

Certificate of Analysis

Product: CIRCLEGROW® Agar
Catalog No.: 3100-1XX
Lot No.: 60224

CIRCLEGROW Agar: Molecular Biology Certified Bacterial Growth Medium Rich Medium for the growth of *E. coli* and certified for plasmid and other bacterial cultures in liquid medium.

Catalog Numbers and Sizes:

Powder	Large Capsules	Pre-Poured Plates (no antibiotic)
3100-122	3100-126	3100-124
3100-132	3100-136	3100-134
3100-142	3100-146	

Formulation and Molecular Biological Specifications of Components:

Proprietary formulation containing Yeast Extract, Tryptone Broth, Vitamins, and Agar. Small quantities of biological buffers have been added for proper pH adjustment.

Gelatin large capsules are derived from raw materials that are not of UK origin or from any other country on the United States of America Department of Agriculture or European Community prohibited list for BSE.

Recommended Use:

Powder: Add 55 g of powder per liter of purified water.

Large Capsules: Add 9 large capsules per liter of purified water.
For laboratory use only.

Storage:

Store sterile CIRCLEGROW Agar at ambient temperature (15-30°C). Powder medium is hygroscopic, therefore minimize exposure to air to prolong shelf life of media.

Shelf life:

In airtight closed container or pouch: 4 years.

Quality Assurance Information

All MP Biomedicals products are thoroughly tested to ensure reliable results in the laboratory. The following paragraphs describe the preparation and quality control procedures.

Media Preparation:

Reagents are tested and chosen for their ability to promote optimum growth of *E. coli* when combined in CIRCLEGROW Agar formulations. Chosen reagents are combined in the proper proportions according to the formulation listed above and thoroughly blended for a uniform distribution. A sample of the blended formulation is used to prepare agar medium. The combinations are mixed to dissolve components and then autoclaved at 121°C for 15 minutes.

Note: Autoclaving at higher temperatures or for longer periods will result in darkening of the sterile medium, (a darker color does not normally affect growth of cells, only the appearance of the sterile medium).

Quality Control Assay:

CIRCLEGROW Agar liquid solution was mixed by swirling to evenly disperse all components and visually inspected after autoclaving for complete dissolution of components. The pH of the medium was tested to insure that the proper specification was attained.

Acceptable pH range is 6.5 +/- 0.3 at 35°C. Please note that the pH of CIRCLEGROW Agar increases as the temperature of the solution decreases. Refer to the chart below:

Temperature and pH Comparison Chart

C	PH
30	6.7
35	6.6
40	6.5
45	6.4
50	6.3

Cell Growth Test:

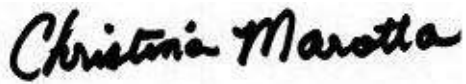
A 5 ml sample of CIRCLEGROW was placed into a 15 ml tube with a pierced lid. The sample was inoculated with C600 cells and incubated at 37°C for 24 hours without aeration. The density of cell growth was determined by using a spectrophotometer. Based on this measurement the culture was diluted to a final concentration of 10⁴ cells/ml. A 10ul aliquot of the 10⁴ cells/ml dilution was evenly distributed on the TSL ("Test Standard Lot") and SLT ("Subject Test Lot") agar plates using a glass "hockey stick" spreader. The inoculated plates were incubated at 37°C overnight. After the overnight incubation the colonies were counted and measured using a Scherr Tumico caliper for diameter in mm. Two plates were prepared per sample and 3 colonies were measured per plate.

Results of Quality Control Assay

	TSL	STL
	Acceptable Ranges for Test Standard Lot	Powder
pH and Temperature	6.3 - 7.0 @ 35C	6.7 @ 46°C
Clarity	Clear	Clear
Average Colony Count	35	36
Average Colony Diameter in mm	3.66	4.16

Conclusions:

All samples were within experimental error (20%) or better than the Test Standard Lot in colony number, appearance, and size.

A handwritten signature in black ink that reads "Christina Marotta". The signature is written in a cursive style and is positioned above a faint, light-colored rectangular stamp.

10/20/2014 - Christina Marotta
QBioGene/MP Biomedicals, LLC
Technical Director

MSDS available online at www.mpbio.com