Shapton Medium M645

Shapton Medium is used for enumeration of spores of *Bacillus stearothermophilus*, which cause flat sour spoilage in canned foods with pH more than 4.5.

**Composition**

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>Gms / Litre</th>
</tr>
</thead>
<tbody>
<tr>
<td>Casein enzymic hydrolysate</td>
<td>2.500</td>
</tr>
<tr>
<td>Peptic digest of animal tissue</td>
<td>5.000</td>
</tr>
<tr>
<td>Beef extract</td>
<td>3.000</td>
</tr>
<tr>
<td>Yeast extract</td>
<td>1.000</td>
</tr>
<tr>
<td>Dextrose</td>
<td>1.000</td>
</tr>
<tr>
<td>Bromo cresol purple</td>
<td>0.025</td>
</tr>
<tr>
<td>Agar</td>
<td>15.000</td>
</tr>
</tbody>
</table>

Final pH (at 25°C): 7.4±0.2

**Formula adjusted, standardized to suit performance parameters**

**Directions**

Suspend 27.53 grams in 1000 ml distilled water. Heat to boiling to dissolve the medium completely. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes. Mix well and pour into sterile Petri plates.

**Principle And Interpretation**

*Bacillus stearothermophilus* is a thermophile that is widely distributed in soil, hot springs, ocean sediment, and is a cause of spoilage in food products. It is commonly used as a challenge organism for steam sterilization validation studies. Flat sour spoilage occurs chiefly in low acid foods, such as peas, corn and lima beans but can also occur in medium acid foods such as spinach, green beans etc. Shapton and Hindes (1) formulated the medium for the enumeration of spores of *Bacillus stearothermophilus*, which cause flat sour spoilage in canned foods with pH more than 4.5.

Casein enzymic hydrolysate, peptic digest of animal tissue, beef extract and yeast extract in the medium provide carbon, nitrogen, vitamins and minerals required for bacterial metabolism. Dextrose is the fermentable carbohydrate. Bromocresol purple is the pH indicator, indicating dextrose fermentation visualized as a colour change from purple to yellow.

The sample under test is suspended in Ringers salt solution and then added to sterile molten Shapton Medium and is held at 100°C for 20 minutes. Then the temperature is slightly raised to 108.4°C and maintained for 10 minutes after which this is cooled to 50°C and plates are poured. The plates are incubated at 55°C for 48 hours.

**Quality Control**

**Appearance**

Light yellow to grey homogeneous free flowing powder

**Gelling**

Firm, comparable with 1.5% Agar gel

**Colour and Clarity of prepared medium**

Light purple coloured clear to slightly opalescent gel forms in Petri plates

**Reaction**

Reaction of 2.75% w/v aqueous solution at 25°C. pH: 7.4±0.2

**pH**

7.20-7.60

**Cultural Response**

M645: Cultural characteristics observed after an incubation at 55°C for 18-48 hours.

Organism | Inoculum (CFU) | Growth | Recovery | Colour of colony
--- | --- | --- | --- | ---

Please refer disclaimer Overleaf.
Bacillus stearothermophilus  ATCC 7953

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