MODIFIED BUFFERED PEPTONE WATER
with PYRUVATE (mBPWp)
(7736)

Intended Use
Modified Buffered Peptone Water with Pyruvate (mBPWp) is used for the isolation of Enterohemorrhagic
E. coli (EHEC) in a laboratory setting. Modified Buffered Peptone Water with Pyruvate (mBPWp) is not
intended for use in the diagnosis of disease or other conditions in humans.

Product Summary and Explanation
Enterohemorrhagic E. coli (EHEC) are recognized as the primary cause of hemorrhagic colitis (HC) or bloody
diarrhea. This infection can also lead to hemolytic uremic syndrome (HUS). \(^1\) Enterohemorrhagic infections
are usually food or water borne and have been implicated in undercooked ground beef, raw milk, lunchmeat,
water, unpasteurized apple cider, sprouts and vegetables. \(^1\)

Modified Buffered Peptone Water with Pyruvate is recommended in the sample preparation for the screening
method following FDA/BAM Enterohemorrhagic E. coli (EHEC) Protocol. \(^1\) After the sample is incubated for
five hours in Modified Buffered Peptone Water with Pyruvate, several antimicrobial agents are added,
followed by an additional incubation period. These antimicrobial supplements effectively suppress normal
flora, while allowing the growth of viable O157:H7 cells (including STEC), and is capable of detecting <1 cfu/g
in foods. \(^1\) Improved recovery of pathogenic E. coli from difficult commodities was achieved with Modified
Buffered Peptone Water with Pyruvate enrichment. \(^2,3\)

Principles of the Procedure
Enzymatic Digest of Casein and Acid Digest of Casein are the major sources of nitrogen, while Yeast Extract
provides essential vitamins and minerals in Modified Buffered Peptone Water with Pyruvate. Lactose is the
carbon energy source. Sodium Chloride maintains the osmotic balance; Sodium Phosphate and Potassium
Phosphate are the buffering agents. Sodium Pyruvate is used to stimulate growth, while the antimicrobial
agents inhibit organisms other than E. coli O157:H7.

Formula / Liter
Enzymatic Digest of Casein .................................................. 10 g
Lactose ............................................................................. 10 g
Yeast Extract ................................................................. 6 g
Acid Digest of Casein ....................................................... 5 g
Sodium Chloride ............................................................ 5 g
Sodium Phosphate, dibasic ............................................. 3.6 g
Potassium Phosphate, monobasic ................................. 1.5 g
Sodium Pyruvate ............................................................ 1 g
Final pH: 7.2 ± 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. Dissolve 42.1 g of the medium in one liter of purified water.
2. Heat with frequent agitation to completely dissolve the medium.
3. Autoclave at 121°C for 15 minutes.
Quality Control Specifications

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

**Prepared Appearance:** Prepared medium is clear and light to dark amber.

**Expected Cultural Response:** Cultural response in Modified Buffered Peptone Water with Pyruvate incubated aerobically at 37 ± 1°C and examined for growth at 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>10 - 300</td>
<td>Good growth</td>
</tr>
<tr>
<td><em>Escherichia coli</em> O157:H7 ATCC® 35150</td>
<td>10 - 300</td>
<td>Good growth</td>
</tr>
<tr>
<td><em>Salmonella typhimurium</em> ATCC® 14028</td>
<td>10 - 300</td>
<td>Good growth</td>
</tr>
</tbody>
</table>

The organisms listed are the minimum that should be used for quality control testing.

**Test Procedure**

Refer to the BAM Manual for complete directions on sample preparation. After the sample has been prepared, material will be placed in Modified Buffered Peptone Water with Pyruvate, and incubated at 37 ± 1°C for 5 hours. Next add 1 mL each of Acriflavin (10 mg/L), Cefsulodin (10 mg/L), Vancomycin (8 mg/L) and incubate homogenate at 42 ±1°C for 18 – 24 hours.

**Results**

Refer to FDA, Bacteriological Analytical Manual (BAM).¹

**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 the appearance has changed from the original color. Expiry applies to medium in its intact container when stored as directed.

**Limitation of the Procedure**

Due to nutritional variation, some strains may be encountered that grow poorly.

**Packaging**

<table>
<thead>
<tr>
<th>Modified Buffered Peptone Water with Pyruvate</th>
<th>Code No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code No. 7736A</td>
<td>500 g</td>
<td></td>
</tr>
<tr>
<td>Code No. 7736B</td>
<td>2 kg</td>
<td></td>
</tr>
<tr>
<td>Code No. 7736C</td>
<td>10 kg</td>
<td></td>
</tr>
</tbody>
</table>

**References**

1. [www.fda.gov/Food/ScienceResearch/LaboratoryMethods/BacteriologicalAnalyticalManualBAM/default.htm](http://www.fda.gov/Food/ScienceResearch/LaboratoryMethods/BacteriologicalAnalyticalManualBAM/default.htm).

**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.