

Sulfite Iron Agar (i23276)

For detecting H₂S-producing Anaerobes, particularly *Clostridia* in meat and meat products.

Industry: Food

Principles & Uses

Iron Sulfite Agar, recommended by ISO standards, serves for the enumeration of sulfite-reducing bacteria and the detection of sulfite-reducing anaerobe spores, particularly *Clostridia*. It employs enzymatic digest of casein and soy peptone for essential growth nutrients, while yeast extract acts as a source of B-group vitamins crucial for bacterial growth. The H₂S indicators, ferric ammonium citrate, and sodium disulfite, react with sulfide produced by *Clostridium perfringens*, resulting in black colonies. Agar solidifies the medium.

The medium is a modification of Cameron Sulfite Agar, optimized by adjusting the sulfite concentration to avoid inhibition of certain strains. The technique involves a deep-shake culture method or the membrane filter technique, the latter being faster and suitable for larger samples. However, the blackening reaction is presumptive, requiring confirmation tests for precise identification. Iron Sulfite Agar, with its role in sulfite reduction detection, stands as a reliable tool in microbial analysis.

Composition (gr/L)

Enzymatic digest of Casein 15 g, Soy Peptone 5 g, Yeast Extract 5 g, Ferric Ammonium Citrate 1 g, Sodium Disulfite 1 g, Agar 13.5 g.

Final pH at 25°C 6.9 ± 0.2

Preparation from dehydrated Powder

Suspend 40.5 g in 1 liter of distilled water. Mix well. Autoclave for 15 min at 121 °C. Mix and pour into plates.

Quality Control

Dehydrated Appearance: Light beige, free flowing, homogeneous.

Prepared Appearance: The plates are clear and yellowish to yellowish-green.

Reaction of 4.05% Solution at 25°C: pH 6.9 ± 0.2

Cultural Response

Cultural response was observed after incubation at 30 °C for 2 days under anaerobic condition. Note that if thermophilic bacteria are suspected, incubate at 50 °C.

Organism (ATCC*)	Growth	Black Colony
<i>Clostridium perfringens</i> (10543)	Good/ Very Good	+
<i>Clostridium perfringens</i> (13124)	Good/Very Good	+
<i>Escherichia coli</i> (25922)	Fair/Very Good	-
<i>Pseudomonas aeruginosa</i> (27853)	Poor/Good	-

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

Storage

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