

# AGAR, SELECT (7558)

## Intended Use

Agar, Select is a solidifying agent for use in preparing microbiological culture media.

## Product Summary and Explanation

Agar is a phycocolloid extracted from a group of red-purple algae, usually *Gelidium* spp. Agar was first suggested for microbiological purposes in 1881 by Fannie Hesse.<sup>1,2</sup> By the early 1900's, agar became the gelling agent of choice over gelatin because agar remains firm at growth temperature for many pathogens and agar is generally resistant to a breakdown by bacterial enzymes. The use of agar in microbiological media significantly contributed to the advance of microbiology, paving the way to study pure cultures.

Agar is a gel at room temperature, remaining firm at temperatures as high as 65°C.<sup>3</sup> Agar melts at approximately 85 - 91°C, a different temperature from solidification at 34 -36°C. This property is known as hysteresis. Agar is generally resistant to shear forces; however, different agars may have different gel strengths or degrees of stiffness.

Specifications for Agar, Select include good clarity, controlled gelation temperature, controlled melting temperature, good diffusion characteristics, absence of toxic bacterial inhibitors, and the presence of metabolically useful minerals such as calcium and magnesium. Agar, Select is recommended for clinical applications, auxotrophic studies, bacterial and yeast transformation studies, and bacterial molecular genetics applications.<sup>4,5</sup>

## Principles of the Procedure

Agar is typically used in a final concentration of 1 – 2% for solidifying culture media. Smaller quantities (0.05 - 0.5%) are used in media for motility studies (0.5% w/v), growth of anaerobes (0.1%) and microaerophiles.<sup>3</sup>

## Precaution

1. For Laboratory Use.

## Quality Control Specifications

**Dehydrated Appearance:** Powder is granular, homogeneous, free-flowing and creamy white beige.

**Prepared Appearance (1.5% wt/vol):** Prepared medium is very light amber to medium amber and clear to slightly hazy.

**pH (1.5% Solution at 25°C):** 6.0 - 7.5

**Gel Strength:** 550 - 900 g/cm<sup>2</sup>

**Expected Cultural Response:** Cultural response on Peptone Agar after incubation at 35°C for 18 - 24 hours.

Microorganism	Response
<i>Escherichia coli</i> ATCC 25922	good to excellent growth
<i>Staphylococcus aureus</i> ATCC 25923	fair to good growth
<i>Streptococcus pyogenes</i> ATCC 19615	poor to fair growth

## Test Procedure

Refer to appropriate references for specific procedures using bacteriological grades of agar.

## Results

Refer to appropriate references for test results.

## Storage

Store sealed bottle containing Agar, Select at 2 - 30°C. Once opened and recapped, place container in a low humidity environment at the same storage temperature. Protect from moisture and light by keeping container tightly closed.

### **Expiration**

Refer to expiration date stamped on container. Agar, Select should be discarded if not free flowing, or if the appearance has changed from the original color. Expiry applies to Agar, Select in its intact container when stored as directed.

### **Packaging**

<b>Agar, Select</b>	<b>Code No.</b>	<b>7558A</b>	<b>500 g</b>
		<b>7558B</b>	<b>2 kg</b>
		<b>7558C</b>	<b>10 kg</b>

### **References**

1. **Hesse, W.** 1894. Uber die quantitative Bestimmung der in der Luft enthaltenen Mikroorganismen. Mit. a.d. Kaiserl. Gesh. Berlin. **2**: 182-207.
2. **Hitchens, A. P., and M. C. Leiking.** 1939. The introduction of agar-agar into bacteriology. J. Bacteriol. **37**:485-493.
3. **Selby, H. H., and T. A. Selby.** 1959. Agar. *In* Whister (ed.). Industrial gums, Academic Press Inc., New York, N. Y.
4. **Sambrook, J., E. F. Fritsch, and T. Maniatis.** 1989. Molecular cloning, a laboratory manual, 2<sup>nd</sup> ed. Cold Spring Harbor Laboratory Press, New York, N. Y.
5. **Schiestl, R. H., and R. Daniel Geitz.** 1989. High efficiency transformation of intact yeast cells using single stranded nucleic acids as a carrier. Current Genetics. **16**:339-346.

### **Technical Information**

Contact Acumedia Manufacturers, Inc. at TEL (800)783-3213 in the US/Canada or (410)780-5120 and FAX (800)875-8563 in the US/Canada or (410)780-5470 for Technical Service on questions involving dehydrated culture media preparation or performance.