

Malachite Green Broth Base (i23244)

For the selective enrichment of *Pseudomonas aeruginosa* according to HABS and KIRSCHNER (1943).

Industry: Water

Principles & Uses

Pseudomonas species are commonly found in various environmental settings such as water, soil, and plants, including fruits and vegetables. Notably, *P. aeruginosa* has a remarkable ability to thrive in aqueous environments, such as whirlpool bathwater and swimming pools, especially under specific conditions like elevated temperature, reduced chlorine levels, and increased organic matter content. These conditions create an ideal breeding ground for *P. aeruginosa*, even when *coliform* bacteria are absent.

Malachite Green Broth, as recommended by experts like Habs, Kirschner, Schubert, and Blum, plays a pivotal role in selectively enriching and isolating *P. aeruginosa*. This culture medium contains essential nutrients from meat extract and peptone, which support bacterial metabolism. Dihydrogen potassium phosphate acts as a buffering agent to maintain optimal pH levels. The key ingredient, malachite green, not only inhibits the growth of unwanted microorganisms but also ensures the selective growth of *P. aeruginosa*. This versatile medium is suitable for a range of water testing applications, meeting various international standards for examining different water sources, including ground, surface, drinking, bathing, and process water, as well as mineral and spring water.

Composition (gr/L)

Peptone from meat 5, Meat extract 3, Dipotassium Hydrogen Phosphate 0.37.

Final pH at 25°C 7.3 ± 0.2

Preparation from dehydrated Powder

Base Broth: Suspend 8.4 g (single-strength broth) or 25.1 g (triple-strength broth) in 1 Litre of demineralized water. Dispense in 50 ml volumes into suitable culture vessels and autoclave (15 min at 121°C). The broth base is clear and yellow-brown.

Malachite-green solution: Suspend 0.15 g malachite

green oxalate in 90 ml of demineralized water and sterilize by filtration.

Complete broth: Add to 50 ml of cooled base broth 0.3 ml (single-strength broth) or 0.9 ml (triple-strength broth) of the malachite-green solution under sterile conditions.

Quality Control

Dehydrated Appearance: Yellow-cream, free-flowing, homogeneous.

Prepared Appearance without malachite green: Yellowish cream

Prepared Appearance with added Malachite Green: Green-blue, clear to very slightly opalescent, no significant precipitate.

Reaction of 0.84% Solution at 25°C: pH 7.3 ± 0.2.

Cultural Response

Prepare the medium per label directions with the addition of Malachite green.

Inoculate and incubate for 40-48 hours at 35 ± 2°C.

Organism (ATCC*)	Growth
<i>Pseudomonas aeruginosa</i> (27853)	Good
<i>Enterobacter aerogenes</i> (15038)	Pour

*ATCC is a registered trade mark of the American Type Culture Collection.



The growth of *P. aeruginosa* causes the medium to become turbid.

Storage

Keep the container at 15-30 °C. Store prepared medium at 2-8 °C.