

M17 Broth (i23099)

M17 Broth is used for isolating lactic *streptococci* from yogurt, cheese starters and other dairy products.

Industry: Dairy Products

Principles & Uses

M17 broth, derived from Terzaghi and Sandine's formulation, serves as a modified medium for cultivating and enumerating lactic *Streptococci* and their bacteriophages, an improvement upon M16 Medium. Lactic *Streptococci*, known for their nutritional fastidiousness, demand a complex medium for optimal growth. The inclusion of Sodium β -glycerophosphate plays a crucial role in maintaining pH above 5.7, preventing injury, and ensuring robust recovery of lactic *Streptococci*. This compound is particularly significant for the plaque assay of lactic bacteriophages, as it avoids precipitation with calcium.

The components of M17 broth, such as peptones, yeast extract, beef extract, lactose, and ascorbic acid, provide essential nutrients, carbonaceous and nitrogenous compounds, vitamin B complex, and a fermentable carbohydrate. Magnesium sulfate contributes vital ions to support organism growth. Notably, the addition of Sodium β -glycerophosphate enhances the medium's buffering capacity, fostering the growth of lactic *streptococci* and facilitating the development of substantial bacteriophage plaques. This medium, superior to others, is particularly effective for cultivating fastidious *Streptococcus* species and isolating lactose-metabolism-deficient mutants.

Composition (gr/L)

Peptone from Casein 2.5 g, Peptone from Soymeal 5 g, Peptone from Meat 2.5 g, Yeast Extract 2.5 g, Meat Extract 5 g, Lactose 5 g, Ascorbic Acid 0.5 g, Sodium β -glycerophosphate 19 g, Magnesium Sulphate 0.25 g. Final pH at 25°C 7.2 \pm 0.2

Preparation from dehydrated Powder

Suspend 42.5 g of the powder in 1 L of purified water. Autoclave at 121°C for 15 minutes.

Quality Control

Dehydrated Appearance: Beige to medium tan, free-flowing, homogeneous.

Prepared Appearance: Light medium to medium amber, clear to very slightly opalescent, no significant precipitate.

Reaction of 4.25% Solution at 25°C: pH 7.2 \pm 0.2

Cultural Response

Inoculate and incubate for 40-48 hours; *Lactococcus lactis* subsp. *Cremoris* at 30 \pm 2°C and the remaining organisms at 35 \pm 2°C.

Organism (ATCC*)	Recovery
<i>Lactobacillus delbrueckii</i> subsp. <i>Bulgaricus</i> (11842)	None to poor
<i>Lactococcus lactis</i> subsp. <i>Cremoris</i> (19257)	Good
<i>Lactococcus lactis</i> subsp. <i>Cremoris</i> (9625)	Good
<i>Streptococcus thermophiles</i> (19258)	Good

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



Lactobacillus lactis (left). *Lactobacillus casei* (middle). Prepared Culture Media (right).

Storage

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