



TETRATHIONATE BROTH

- For in vitro use only -

Catalogue No. TT33

Our Tetrathionate Broth when used in conjunction with our Tetrathionate Iodine-iodide Solution (Catalogue No. BT34) can be used for the selective enrichment of *Salmonella* species from fecal specimens, as well as from food samples and waste water.

Mueller first described the effectiveness of Tetrathionate Broth as a selective enrichment broth for recovering *Salmonella* species while inhibiting other coliforms. Our formulation is consistent with the Federal Drug Administration (FDA) and United States Pharmacopeia (USP) recommendations. The nutritional requirements of the organism are met by the addition of pancreatic digest of casein and peptic digest of animal tissue which provide amino acids, vitamins, and other growth factors. The selectivity of Tetrathionate Broth is due to bile salts which inhibit gram-positive organisms and tetrathionate (formed when iodine-iodide solution is added) which is toxic to both gram-positive and gram-negative bacteria, including the normal intestinal flora found in fecal specimens. Tetrathionate inhibition is bactericidal unless organisms possess the enzyme tetrathionate reductase; *Salmonella* and *Proteus* species possess this enzyme and both grow readily in this medium. Calcium carbonate is present at a supersaturated concentration, and helps neutralize the acidic end products from tetrathionate decomposition.

Formula per Litre of Medium

Pancreatic Digest of Casein.....	2.5 g
Peptic Digest of Animal Tissue.....	2.5 g
Sodium Thiosulfate.....	30.0 g
Calcium Carbonate	10.0 g
Bile Salts	1.0 g

pH 8.4 ± 0.2

Recommended Procedure

1. Allow medium to adjust to room temperature.
2. Add 0.2 mL of Tetrathionate Iodine-iodide Solution (Dalynn BT34) to each tube just prior to inoculation.
3. Inoculate the Tetrathionate Broth with the specimen (approximately 1g or 1 mL of solid or liquid sample per tube).
4. Incubate the tubes with loose caps for 24 hours at 35°C.
5. Subculture onto a selective and differential media such as SS or XLD agar to isolate potential *Salmonella* colonies.

Interpretation of Results

Tetrathionate Broth when used with our iodine-iodide solution is an excellent selective, enrichment broth for the isolation of *Salmonella* species. Uninoculated Tetrathionate Broth is a cloudy suspension with a fine, white precipitate at the bottom of the tube. Because of their general cloudy appearance, turbid tubes maybe difficult to discern from tubes containing inhibited cultures, therefore all inoculated tubes should be sub-cultured to avoid misdetection of *Salmonella*. Please refer to an appropriate technical source for more information on the chosen sub-culture medium.

Additional biochemical and/or serological tests should be performed on isolated colonies from pure culture in order to complete identification.

- *Some bacteria such as Proteus species may grow in tetrathionate broth*
- *Do not add iodine-iodide solution until just before inoculation*

Quality Control

After checking the medium for correct pH, color, depth, and sterility, the following organisms are used to determine the performance of the completed medium. The tubes are incubated at 35°C and sub-cultured onto MacConkey Agar after 24 hours. MacConkey plates are incubated at 35°C for 24 hours and then examined.

Organism	Expected Results
<i>Salmonella typhimurium</i> ATCC 14028	Growth
<i>Escherichia coli</i> ATCC 25922	Inhibition

Storage and Shelf Life

Our Tetrathionate Broth should be stored away from direct in an upright position at 4 to 8°C. Under these conditions the medium has a shelf life of 12 weeks from the date of manufacture.

Ordering Information

Cat#	Description	Format
TT33-10	Tetrathionate Broth 10-mL [16x125-mm screw cap tube]	10/pkg
BT34-05	Tetrathionate Iodine-Iodide Solution [5-mL]	Each
BT34-15	Tetrathionate Iodine-Iodide Solution [15-mL]	Each

References

1. Mueller L. Un nouveau milieu d'enrichissement pour la recherche du bacille typhique et des paratyphiques. C R Soc Biol; 89:434.
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3. MacFaddin JF. Media for isolation-cultivation-maintenance of medical bacteria, vol I. Baltimore, MD: Williams & Wilkins, 1985.
4. United States Pharmacopoeial Convention. United States Pharmacopeia. 23rd ed. Rockville, MD, 1995.
5. Forbes BA, Sahm DF, Weissfeld AS. Bailey and Scott's diagnostic microbiology. 10th ed. St. Louis: Mosby, 1998.
6. Murray, PR, Baron E, Pfaller M, Tenover F, Tenover R. Manual of clinical microbiology. 7th ed. Washington: ASM, 1999.

Original: August 2003

Revised / Reviewed: October 2014