



Ready Prepared Media

## Technical Information

### Tergitol-7 Agar Plate

#### Product Code: PM 1616

**Application :** Recommended for selective enumeration and identification coliform organisms

#### Composition\*\*

| Ingredients                               | Gms / Litre |
|-------------------------------------------|-------------|
| Proteose peptone                          | 5.000       |
| Yeast extract                             | 3.000       |
| Lactose                                   | 10.000      |
| Sodium heptadecyl sulphate (Tergitol 7)   | 0.100       |
| Bromo thymol blue                         | 0.025       |
| Agar                                      | 15.000      |
| TTC Solution 1% (10 ml per vial) (MS2057) | 3 ml        |
| Final pH ( at 25°C)                       | 6.9±0.2     |

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

#### Principle & Interpretation

Tergitol-7 Agar was originally designed by Chapman (1) and later on modified by incorporating 2,3,5-Triphenyl Tetrazolium Chloride (TTC) into the medium. This medium is selective and differential used for the detection and enumeration of coliform organisms. Pollard (2) has reported the selective bactericidal property of sodium heptadecylsulphate (Tergitol-7). Kulp et al (3) corroborated the use of Tergitol-7 Agar with TTC in routine analysis of water and Mossel (4) used this medium for the examination of food materials.

Proteose peptone and yeast extract serve as sources of carbon, nitrogen and other essential nutrients including vitamin B complex. Sodium heptadecyl sulphate (Tergitol-7) inhibits gram-positive bacteria and *Proteus* swarming and yields better recovery of coliforms. Bromo thymol blue is the pH indicator. Lactose fermenting organisms form yellow colonies with yellow zones while *Klebsiella* and *Enterobacter* form greenish yellow colonies. Lactose non-fermenters produce blue colonies. TTC is reduced by the bacterial cell except *Escherichia coli* and *Enterobacter aerogenes* to form formazan, a red coloured insoluble complex, thereby producing red coloured colonies.

Filter the specimen to be analyzed through two membranes. Place the membrane upon two TTC Tergitol Agar plates. Incubate one plate at 37°C for 24 hours (total coliforms) and the other at 44°C for 18-24 hours (faecal coliforms). The yellow colonies with deep yellow halo after incubation at 44°C should be identified as faecal coliform bacteria.

#### Type of specimen

Clinical samples - faeces, urine and other pathological material; Water samples

#### Specimen Collection and Handling

For water samples, follow appropriate techniques for sample collection, processing as per guidelines and local standards (5). For clinical samples follow appropriate techniques for handling specimens as per established guidelines (6,7). After use, contaminated materials must be sterilized by autoclaving before discarding.



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## Warning and Precautions

In Vitro diagnostic Use. For professional use only. Read the label before opening the container. Wear protective gloves/protective clothing/eye protection/face protection. Follow good microbiological lab practices while handling specimens and culture. Standard precautions as per established guidelines should be followed while handling clinical specimens. Safety guidelines may be referred in individual safety data sheets

## Limitations

1. Individual organisms differ in their growth requirement and may show variable growth patterns on the medium.
2. Each lot of the medium has been tested for the organisms specified on the COA. It is recommended to users to validate the medium for any specific microorganism other than mentioned in the COA based on the user's unique requirement.
3. Further biochemical and serological tests must be carried out for complete identification.

## Performance and Evaluation

Performance of the medium is expected when used as per the direction on the label within the expiry period when stored at recommended temperature.

## Methodology

Either streak, inoculate or surface spread the test inoculum (50-100 CFU) aseptically on the plate.

## Quality Control

### Appearance

Sterile Tergitol-7 Agar in 90 mm disposable plates with smooth surface and absence of black particles/cracks/bubbles

### Colour of medium

green coloured medium

### Quantity of medium

25 ml of medium in 90 mm disposable plates.

### Reaction

6.70-7.10

### Sterility Test

Passes release criteria

### Cultural Response

Cultural characteristics observed after an incubation at 35-37°C for 18-48 hours

| Oragnism                                                                | Inoculum (CFU)    | Growth         | Recovery | Colour of colony/medium |
|-------------------------------------------------------------------------|-------------------|----------------|----------|-------------------------|
| <i>Klebsiella aerogenes</i><br>ATCC 13048 (00175*)                      | 50-100            | luxuriant      | >=50%    | Reddish brown           |
| <i>Escherichia coli</i> ATCC<br>25922 (00013*)                          | 50-100            | good-luxuriant | >=50%    | Yellow with red center  |
| <i>Proteus mirabilis</i> ATCC<br>25933                                  | 50-100            | good           | 40-50%   | red with bluish zone    |
| <i>Pseudomonas aeruginosa</i><br>ATCC 27853 (00025*)                    | 50-100            | good           | 40-50%   | red with bluish zone    |
| <i>Salmonella Typhimurium</i><br>ATCC 14028 (00031*)                    | 50-100            | luxuriant      | >=50%    | red with bluish zone    |
| <i>Staphylococcus aureus</i><br><i>subsp. aureus</i> ATCC25923 (00034*) | >=10 <sup>3</sup> | inhibited      | 0%       |                         |
| <i>Shigella flexneri</i><br>ATCC 12022 (00126*)                         | 50-100            | good-luxuriant | >=50%    | red with bluish zone    |



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Key : (\*) Corresponding WDCM numbers. (#) Formerly known as Enterobacter aerogenes

## Storage and Shelf Life

On receipt store between 20-30°C. Use before expiry date on the label. Product performance is best if used within stated expiry period..

## Disposal

User must ensure safe disposal by autoclaving and/or incineration of used or unusable preparations of this product. Follow established laboratory procedures in disposing of infectious materials and material that comes into contact with clinical sample must be decontaminated and disposed of in accordance with current laboratory techniques (6,7).

## Further Reading

1. Chapman G.H., 1947, J. Bact., 53:504.
2. Pollard A.L., 1946, Science, 103:758.
3. Kulp W., Mascoli C. and Tavshanjian O., 1953, Am. J. Public Health, 43:1111.4.Mossel D.A.A., 1962, J. Appl. Bact., 25:20.
4. Lipps WC, Braun-Howland EB, Baxter TE, eds. Standard methods for the Examination of Water and Wastewater, 24th ed. Washington DC:APHA Press; 2023.
5. Isenberg, H.D. Clinical Microbiology Procedures Handbook 2nd Edition.
6. Jorgensen, J.H., Pfaller, M.A., Carroll, K.C., Funke, G., Landry, M.L., Richter, S.S and Warnock., D.W. (2015) Manual of Clinical Microbiology, 11th Edition. Vol. 1.

## Disclaimer

- User must ensure suitability of the product(s) in their application prior to use.
- The product conform solely to the technical information provided in this booklet and to the best of knowledge research and development work carried at **CDH** is true and accurate
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