>&gt;=50%</td>
<td>Positive, blackening of medium</td>
<td>Positive Reaction</td>
</tr>
<tr>
<td><em>Clostridium sordellii</em> ATCC 9714</td>
<td>&gt;=10³</td>
<td>inhibited</td>
<td>0%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Storage and Shelf Life

Store below 30°C in tightly closed container and the prepared medium at 2-8°C. Use before expiry date on the label.

### Reference


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Disclaimer :

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