

Spectrum™ and Spectrum Plus™ Culture Plates

Product Information and Instructions

Intended Use: Spectrum agar is a chromogenic culture medium that can be used in conjunction with traditional methods to aid in presumptive identification of a number of common bacterial organisms known to cause disease in animals. Spectrum Plus™ consists of a two-chambered agar plate containing Spectrum™ agar and non-selective Tryptic Soy Agar with 5% sheep blood. Spectrum and Spectrum Plus agar are intended for veterinary use only.

Product Features: Spectrum agar has been formulated to grow specifically pigmented colonies when inoculated with those organisms for which the product has been validated. Each organism can then be visually differentiated on the basis of color and colony morphology. Depending upon the organism, color reactions may be either genus- or species-specific.

Tryptic Soy agar with 5% Sheep blood, commonly referred to as “blood agar”, is a non-selective medium that will support the growth of a wide range of bacteria. When grown on blood agar, certain organisms will elaborate hemolysins that in turn will lyse the intact red blood cells within the medium. While this hemolytic reaction can aid in the identification of certain organisms, it is rarely diagnostic per se of any one species.

Storage and Shelf Life: Each Spectrum agar plate comes individually wrapped for extended shelf life. Plates should be stored at 2°-8° C (36°-46° F) and protected from light.

Procedure: Spectrum plates should be removed from the refrigerator and allowed to warm to room temperature prior to inoculation. The surface of the agar should be inspected for moisture that could affect the growth of the inoculum. If present, allow excess moisture to evaporate prior to use. Inoculate each plate utilizing established aseptic technique and place the plate with media inverted in a 37° C incubator. (Diluting the specimen in Tryptic Soy Broth prior to culturing will promote better colony separation.) At 16-24 hours post inoculation, inspect the plate for bacterial growth and note the color and morphology of the resulting colonies. For accurate results, plates should be read at 16 to 24 hours as prolonged incubation may alter the specific color reaction.

Interpretation: The following organisms have demonstrated specific color reactions when grown on Spectrum™ agar:

E. coli	Pink to red colonies
Enterococcus spp.	Blue to turquoise pinpoint colonies. Catalase negative¹.
Klebsiella spp	Metallic blue colonies with slight pink halo
Enterobacter spp.	Metallic blue colonies with slight pink halo
Citrobacter spp.	Metallic blue colonies with slight pink halo
Proteus mirabilis	Clear to slightly orange colonies with diffusible brown pigment halo
Proteus vulgaris	Small blue green colonies
Pseudomonas aeruginosa	Transparent white to slightly green colonies with some diffusion into media. Some species may be tan to reddish brown. Oxidase positive².
Salmonella spp.	Beige colonies.
Staphylococcus aureus	White to light yellow colonies; some species may appear mauve. Clear zone of (beta) hemolysis on blood agar. Catalase positive. Oxidase negative.

Staphylococcus intermedius	Pink pinpoint colonies. Beta hemolytic. Catalase positive. Oxidase negative.
Staphylococcus saprophyticus	Pink, opaque colonies. Non-hemolytic. Catalase positive. Oxidase negative.
Streptococcus agalactiae (Group B)	Light blue pin-like small colonies. Clear zone of beta hemolysis on blood agar. Some species may exhibit green hemolysis. Catalase negative.
Streptococcus equi (Group C)	Light blue pin like small colonies. Clear zone of (beta) hemolysis on blood agar. Catalase and Sorbitol negative.
Streptococcus zooepidemicus	Similar colony to S. equi. Sorbitol positive.

The above color reactions were obtained using organisms grown in pure culture. Mixed cultures should be carefully interpreted. See notes below for additional aids to identification. Presumptive and/or questionable results should be verified using traditional culture methods or sent to a qualified microbiology laboratory.

Antibiotic Sensitivity: Organisms may be harvested directly from the Spectrum agar plate for sensitivity testing via the Kirby-Bauer method. Do not perform sensitivity testing on organisms harvested from blood agar

Limitations of the Procedure: The following factors may affect organism growth and colony color:

- Improper specimen collection, storage, and inoculation
- Initiation of antimicrobial therapy prior to inoculation
- Improper incubation temperature and duration
- Improper handling and storage of media prior to inoculation

Additional Aids to Organism Identification:

¹ The Catalase test using 3% hydrogen peroxide may be helpful in differentiating Staphylococcus from Streptococcus species.

² The Oxidase test can be helpful in differentiating Pseudomonas aeruginosa from some Staphylococcus species. A simple way to perform this test is with the use of Oxyswabs®. Order item #MCR-GL60500.

Packaging: Spectrum™ and Spectrum Plus™ are packaged as 10 individually wrapped plates per box

References:

Merlino J., S Siarakas, GJ Robertson, GR Funnell, T Gottlieb, and R Bradbury: Evaluation of Chromagar Orientation for differentiation and presumptive identification of gram-negative bacilli and Enterococcus species. J. Clin. Microbiol. 1996 34: 1788-1793

Beechan, D. and A. McKinnon: How to Diagnose Common Equine Reproductive Tract Bacterial Pathogens Using Chromogenic Agar. Proceedings of the American Association of Equine Practitioners Annual Meeting, December 2009. pp. 320-325

Spectrum Agar™ is distributed exclusively by:

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