BBL™ Motility Test Medium
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QUALITY CONTROL PROCEDURES

I INTRODUCTION
Motility Test Medium is a semisolid medium used for the detection of motility of enteric organisms.

II PERFORMANCE TEST PROCEDURE
1. Loosen caps, boil* and cool before use.
   *__NOTE:__ Use of a microwave oven is not recommended.
2. Inoculate representative samples with the cultures listed below.
   a. Inoculate tubes with an inoculating needle by stabbing the medium to half its depth using 10^{-1} dilutions of 18- to 24-h **Trypticase™** Soy Broth cultures.
   b. Incubate tubes with loosened caps at 35 ± 2 °C in an aerobic atmosphere.
3. Examine tubes after 18 – 24 h and 42 – 48 h for growth and presence of motility.
4. Expected Results

Organisms	ATCC™	Recovery	Motility
**Escherichia coli*	25922	Growth	+
**Shigella flexneri*	9199	Growth	–

*Recommended organism strain for User Quality Control.

III ADDITIONAL QUALITY CONTROL
1. Examine tubes as described under “Product Deterioration.”
2. Visually examine representative tubes to assure that any existing physical defects will not interfere with use.
3. Incubate uninoculated representative tubes at 20 – 25 °C and 30 – 35 °C and examine after 7 days for microbial contamination.

PRODUCT INFORMATION

IV INTENDED USE
Motility Test Medium is used for the detection of motility of gram-negative enteric bacilli.

V SUMMARY AND EXPLANATION
In 1936, Tittsler and Sandholzer reported on the use of semisolid agar for the detection of bacterial motility.[1] Their original formulation has been modified in the medium supplied by BD Diagnostic Systems as Motility Test Medium.

VI PRINCIPLES OF THE PROCEDURE
Bacterial motility can be observed directly from examination of the tubes following incubation. Growth spreads out from the line of inoculation if the organism is motile. Highly motile organisms provide growth throughout the tube. Growth of nonmotile organisms only occurs along the stab line.

VII REAGENTS
Motility Test Medium

Approximate Formula* Per Liter Purified Water

Peptic Digest of Animal Tissue	5.0 g
Beef Extract	3.0 g
Pancreatic Digest of Gelatin	10.0 g
Sodium Chloride	5.0 g
Agar	4.0 g

*Adjusted and/or supplemented as required to meet performance criteria.

Warnings and Precautions: For *in vitro* Diagnostic Use.

Tubes with tight caps should be opened carefully to avoid injury due to breakage of glass.

Observe aseptic techniques and established precautions against microbiological hazards throughout all procedures. After use, prepared tubes, specimen containers and other contaminated materials must be sterilized by autoclaving before discarding.

Storage Instructions: On receipt, store tubes in the dark at 2 – 25 °C. Avoid freezing and overheating. Do not open until ready to use. Minimize exposure to light. Tubed media stored as labeled until just prior to use may be inoculated up to the expiration date and incubated for the recommended incubation times.

Product Deterioration: Do not use tubes if they show evidence of microbial contamination, discoloration, drying or other signs of deterioration.

VIII SPECIMEN COLLECTION AND HANDLING
Specimens suitable for culture may be handled using various techniques. For detailed information, consult appropriate texts.[2,3] Specimens should be obtained before antimicrobial agents have been administered. Provision must be made for prompt delivery to the laboratory.

IX PROCEDURE
Material Provided: Motility Test Medium

Materials Required But Not Provided: Ancillary culture media, reagents, quality control organisms and laboratory equipment as required.

Test Procedure: Observe aseptic techniques.

Loosen caps, boil* and cool before use. Inoculate tubes with a pure culture by stabbing the center of the column of medium to over half the depth. Incubate tubes for 24 – 48 h at 35 ± 2 °C in an aerobic atmosphere.

***NOTE:** Use of a microwave oven is not recommended.

User Quality Control: See "Quality Control Procedures."

Quality Control requirements must be performed in accordance with applicable local, state and/or federal regulations or accreditation requirements and your laboratory's standard Quality Control procedures. It is recommended that the user refer to pertinent CLSI guidance and CLIA regulations for appropriate Quality Control practices.

X RESULTS

After incubation, observe the tubes for growth in relation to the stab line. Nonmotile organisms grow only along the line of inoculation, while motile organisms spread out from the line of inoculation and may even grow throughout the medium.

Negative tubes can be reincubated at 25 ± 2 °C for an additional 5 days, if desired.

Consult appropriate texts for results with specific organisms.[2-5]

XI LIMITATIONS OF THE PROCEDURE

For identification, organisms must be in pure culture. Morphological, biochemical, and/or serological tests should be performed for final identification. Consult appropriate texts for detailed information and recommended procedures.[2-5]

XII PERFORMANCE CHARACTERISTICS

Prior to release, all lots of Motility Test Medium are tested for performance characteristics. Representative samples of the lot are inoculated by stabbing the medium to half its depth using a straight inoculating needle with **Trypticase** Soy Broth cultures of *Escherichia coli* (ATCC 25922) and *Shigella flexneri* (ATCC 9199) diluted to 10^{-1}. Inoculated tubes are incubated at 35 ± 2 °C and are read after 18 – 24 h and 42 – 48 h incubation for growth and motility. At 48 h, *E. coli* displays moderate to heavy growth and is motile; *S. flexneri* also displays moderate to heavy growth but is nonmotile. Motility is evidenced by growth of the organism out from the line of inoculation and spread evenly throughout the medium.

XIII AVAILABILITY

Cat. No.	Description
221509	**BD BBL™** Motility Test Medium, Pkg. of 10 size K tubes
221510	**BD BBL™** Motility Test Medium, Ctn. of 100 size K tubes

XIV REFERENCES

1. Tittsler, R.P., and L.A. Sandholzer. 1936. The use of semi-solid agar for the detection of bacterial motility. J. Bacteriol. *31*:575-580.
2. Murray, P.R., E.J. Baron, J.H. Jorgensen, M.A. Pfaller, and R.H. Yolken (ed.). 2003. Manual of clinical microbiology, 8th ed. American Society for Microbiology, Washington, D.C.
3. Forbes, B.A., D.F. Sahm, and A.S. Weissfeld. 2002. Bailey & Scott's diagnostic microbiology, 11th ed. Mosby, Inc., St. Louis.
4. Holt, J.G., N.R. Krieg, P.H.A. Sneath, J.T. Staley, and S.T. Williams (ed.). 1994. Bergey's Manual™ of determinative bacteriology, 9th ed. Williams & Wilkins, Baltimore.
5. Farmer, J.J., III. 1999. *Enterobacteriaceae*: introduction and identification, p. 442-458. *In* P.R. Murray, E.J. Baron, M.A. Pfaller, F.C. Tenover, and R.H. Yolken (ed.), Manual of clinical microbiology, 7th ed. American Society for Microbiology, Washington, D.C.

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