TRYPTIC SOY MEDIA
GAMMA IRRADIATED

PRODUCT:
Plated Media:[a]

Tryptic Soy Agar, item no.'s P8850 (150mm plate), P8795 (100mm SMA-25), P8800 (SMA-32), P8783 (100mm plate, Barrier), P8883 (150mm plate, Barrier)

Tryptic Soy Agar with Lecithin and Polysorbate 80, item no.'s P8150 (contact plate), P8880 (150mm plate), P8780 (100mm)

Tryptic Soy Agar with Lecithin, Polysorbate 80, and Penicillinase, item no. P8777 (100mm 4% penase), P8870 (150mm, 4% penase), P8162 (contact plate)

[a]see catalog for ordering options

*Corresponding catalog numbers with "EM" at the end are manufactured with EMD Chemicals, Inc. dehydrated media brand. All brands used to make products meet or exceed USP guidelines.

PURPOSE:
Tryptic soy is a general purpose base medium that is used for the cultivation of fastidious microorganisms. It is a soybean-casein digest medium and meets the U.S. Pharmacopeia (USP) Standards for use in microbiological tests. Gamma irradiation of packaged plates is recommended for use in critical environmental testing (i.e. clean rooms, pharmaceuticals, etc.) for determining microbial loads where a higher level of sterility is desired. Tryptic soy or soybean-casein digest is included in standard methods for the examination of wastewater, water, and foods.[2,5]

PRINCIPLE:
Tryptic soy is a highly nutritious medium and is commonly used as a base medium for the cultivation of microorganisms. Casein and soy peptones in the medium supply nutritious organic nitrogen, and sodium chloride maintains the osmotic equilibrium of the medium. The medium has many uses including maintaining stock cultures, aerobic colony forming unit (CFU) counts, microorganism isolation, and as a base medium with blood added for hemolytic reactions and enrichment.[1,3,4]

Gamma irradiation of the packaged plates allows this product to be used in critical environments where introduction of contaminants are not desired. Aseptic removal of the inner packaging from the outer wrap allows the product to be moved into a clean room environment without the contaminated outer wrap. Product in the third inner wrap eliminates the need to aseptically rewrap the product for transport or storage and possibly contaminating the medium. Barrier Wrap is a unique material that is impervious to presterilizing agents such as vaporized hydrogen peroxide. Barrier wrap is designed for isolator environmental testing.

Lecithin and polysorbate 80 are added to the tryptic soy formula to neutralize the inhibitory effects of germicidal or disinfectant residue and the consequent lowering of the microbial count. Lecithin neutralizes quaternary ammonium compounds and polysorbate 80 neutralizes phenolic disinfectants and hexachlorophene. Lecithin combined with polysorbate 80 neutralizes ethanol.[2]

Penicillinase is added to the Tryptic Soy with Lecithin and Polysorbate 80 formula to inactivate any residual antibiotic activity in the specimen under test.

FORMULAS:
Approximate, per liter USP purified water.*

(1) Tryptic Soy Agar (TSA):

Pancreatic Digest of Casein	15.0 g
Enzymatic Soy Digest	5.0
Sodium Chloride	5.0
Agar	15.0

Final pH 7.3 ± 0.2 at 25°C

(2) Tryptic Soy Agar (TSA) with Lecithin and Polysorbate 80

Pancreatic Digest of Casein	15.0 g
Enzymatic Soy Digest	5.0
Sodium Chloride	5.0
Lecithin	0.7
Polysorbate 80	5.0
Agar	20.5

Final pH 7.3 ± 0.2 at 25°C

(3) Tryptic Soy Agar (TSA) with Lecithin, Polysorbate 80, and Penicillinase
Same as #2 with Penicillinase.

*Adjustments may be required to meet performance standards and to compensate for the effects of media irradiation.

PRECAUTIONS:*

For laboratory use. Observe approved biohazard precautions.

Plates are triple-wrapped with breathable bags for maximum sterility assurance. However, fluctuation of temperature and/or humidity due to changes that occur during shipping and/or storage environment occasionally result in accumulation of moisture. If excessive moisture is observed, packages may be stored agar side up at room temperature (not exceeding 30°C) for up to 10 days without affecting the shelf life.

Storage: Upon receipt store at 2-8°C away from light. Media should not be used if there are signs of contamination, deterioration (i.e. shrinking, cracking, or discoloration), or if the expiration date has passed. Do not open outer wrapping until ready to use. Media can be inoculated up to the expiration date and incubated for the appropriate incubation period.

Limitations: This is a primary isolation medium. Any isolated organisms should be identified by appropriate biochemical and/or serological tests.[1,4]

When the integrity of the seal or outer wrap is compromised, the product is no longer considered sterile.

Molds or spreading colonies can make accurate counting difficult.
Unless a statistical method for monitoring is designed, the results can be uninterpretable or misleading.

The complexity of the surface (irregular, curved, porous, rough, or textured) to be tested may present sampling challenges for *contact plates*.

No single assay can characterize completely the microbial contamination in a specific area. A complete contamination control program should emphasize traffic control, special dress code procedures in critical areas, suitable ventilation, as well as good cleaning and disinfecting practices.

PROCEDURE:*

Method of Use: The sealed outer wrapper may be opened aseptically by peeling apart the clear film from the white film at the edge or by cutting with sterile sissors. If sterility of the inner packaging is required, then appropriate procedures should be used to maintain the sterility of the inner contents.

Samples should be collected using appropriate techniques. Transportation of samples should be done in a timely manner using appropriate methods.

Samples should be inoculated onto plates as soon as possible using techniques that will yield isolated colonies. The agar surface should be flat and moist without excessive moisture, or growth may be confluent and not as isolated colonies. Incubate plates at appropriate temperatures and conditions to isolate specific organisms.[1,3,4]

If colony counts (CFU - Colony Forming Units) are required, consult appropriate references for the particular methods used.

Interpretation: Growth should be as isolated colonies, not growing confluently. Count isolated colonies and group them according to their phenotypic appearance. If spreading colonies must be counted, then use the following criteria to count as one colony.

- a spreader that developed a film of growth between the agar and the bottom of the perti dish
- a colony that spreads on a film of water at the edge or over the agar surface
- a chain of colonies that appears to be caused by disintegration of a bacterial clump; count each chain as a single colony; do not count each colony in each chain

Colonies that require further identification should be subcultured for purity and then tested by biochemical, serological, and microscopic means.[1,3,4]

Materials Required but Not Provided: Standard microbiological supplies and equipment are not provided.

QUALITY CONTROL:*

Microorganisms Used (ATCC #):	Expected Results:
Bacillus subtilus (6633)[b]	Growth
Candida albicans (10231)[b]	Growth
Aspergillus niger (16404)[b]	Growth

[b]USP recommended test organism; inoculated with less than 100 colony forming units.

User Quality Control: Check for signs of contamination and deterioration. For more detailed information, consult appropriate references or regulatory guidelines.

BIBLIOGRAPHY:

1. Baron, E. J., and S. M. Finegold, *Bailey and Scott's Diagnostic Microbiology*, 8th ed., C. V. Mosby, St. Louis, 1990.
2. Franson, M. A. H. (ed.), *Standard Methods for the Examination of Water and Wastewater*, 16th ed., American Public Health Association, Washington D. C., 1985.
3. Koneman, E. W., et al., *Color Atlas and Textbook of Diagnostic Microbiology*, 3rd ed., J. B. Lippincott, Philadelphia, 1988.
4. Murray, P. R., et al., *Manual of Clinical Microbiology*, 6th ed., American Society for Microbiology, Washington D. C., 1995.
3. Speck, M. L. (ed.), *Compendium of Methods for the Microbiological Examination of Foods*, 2nd ed., American Public Health Association, Washington,D. C., 1984.

*For more detailed information, consult appropriate references.

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