

## TMP 022- TCBS AGAR PLATE

### INTENDED USE

For selective isolation of *Vibrio cholerae* and enteropathogenic *Vibrios*.

### PRODUCT SUMMARY AND EXPLANATION

Thiosulfate-Citrate-Bile Salts-Sucrose Agar (TCBS) was developed by Nakanishi and modified by Kobayashi et al. in 1963. It was developed for selective isolation of *Vibrios* which cause cholera, diarrhea, and food poisoning. TCBS Agar is recommended by the world Health organization (WHO) for isolation of *Vibrio cholerae*. In 1982, West et al. reported TCBS Agar could be used for recovery of certain new pathogens such as *Vibrio fluvialis* and *Vibrio vulnificus*. TCBS Agar is also recommended by the AOAC international.

### COMPOSITION

Ingredients	Gms / Ltr
Sucrose	20.000
Sodium thiosulphate	10.000
Sodium citrate	10.000
Proteose peptone	10.000
Sodium chloride	10.000
Oxgall	5.000
Yeast extract	5.000
Ferric citrate	1.000
Bromo thymol blue	0.040
Thymol blue	0.040
Agar	15.000
Sodium Cholate	3.000

### PRINCIPLE

TCBS Agar is both a selective and differential medium. The selective agent in TCBS Agar is oxgall and sodium citrate, which inhibits the growth of gram-positive organisms and coliforms. It contains proteose peptone and yeast extract as a source of nitrogenous compounds, vitamin B complex and other essential growth nutrients. The carbohydrate source is sucrose. Bromo thymol blue and thymol blue make up the pH indicator system. The addition of sodium thiosulfate and ferric ammonium citrate as a sulphur source and indicator, respectively, allows hydrogen sulphide forming organisms to produce colonies with black centers, under alkaline conditions. Sodium chloride provides optimum growth for the halophilic *Vibrio* spp. and agar is added as a solidifying agent. *Vibrio* spp. that is able to utilize sucrose will form yellow colonies. *V. parahaemolyticus* is a sucrose non-fermenting organism and therefore produces blue-green colonies, as does *V. vulnificus*. *Proteus* species that are sucrose-fermenters may form yellow colonies.

### INSTRUCTION FOR USE

Either streak, inoculate or surface spread the test inoculum aseptically on the plate

**QUALITY CONTROL SPECIFICATIONS**

<b>Appearance</b>	:	Bluish green colour medium
<b>Quantity of Medium</b>	:	25ml of medium in 90mm plates.
<b>pH (at 25°C)</b>	:	8.6 ± 0.2
<b>Sterility Check</b>	:	Passes release criteria

**INTERPRETATION**

Cultural characteristics observed after incubation.

Microorganism	ATCC	Inoculum (CFU/ml)	Growth	Recovery	Colony Appearance	Incubation Temperature	Incubation Period
<i>Vibrio cholerae</i>	15748	50-100	Good-luxuriant	≥50%	Yellow	35-37°C	18-48 hours
<i>Vibrio vulnificus</i>	29306	50-100	Fair-good	≥50%	Greenish yellow	35-37°C	18-48 hours
<i>Vibrio parahaemolyticus</i>	17802	50-100	Good-luxuriant	≥50%	Bluish green	35-37°C	18-48 hours
<i>Shigella flexneri</i>	12022	≥ 1000	Inhibited	0%	--	35-37°C	18-48 hours
<i>Escherichia coli</i>	25922	≥ 1000	Inhibited	0%	--	35-37°C	18-48 hours
<i>Enterococcus faecalis</i>	29212	≥ 1000	Inhibited	0%	--	35-37°C	18-48 hours

**PACKAGING:**

Doubled layered packing containing 5 No. of plates with one silica gel desiccant bag packed inside it.

**STORAGE**

On receipt, store the plates at 15–30 °C. Avoid freezing and overheating. Do not open until ready to use. Prepared plates stored in their original sleeve wrapping until just prior to use may be inoculated up to the expiration date and incubated for recommended incubation times. Allow the medium to warm to room temperature before inoculation.

**Product Deterioration:** Do not use plates if they show evidence of microbial contamination, discoloration, drying, cracking or other signs of deterioration.

**DISPOSAL**

After use, prepared plates, specimen/sample containers and other contaminated materials must be sterilized before discarding.

**REFERENCES**

- Baumann P, Furniss AL, Lee JV (1984). Genus 1, *Vibrio*. In: Krieg PNR, Holt JG, eds. Bergey's manual of systematic bacteriology. Vol. 1. Baltimore, Williams & Wilkins: 518–538.
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- Kobayashi, T., S. Enomoto, R. Sakazaki, and S. Kuwahara. 1963. Jpn. J. Bacteriol. 18: 387392.
- MacFaddin J. F., 1985, Media for Isolation-Cultivation-Identification-Maintenance of Medical Bacteria, Vol. 1, Williams & Wilkins, Baltimore, Md.
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- West, P.A., W. Russek, P.R. Brayton and P.R. Colwell. 1982. J Clin. Microbiol. 16:1110-1116
- World Health Organization (WHO). 1974. Guidelines for the Laboratory Diagnosis of Cholera. WHO, Geneva, Switzerland.



**QTY.**  
Quantity

**LOT/  
B. NO.**  
Lot / Batch Number

  
Temperature Unit

  
Manufacturer

  
Best Before

**GMP**  
Certification of  
Good Manufacturing Practices

**REF**  
Catalogue No.

**EC REP** Medkon GmbH  
Eckstrasse 18,  
42133 Remscheid, Germany  
Authorized Representative

**CE**  
European Conformity



  
Consults Instructions for use :

**IVD**  
For In Vitro Diagnostic Use

**NOTE:** Please consult the Material Safety Data Sheet for information regarding hazards and safe handling Practices.

**\*For Lab Use Only**  
Revision: 04<sup>th</sup> December, 2023

