TERGITOL 7 AGAR (7187)

Intended Use
Tergitol 7 Agar is used for the selective isolation of coliform bacteria.

Product Summary and Explanation
Tergitol 7 Agar, prepared according to the formula published by Chapman, is selective for *Escherichia coli* and members of the coliform group.[1] Chapman reported that the addition of Tergitol 7 to a medium consisting of polypeptone and yeast extract permitted unrestricted development of all coliform bacteria, and inhibited gram-negative spore-formers and Gram-positive organisms. Coliform counts on Tergitol 7 Agar were 30% higher than on other selective media.

Chapman modified his original Tergitol 7 Agar by adding 40 mg of triphenyltetrazolium chloride (TTC) per liter.[2] This medium was helpful in the early recognition and identification of *Escherichia coli*. Confirmation of the presence of *E. coli* was possible after only 10 hours incubation at 35°C. Chapman also reported that Tergitol 7 Agar with added TTC gave a selective medium suitable for the isolation of *Candida* spp. and other fungi. Tergitol 7 Agar with TTC is useful for routine water analysis and the examination of foods.[3-5]

Principles of the Procedure
Enzymatic Digest of Casein and Enzymatic Digest of Animal Tissue are the nitrogen and mineral sources in Tergitol 7 Agar. Yeast Extract supplies essential vitamins. Lactose is the fermentable carbohydrate. Lactose fermentation is indicated by a color change of the pH indicator, Bromthymol Blue. Tergitol 7 (sodium heptadecyl sulfate) inhibits growth of gram-positive microorganisms, spore-forming gram-negative bacteria, and swarming of *Proteus* spp. Agar is the solidifying agent.

When TTC is added to the medium, it serves as an indicator of bacterial growth. TTC is rapidly reduced to insoluble red formazan by most organisms. Lactose fermenting organisms continue to provide yellow to greenish-yellow colonies. Non-lactose fermenters appear red due to uptake and reduction of the TTC.

Formula / Liter
Enzymatic Digest of Casein	2.5 g
Enzymatic Digest of Animal Tissue	2.5 g
Yeast Extract	3 g
Lactose	10 g
Tergitol 7	0.1 g
Bromthymol Blue	0.025 g
Agar	15 g

Final pH: 6.9 ± 0.2 at 25°C

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

Precaution
1. For Laboratory Use.

Directions
1. Suspend 33 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.

OPTIONAL: Cool Tergitol 7 Agar to 50°C. Add 4 mL of either TTC Solution 1% or a filter sterilized 1% solution of TTC.

Quality Control Specifications
Dehydrated Appearance: Powder is homogeneous, free flowing, and light green-beige to light beige.

Prepared Appearance: Prepared medium is green and trace to slightly hazy.

Expected Cultural Response: Cultural response on Tergitol 7 Agar at 35°C after 12 - 24 hours incubation.

Microorganism	Response	Reactions
Enterobacter aerogenes ATCC® 13048	growth	yellow colonies
Enterococcus faecalis ATCC® 29212	inhibited	---
Escherichia coli ATCC® 25922	growth	yellow colonies
Staphylococcus aureus ATCC® 25923	inhibited	---
Pseudomonas aeruginosa ATCC® 27853	growth	blue colonies
Salmonella typhimurium ATCC® 14028	growth	blue colonies

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

Test Procedure
Refer to appropriate references for specific procedures.

Results
In the absence of TTC, *E. coli* produces yellow colonies with yellow halos; other coliforms produce yellow to yellow-green colonies. Non-fermenters produce blue colonies. With added TTC, *E. coli* produces yellow colonies; other coliforms produce yellow-green colonies, while non-fermenters produce red colonies.

Storage
Store 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 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. Due to nutritional variation, some strains may be encountered that grow poorly or fail to grow on this medium.
2. Pour plates do not give satisfactory results.
3. Allow plates to dry with lids slightly ajar for 1 – 2 hours.[6]
4. Reduction of TTC is an irreversible reaction that produces an insoluble formazan compound.

Packaging
Tergitol 7 Agar	**Code No.**	**7187A**	**500 g**
		7187B	**2 kg**
		7187C	**10 kg**

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. **Kulp, W., C. Mascoli, and O. Tavshanjian.** 1953. Use of tergitol-7 triphenyl tetrazolium chloride agar as the coliform confirmatory medium in routine sanitary water analysis. Am. J. Public Health. **43:**1111.
4. **Mossel, D. A. A.** 1962. An ecological investigation on the usefulness of two specific modifications of Eijkman's test as an element of the methods for the detecting of faecal contamination of food. J. Appl. Bacteriol. **25:**20.
5. **Speck, Marvin L. (ed.).** 1992. Compendium of methods for the microbiological examination of foods, 3rd ed. American Public Health Association, Washington, D.C.
6. **MacFaddin, J. F.** 1985. Media for the isolation-cultivation-identification-maintenance of medical bacteria, vol. 1. Williams & Wilkins, Baltimore, MD.

Technical Information
Contact Acumedia Manufacturers, Inc. for Technical Service or questions involving dehydrated culture media preparation or performance at (410)780-5120 or fax us at (410)780-5470.