TETRATHIONATE BROTH and IODINE SOLUTION

INTENDED USE
Remel Tetrathionate Broth, when supplemented with Iodine for Tetrathionate, is a liquid medium recommended for use in qualitative procedures as a selective enrichment medium for the isolation of *Salmonella* from feces, urine, sewage, foods, and other materials of sanitary significance.

SUMMARY AND EXPLANATION
Tetrathionate Broth was originally described by Mueller for cultivation of *Salmonella* sp. from samples contaminated with coliforms.[1] Kauffmann reported an increase in the recovery rate of *Salmonella* using a modification of the medium described by Mueller.[2,3] Tetrathionate Broth is formulated according to the specification of the American Public Health Association (APHA), the Association of Official Analytical Chemists (AOAC), the United States Department of Agriculture (USDA), and the *United States Pharmacopeia* (USP).[4-7]

PRINCIPLE
Casein and meat peptones supply nitrogen, amino acids, and peptides necessary for bacterial growth. Tetrathionate is formed by the addition of a solution containing iodine and iodide. Organisms capable of reducing tetrathionate, such as *Salmonella*, flourish in the medium while other fecal organisms are inhibited. Bile salts and sodium thiosulfate are selective agents which inhibit gram-positive organisms and some enteric gram-negative bacilli.

REAGENTS (CLASSICAL FORMULAE)*
Tetrathionate Broth:

Sodium Thiosulfate	30.0	g	Meat Peptone	2.5	g
Calcium Carbonate	10.0	g	Bile Salts	1.0	g
Casein Peptone	2.5	g	Demineralized Water	1000.0	ml

pH 8.4 ± 0.2 @ 25°C

Iodine for Tetrathionate:

Iodine Crystals	6.0	g	Potassium Iodide	5.0	g
			Demineralized Water	20.0	ml

*Adjusted as required to meet performance standards.

PRECAUTIONS
***Warning! Iodine for Tetrathionate** causes irritation and possible burns by all routes of exposure; may cause allergic skin reaction; may be harmful if swallowed or absorbed through the skin. This substance has caused adverse reproductive and fetal effects in animals.

This product is For Laboratory Use only. It is not intended for use in the diagnosis of disease or other conditions.

*Warning pertains to Iodine for Tetrathionate **only**.

PREPARTION OF DEHYDRATED CULTURE MEDIUM
1. Suspend 46 g of medium in 1000 ml of demineralized water.
2. Heat to boiling with agitation to completely dissolve.
3. Cool to below 45°C.
4. Add 20 ml of Iodine for Tetrathionate (REF R114350).
5. Mix well and dispense into sterile tubes. Do not heat after adding solution.

PROCEDURE
1. Consult current editions of appropriate references for the recommended procedure for sample preparation, inoculation, and testing.[4-7]
2. Incubate tubes aerobically with caps loosened for 18-48 hours at 33-37°C.
3. Observe for growth as indicated by the development of turbidity.
4. Subculture broth to appropriate selective medium for further testing.

QUALITY CONTROL
Each lot number of Tetrathionate Broth and Iodine Solution has been manufactured, packaged, and processed in accordance with current Good Manufacturing Practice regulations. All lot numbers 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.

CONTROL	INCUBATION	RESULTS
Salmonella enterica serovar Typhimurium ATCC®14028	Aerobic, up to 48 h @ 33-37°C	Growth recovered on subculture
Escherichia coli ATCC® 25922	Aerobic, up to 48 h @ 33-37°C	Inhibition (partial to complete)

LIMITATIONS
1. **Do not add** Iodine for Tetrathionate to Tetrathionate Broth until **just before** inoculation.[8]
2. This medium is not recommended for growth of *Salmonella enterica* serovars: Typhi, Paratyphi, Sendai, Pullorum, and Gallinarium.[8]

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

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