



# PRODUCT SPECIFICATION SHEET

## Tergitol-7 Broth (Chapman) (DM257)

### Intended Use

Tergitol-7 Broth (Chapman) (DM257) is a selective and differential medium for detection and enumeration of coliforms.

### Product Summary and Explanation

Tergitol-7 Broth is a selective and differential medium for the detection and enumeration of coliforms in food and water samples. Tergitol-7 Broth was originally formulated by Chapman<sup>(1)</sup> and was modified later by incorporating 2,3,5-Triphenyl Tetrazolium Chloride (TTC) into the medium. The selective bactericidal property of sodium heptadecyl sulphate (Tergitol-7) was reported by Pollard.<sup>(2)</sup> Kulp et al<sup>(3)</sup> corroborated the use of Tergitol-7 medium with TTC in routine analysis of water and Mossel<sup>(4)</sup> used this medium for the examination of food materials. The addition of triphenyltetrazolium chloride (TTC) allows earlier recognition and identification of *Escherichia coli* and *Enterobacter aerogenes*. Confirmation of the presence of *E. coli* was possible after only 10 hours incubation at 35°C. Tergitol-7 inhibits Gram positive organisms and minimises the swarming of *Proteus* allowing superior recovery of coliforms. TTC is rapidly reduced to insoluble red formazan by most coliform organisms except *E. coli* and *Enterobacter aerogenes*, thus allowing easy differentiation.

### Principles of the Procedure

Tergitol-7 Broth contains proteose peptone serves as sources of carbon, nitrogen and other essential growth nutrients. Yeast extract provides vitamin B complex required for growth. Lactose is the fermentable carbohydrate. Lactose fermentation is indicated by a color change of the pH indicator, Bromthymol Blue. Sodium heptadecyl sulphate (Tergitol-7) inhibits gram-positive bacteria and *Proteus* swarming and yields better recovery of coliforms.

### Formula / Liter

Ingredients	Gms / Liter
Proteose peptone	5.00
Yeast extract	3.00
Lactose	10.00
Bromo thymol blue	0.025
Sodium heptadecyl sulphate(Tergitol-7)	0.10
Final pH: 6.9 ± 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 18.13 grams of the medium in one liter of distilled water.
2. Heat if necessary to dissolve the medium completely.
3. Autoclave at 121°C, 15 psi pressure, for 15 minutes / validated cycle.
4. Cool to 45-50°C. Aseptically add 3 ml of Triphenyl Tetrazolium Chloride (TTC) Solution (MS029), if desired.
5. Mix well and dispense into sterile tubes.





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### Quality Control Specifications

Dehydrated Appearance	Cream to light green homogeneous free flowing powder
Prepared Medium	Green coloured clear to slightly opalescent solution in tubes
Reaction of 1.81% solution	pH 6.9 ± 0.2 at 25°C
Gel Strength	Not Applicable

**Expected Cultural Response:** Cultural characteristics observed after an incubation at 35-37°C for 18-48 hours, if desired with added TTC Solution 1% (MS029).

Sr. No.	Organisms	Results to be achieved		
		Inoculum (CFU)	Growth	Colour of colony
1.	<i>Enterobacter aerogenes</i> ATCC 13048	50-100	good-luxuriant	yellow
2.	<i>Escherichia coli</i> ATCC 25922	50-100	good-luxuriant	yellow
3.	<i>Proteus vulgaris</i> ATCC 13315	50-100	good-luxuriant	blue-green
4.	<i>Pseudomonas aeruginosa</i> ATCC 27853	50-100	good	blue-green
5.	<i>Salmonella Typhimurium</i> ATCC 14028	50-100	good	blue-green
6.	<i>Staphylococcus aureus</i> ATCC 25923	>=10 <sup>3</sup>	inhibited	--
7.	<i>Shigella flexneri</i> ATCC 12022	50-100	good-luxuriant	blue-green

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

### Test Procedure

Refer to appropriate references for standard test procedures.

### Results

- Lactose fermenting organisms form yellow coloured medium while *Klebsiella* and *Enterobacter* form greenish yellow coloured medium. Lactose non-fermenters produce blue coloured medium.
- TTC is reduced in the bacterial cell to form formazan, a red coloured insoluble complex, thereby producing red coloured medium.
- Refer to appropriate references and standard test procedures for interpretation of results.

### Storage

Store the sealed bottle containing the dehydrated medium at 10 - 30°C. Once opened and recapped, place container in a low humidity environment at the same storage temperature. Protect from moisture and light.

### Expiration

Refer to the 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.

### 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.





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### Packaging

Product Name : Tergitol-7 Broth (Chapman)

Product Code : DM257

Available Pack sizes : 500gm

### References

1. Chapman, G. H. 1947. A superior culture medium for the enumeration and differentiation of coliforms. J. Bacteriol. 53:504.
2. Chapman, G. H. 1951. A culture medium for detecting and confirming *Escherichia coli* in ten hours. Am. J. Public Health. 41:1381.
3. Pollard A.L., 1946, Science, 103:758.
4. Kulp W., Mascoli C., Tavshanjian O. (1953) Am. J. Pub. Hlth 43. 1111-1113.
5. Mossel D. A. A. (1962) J. Appl. Bact. 25. 20-29.

### Further Information

For further information please contact your local MICROMASTER Representative.



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