SFP Agar Base
Egg Yolk Enrichment 50%
Antimicrobic Vial K • Antimicrobic Vial P

Intended Use

SFP Agar Base is used with Egg Yolk Enrichment 50%, Antimicrobic Vial P and Antimicrobic Vial K in detecting and enumerating *Clostridium perfringens* in foods.

Summary and Explanation

Shahidi Ferguson Perfringens (SFP) Agar Base is prepared according to the formulation of Shahidi and Ferguson.[1] With the addition of 50% egg yolk emulsion, both the lecithinase reaction and the sulfite reaction can identify *Clostridium perfringens*. The selectivity of the medium is due to the added kanamycin and polymyxin B.

C. perfringens is found in raw meats, poultry, dehydrated soups and sauces, raw vegetables and other foods and food ingredients, but occurrences of foodborne illness are usually associated with cooked meat or poultry products.[2] Spores of some strains that may resist heat during cooking germinate and grow in foods that are not adequately refrigerated.[3] Enumerating the microorganism

User Quality Control

Identity Specifications

Difco™ SFP Agar Base

Dehydrated Appearance:	Beige, free-flowing, homogeneous.
Solution:	47 g, soluble in 900 mL purified water upon boiling. Solution is medium to dark amber, slightly opalescent.
Prepared Appearance (Final):	Canary yellow, opaque.
Reaction of 47g/900 mL Solution at 25°C:	pH 7.6 ± 0.2

Difco™ Egg Yolk Enrichment 50%

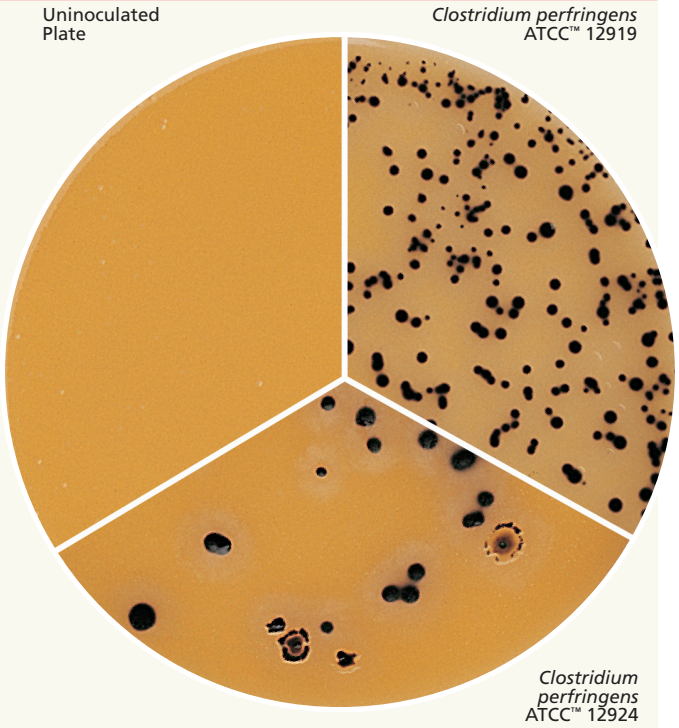
Appearance:	Canary yellow, opaque solution with a re-suspendable precipitate.

Difco™ Antimicrobic Vial K

Dehydrated Appearance:	White cake or powder.
Rehydrated Appearance:	Colorless, clear solution.

Difco™ Antimicrobic Vial P

Dehydrated Appearance:	White cake or powder.
Rehydrated Appearance:	Colorless, clear solution.



Cultural Response

Difco™ SFP Agar Base

Prepare the base layer and cover layer per label directions, inoculating the base layer. Incubate at 35 ± 2°C under anaerobic conditions for 18-48 hours.

ORGANISM	ATCC™	INOCULUM CFU	RECOVERY	COLONY COLOR
Clostridium perfringens	12919	30-300	Good	Black with a zone of precipitation (halo)
Clostridium perfringens	12924	30-300	Good	Black with a zone of precipitation (halo)

in food samples plays a role in the epidemiological investigation of outbreaks of foodborne illness.[2]

SFP Agar (with added kanamycin and polymyxin B) is comparable to Tryptose Sulfite Cycloserine (TSC) Agar, which uses cycloserine as the inhibitory component.[2,4,5]

Principles of the Procedure

SFP Agar Base contains peptones as sources of carbon, nitrogen, vitamins and minerals. Yeast extract supplies B-complex vitamins, which stimulate bacterial growth. Ferric ammonium citrate and sodium sulfite are H_2S indicators. Clostridia reduce sulfite to sulfide, which reacts with iron to form a black iron sulfide precipitate. Antimicrobic Vial P contains polymyxin B and Antimicrobic Vial K contains kanamycin; both are inhibitors to organisms other than *Clostridium* spp. Egg Yolk Enrichment 50% provides egg yolk lecithin, which some clostridia hydrolyze. Agar is the solidifying agent.

Formulae

Difco™ SFP Agar Base

Approximate Formula* Per Liter

Yeast Extract	5.0	g
Proteose Peptone No. 3	7.5	g
Pancreatic Digest of Casein	7.5	g
Soytone	5.0	g
Ferric Ammonium Citrate	1.0	g
Sodium Bisulfite	1.0	g
Agar	20.0	g

Difco™ Egg Yolk Enrichment 50%

Concentrated egg yolk emulsion.

Difco™ Antimicrobic Vial K

25 mg Kanamycin per 10 mL vial.

Difco™ Antimicrobic Vial P

30,000 units Polymyxin B per 10 mL vial.

**Adjusted and/or supplemented as required to meet performance criteria.*

Directions for Preparation from Dehydrated Product

Difco™ SFP Agar Base

Base Layer:

1. Suspend 47 g of the powder in 900 mL of purified water. Mix thoroughly.
2. Heat with frequent agitation and boil for 1 minute to completely dissolve the powder.
3. Autoclave at 121°C for 15 minutes. Cool to 50°C.
4. Add 100 mL Egg Yolk Enrichment 50%, 10 mL of rehydrated Antimicrobic Vial P (30,000 units polymyxin B sulfate) and 4.8 mL rehydrated Antimicrobic Vial K (12 mg kanamycin). Mix thoroughly.

Cover Layer:

1. Suspend 47 g of the powder in 1 L of purified water.
2. Prepare as above, except omit Egg Yolk Enrichment 50%.
3. Test samples of the finished product for performance using stable, typical control cultures.

Difco™ Antimicrobic Vial K (Kanamycin)

1. To rehydrate, aseptically add 10 mL sterile purified water per vial.
2. Rotate in an end-over-end motion to dissolve the contents completely.

Difco™ Antimicrobic Vial P (Polymyxin B)

1. To rehydrate, aseptically add 10 mL of sterile purified water per vial.
2. Rotate in an end-over-end motion to dissolve the contents completely.

Procedure

See appropriate references for specific procedures.

Expected Results

Refer to appropriate references and procedures for results.

References

1. Shahidi and Ferguson. 1971. Appl. Microbiol. *21*:500.
2. Labbe. 2001. *In* Downes and Ito (ed.). Compendium of methods for the microbiological examination of foods, 4th ed. American Public Health Association, Washington, D.C.
3. U.S. Food and Drug Administration. 2001. Bacteriological analytical manual, online. AOAC International, Gaithersburg, Md.
4. Horwitz (ed.). 2007. Official methods of analysis of AOAC International, 18th ed., online. AOAC International, Gaithersburg, Md.
5. MacFaddin. 1985. Media for isolation-cultivation-identification-maintenance of medical bacteria, vol. 1. Williams & Wilkins, Baltimore, Md.

Availability

Difco™ SFP Agar Base

AOAC BAM COMPF ISO

Cat. No. 281110 Dehydrated – 500 g

Difco™ Antimicrobic Vial K

Cat. No. 233391 Vial – 6 × 10 mL*

Difco™ Antimicrobic Vial P

Cat. No. 232681 Vial – 6 × 10 mL*

Difco™ Egg Yolk Enrichment 50%

AOAC BAM COMPF

Cat. No. 233471 Bottle – 12 × 10 mL*
233472 Bottle – 6 × 100 mL*

**Store at 2-8°C.*