

# Thermoacidurans Agar

## Intended Use

Thermoacidurans Agar is used for isolating and cultivating *Bacillus coagulans* (*Bacillus thermoacidurans*) from foods.

## User Quality Control

### Identity Specifications

#### Difco™ Thermoacidurans Agar

Dehydrated Appearance: Light tan, free-flowing, homogeneous.

Solution: 3.9% solution, soluble in purified water upon boiling. Solution is light amber, opalescent.

Prepared Appearance: Light amber, opalescent.

Reaction of 3.9%

Solution at 25°C: pH 5.0 ± 0.2

### Cultural Response

#### Difco™ Thermoacidurans Agar

Prepare the medium per label directions. Inoculate and incubate at 55 ± 1°C for 18-48 hours.

ORGANISM	ATCC™	INOCULUM CFU	RECOVERY
<i>Bacillus coagulans</i>	7050	10 <sup>2</sup> -10 <sup>3</sup>	Good

## Summary and Explanation

Stern et al.<sup>1</sup> described a medium for isolating *B. coagulans* (*B. thermoacidurans*), which causes “flat sour” spoilage in tomato juice and other canned foods. Bacterial growth results in a 0.3-0.5 drop in pH; the ends of the can remain flat. *B. coagulans* is a soil microorganism that can be found in canned tomato products and dairy products. Conditions favorable to multiplication of the organism can result in spoilage of the food product.<sup>2</sup>

Thermoacidurans Agar can also be used to isolate mesophilic spore-forming anaerobes (*Clostridium* spp.) from foods. These microorganisms tolerate high heat, grow in the absence of oxygen and grow over the range of temperatures used in canned and processed foods. They are of primary importance in spoilage of low-acid foods packed in hermetically sealed containers.<sup>2</sup>

## Principles of the Procedure

Thermoacidurans Agar contains peptone to provide the carbon and nitrogen for general growth requirements. Yeast extract supplies B-complex vitamins which stimulate bacterial growth. Dextrose is the carbohydrate source. Agar is the solidifying agent.

## Formula

### Difco™ Thermoacidurans Agar

Approximate Formula\* Per Liter

Yeast Extract .....	5.0	g
Proteose Peptone .....	5.0	g
Dextrose .....	5.0	g
Dipotassium Phosphate .....	4.0	g
Agar .....	20.0	g

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

## Directions for Preparation from Dehydrated Product

1. Suspend 39 g of the powder in 1 L 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. Avoid overheating which could cause a softer medium.
4. Test samples of the finished product for performance using stable, typical control cultures.

## Procedure

Consult appropriate references for recommended test procedures.<sup>1,2</sup>

## Expected Results

Refer to appropriate references and procedures for results.

## Limitation of the Procedure

Microorganisms other than *B. coagulans* may grow on this medium. Perform microscopic examination and biochemical tests to identify to genus and species if necessary.

## References

1. Stern, Hegarty and Williams. 1942. Food Research 7:186.
2. Downes and Ito (ed.). 2001. Compendium of methods for the microbiological examination of foods, 4th ed. American Public Health Association, Washington, D.C.

## Availability

### Difco™ Thermoacidurans Agar

CCAM COMPF

Cat. No. 230310 Dehydrated – 500 g