TERGITOL 7 AGAR w/ and w/o TTC

INTENDED USE
Remel Tergitol 7 Agar w/ and w/o TTC are solid media recommended for use in qualitative procedures for selective and differential isolation of coliform organisms.

SUMMARY AND EXPLANATION
The use of tergitol (sodium heptadecyl sulfate) as a selective agent was first reported by Pollard in 1946.[1] Tergitol 7 Agar was developed by Chapman for selective isolation and increased recovery of coliforms.[2] Later, Tergitol 7 Agar was modified by addition of triphenyltetrazolium chloride (TTC). Tergitol 7 Agar w/ TTC was found to facilitate early recognition of *Escherichia coli* and *Enterobacter aerogenes* after only 6-10 hours incubation. These organisms produce yellow colonies in contrast to other coliforms which reduce TTC and form purple colonies. In 1953, Kulp et al. reported using Tergitol 7 Agar w/ TTC in routine water analysis.[4]

PRINCIPLE
Tergitol serves as a selective agent which inhibits growth of gram-positive organisms and prevents the swarming of *Proteus*. Microorganisms capable of fermenting lactose produce yellow colonies on Tergitol 7 Agar due to the reaction of the indicator, brom thymol blue. Organisms that do not ferment lactose produce blue to green or purple colonies. TTC, incorporated into Tergitol 7 Agar w/ TTC, is a rapid indicator of bacterial growth. Some coliforms reduce TTC to insoluble triphenol formazan resulting in red colonies with blue zones which appear purple. *E. coli* and *E. aerogenes* do not reduce TTC and form yellow colonies with yellow zones. Nonlactose fermenters produce red colonies with blue zones, appearing purple in color.

REAGENTS (CLASSICAL FORMULAE)*

Lactose	10.0 g	Tergitol 7	0.1 g
Yeast Extract	3.0 g	Brom Thymol Blue	25.0 mg
Casein Peptone	2.5 g	Agar	15.0 g
Meat Peptone	2.5 g	Demineralized Water	1000.0 ml

pH 6.9 ± 0.2 @ 25°C

The following optional ingredient is available per liter of medium:
Triphenyltetrazolium Chloride (TTC) ..... 0.03 g

*Adjusted as required to meet performance standards.

PROCEDURE
1. Inoculate and streak the specimen as soon as possible after it is received in the laboratory.
2. A nonselective medium should also be inoculated to increase the potential for recovering gram-negative organisms present in low numbers and to provide an indication of other organisms present in the specimen.
3. Incubate plates in ambient air at 33-37°C for up to 48 hours.
4. Examine for typical colonial morphology.

QUALITY CONTROL
All lot numbers of Tergitol 7 Agar w/ and w/o TTC have been tested using the following quality control organisms and have been found to be acceptable. Testing of control organisms should be performed in accordance with established laboratory quality control procedures. If aberrant quality control results are noted, patient results should not be reported.

CONTROL	INCUBATION	RESULTS
Tergitol 7 Agar (w/o TTC):		
Escherichia coli ATCC® 25922	Ambient, up to 48 h @ 33-37°C	Growth, yellow colonies
Proteus mirabilis ATCC® 12453	Ambient, up to 48 h @ 33-37°C	Growth, blue to green colonies
Proteus vulgaris ATCC® 6380	Ambient, up to 48 h @ 33-37°C	Growth, blue to green colonies, no swarming
Salmonella enterica serovar Typhimurium ATCC® 14028	Ambient, up to 48 h @ 33-37°C	Growth, light blue colonies
Staphylococcus aureus ATCC® 25923	Ambient, 18-24 h @ 33-37°C	Inhibition (partial to complete)
Tergitol 7 Agar (w/ TTC):		
Escherichia coli ATCC® 25922	Ambient, up to 48 h @ 33-37°C	Growth, yellow colonies
Proteus mirabilis ATCC® 12453	Ambient, up to 48 h @ 33-37°C	Growth, purple colonies
Proteus vulgaris ATCC® 6380	Ambient, up to 48 h @ 33-37°C	Growth, purple colonies, no swarming
Salmonella enterica serovar Typhimurium ATCC® 14028	Ambient, up to 48 h @ 33-37°C	Growth, purple colonies
Staphylococcus aureus ATCC® 25923	Ambient, 18-24 h @ 33-37°C	Inhibition (partial to complete)

LIMITATIONS
1. Reduction of TTC forms an insoluble formazan compound resulting in an irreversible reaction.[5]
2. *Escherichia coli* and *Enterobacter aerogenes* are not known to reduce TTC; most other coliforms do reduce TTC.[5]
3. Additional testing is required for definitive identification of test isolates. Consult current editions of appropriate references for further instructions.

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BIBLIOGRAPHY

1. Pollard, A.L. 1946. Science. 103:758-759.
2. Chapman, G.H. 1947. J. Bacteriol. 53:504.
3. Chapman, G.H. 1951. Am. J. Public Health. 41:1381.
4. Kulp, W., C. Mascoli, and O. Tavshanjian. 1953. Am. J. Public Health. 43:111.
5. MacFaddin, J.F. 1985. Media for Isolation-Cultivation-Identification-Maintenance of Medical Bacteria. Vol. 1. Williams & Wilkins, Baltimore, MD.

Refer to the front of Remel *Technical Manual of Microbiological Media* for **General Information** regarding precautions, product storage and deterioration, specimen collection, storage and transportation, materials required, quality control, and limitations.

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