

## EF-18 AGAR (6901)

### **Intended Use**

**EF-18 Agar** is used for the selective and differential isolation of *Salmonella*, using the ISO-GRID® and/or NEO-GRID™ Membrane Filtration System.

### **Product Summary and Explanation**

EF-18 Agar was developed for the primary selective isolation of presumptive *Salmonella* spp. from enrichment broth using the ISO-GRID System. This medium suppresses growth of Gram-positive bacteria and certain Gram-negative bacteria, while enhancing growth of *Salmonella* spp. EF-18 Agar aids in differentiating *Salmonella* spp. from other *Enterobacteriaceae* based on lysine decarboxylase and sucrose fermentation reactions. EF-18 Agar is incubated at 42°C, providing additional selectivity against certain Gram-negative bacteria.

EF-18 Agar is recommended for the primary differential isolation and detection of *Salmonella* spp. from all foods using the ISO-GRID and /or NEO-GRID Membrane Filtration System.<sup>1,2,3</sup>

### **Principles of the Procedure**

Enzymatic Digest of Animal Tissue and Yeast Extract are the nitrogen and vitamin sources in EF-18 Agar. Dextrose and Sucrose are the fermentable carbohydrates. L-Lysine is a substrate for the lysine decarboxylase enzyme. Bile Salts, Sulfapyridine, and Novobiocin are selective agents. Bile Salts inhibit Gram-positive bacteria, Sulfapyridine and Novobiocin inhibit certain Gram-negative bacteria. Magnesium Sulfate aids in cell wall repair of injured *Salmonella* spp., enabling growth in the presence of Bile Salts. Bromthymol Blue is the pH indicator. Agar is the solidifying agent.

Bacteria that are able to grow on EF-18 Agar will ferment dextrose first, at a concentration of only 0.25% (w/v). Once the dextrose is depleted sucrose positive bacteria will ferment sucrose, producing a local pH drop in the colony and a color change to yellow in the pH indicator. Sucrose negative bacteria that are capable of producing the lysine decarboxylase enzyme will digest L-Lysine, increasing the pH, resulting in a color change to green, blue-green or blue in the pH indicator. Bacteria that are sucrose negative and lysine decarboxylase negative produce a mild local pH drop due to the initial fermentation of dextrose, causing a color change to yellow in the pH indicator. *Salmonella* spp. is sucrose negative and lysine decarboxylase positive resulting in green, blue-green, or blue colonies on EF-18 Agar.

### **Formula / Liter**

Enzymatic Digest of Animal Tissue.....	5 g
Yeast Extract.....	3 g
L-Lysine.....	10 g
Dextrose.....	2.5 g
Sucrose.....	15 g
Magnesium Sulfate.....	1.5 g
Bile Salts.....	1.5 g
Sulfapyridine.....	0.3 g
Bromthymol Blue.....	0.03 g
Novobiocin.....	0.015 g
Agar.....	15 g

Final pH: 6.8 ± 0.1 at 25°C

Formula may be adjusted and/or supplemented as required to meet performance specifications.

### **Precautions**

1. For Laboratory Use.
2. IRRITANT. Irritating to eyes, respiratory system, and skin.

### **Directions**

1. Suspend 54 g of the medium in one liter of purified water.
2. Heat with frequent agitation and boil for one minute to completely dissolve the medium.
3. DO NOT AUTOCLAVE.

