**MOTILITY TEST AGAR (7247)**

**Intended Use**

Motility Test Agar is used for the differentiation of microorganisms on the basis of motility in a laboratory setting. Motility Test Agar is not intended for use in the diagnosis of disease or other conditions in humans.

**Product Summary and Explanation**

In 1936, Tittsler and Sandholzer reported using a semisolid agar for the detection of bacterial motility. Motility Test Agar is a modification of this formulation.

Bacterial motility is observed macroscopically by a diffuse zone of growth spreading from the line of inoculation. Certain species of motile bacteria will show diffuse growth throughout the entire medium, while others may show diffusion from one or two points appearing as nodular outgrowths along the stab. Tittsler and Sandholzer reported tubes incubated for one day gave identical results with the hanging drop method, and incubation for two days permitted demonstration of motility in an additional 4% of cultures tested.

Motility Test Agar is recommended for detection of microbial motility in food and dairy standard methods.

**Principles of the Procedure**

The nitrogen, carbon, and vitamin sources are provided by Enzymatic Digest of Gelatin and Beef Extract in Motility Test Agar. Sodium Chloride maintains the osmotic environment. Agar is the solidifying agent used at a low concentration.

**Formula / Liter**

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Amount</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enzymatic Digest of Gelatin</td>
<td>10 g</td>
<td></td>
</tr>
<tr>
<td>Beef Extract</td>
<td>3 g</td>
<td></td>
</tr>
<tr>
<td>Sodium Chloride</td>
<td>5 g</td>
<td></td>
</tr>
<tr>
<td>Agar</td>
<td>4 g</td>
<td></td>
</tr>
</tbody>
</table>

Formula pH: 7.3 ± 0.2 at 25°C

Formula may be adjusted and/or supplemented as required to meet performance specifications.

**Precautions**

1. For Laboratory Use Only.
2. IRRITANT. Irritating to eyes, respiratory system, and skin.

**Directions**

1. Suspend 22 g of the medium in one liter of purified water.
2. Heat with frequent agitation and boil for one minute to completely dissolve the medium.
3. Autoclave at 121°C for 15 minutes.

**Quality Control Specifications**

**Dehydrated Appearance:** Powder is homogeneous, free flowing, and beige.

**Prepared Appearance:** Prepared medium is trace to slightly hazy and yellow-beige.

**Expected Cultural Response:** Cultural response in Motility Test Agar incubated aerobically at 35 ± 2°C and examined for growth after 18 - 24 hours.

<table>
<thead>
<tr>
<th>Microorganism</th>
<th>Approx. Inoculum (CFU)</th>
<th>Expected Results</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Escherichia coli</em> ATCC® 25922</td>
<td>Direct Inoculation</td>
<td>Growth Positive</td>
</tr>
<tr>
<td><em>Salmonella choleraesuis</em> ATCC® 13076</td>
<td>Direct Inoculation</td>
<td>Growth Positive</td>
</tr>
<tr>
<td><em>Staphylococcus aureus</em> ATCC® 25923</td>
<td>Direct Inoculation</td>
<td>Growth Negative</td>
</tr>
</tbody>
</table>

The organisms listed are the minimum that should be used for quality control testing.
**Test Procedure**
Inoculate tubes by stabbing through center of the medium with inoculating needle to approximately one-half the depth of the medium. Incubate at the proper temperature for the organism under consideration and examine at 18 – 48 hours. If negative, continue incubation at 22 - 25°C for an additional 5 days.

**Results**
Motility is observed visually by diffuse growth spreading from the line of inoculation. Certain strains of motile bacteria will show diffuse growth throughout the entire medium, while others may show diffusion from one or two points only, appearing as nodular growths along the stab line. Non-motile organisms grow only along the line of inoculation.

**Storage**
Store sealed bottle containing the dehydrated medium at 2 - 30°C. Once opened and recapped, place container in a low humidity environment at the same storage temperature. Protect from moisture and light by keeping container tightly closed.

**Expiration**
Refer to expiration date stamped on the container. The dehydrated medium should be discarded if not free flowing, or if appearance has changed from the original color. Expiry applies to medium in its intact container when stored as directed.

**Limitations of the Procedure**
1. Many organisms fail to grow deep in semisolid media, inoculating pour plates may be advantageous.5
2. Due to nutritional variation, some strains may be encountered that grow poorly or fail to grow on this medium.

**Packaging**

<table>
<thead>
<tr>
<th>Motility Test Agar Code No.</th>
<th>7247A</th>
<th>500 g</th>
</tr>
</thead>
<tbody>
<tr>
<td>7247B</td>
<td>2 kg</td>
<td></td>
</tr>
<tr>
<td>7247C</td>
<td>10 kg</td>
<td></td>
</tr>
</tbody>
</table>

**References**

**Technical Information**
Contact Acumedia Manufacturers, Inc. for Technical Service or questions involving dehydrated culture media preparation or performance at (517)372-9200 or fax us at (517)372-2006.