# TM 2203 - M-TERGITOL 7 AGAR BASE

## INTENDED USE

For selective isolation and identification of injured coliforms from chlorinated water using membrane filter technique.

## PRODUCT SUMMARY AND EXPLANATION

McFeters, Cameron and LeChevallier modified Tergitol 7 Agar to improve its selective and differential properties for the recovery of stressed coliforms from chlorinated water. They have reported that the selective media such as M-Endo Agars used to isolate gram-negative bacteria recovered only 30% or less as compared to recovery between 71 & 100% of injured coliforms on Tergitol 7 Agar. In their study of water samples, including samples containing laboratory-stressed coliforms and surface and drinking water samples, M-Tergitol 7 Agar Base recovered 43% more coliforms than on M-Endo Agar and 36% more coliforms than by using M-Endo Agar with a resuscitation technique.
McFeters et al. have also reported recovery of 3.1 times more fecal coliform. Coliforms on M-Tergitol 7 Agar Base than the standard M-FC method and 1.7 times more than the two-layer enrichment temperature acclimation procedure. In another study of 102 drinking water samples 8 to 38 fold more yield of coliforms has been reported on M-Tergitol 7 Agar Base as compared to M-Endo Agar LES.

## COMPOSITION

| Ingredients | Gms / Ltr |
|---|---|
| **Peptone** | 2.500 |
| **Tryptone** | 2.500 |
| **Yeast extract** | 3.000 |
| **Lactose** | 20.000 |
| **Polyethelene ether w-1** | 5.000 |
| **Tergitol 7 (Sodium heptadecyl sulphate)** | 0.100 |
| **Bromo thymol blue** | 0.100 |
| **Bromo cresol purple** | 0.100 |
| **Agar** | 15.000 |

## PRINCIPLE

The peptone and tryptone provide necessary nitrogenous growth factors. Yeast extract is the source of B-vitamins and organic nitrogen and carbon compounds. Lactose is the fermentable carbohydrate. Microorganism fermenting lactose produces yellow colonies due to reaction with bromothymol blue and bromocresol purple indicators. These indicators also act as inhibitors of non-coliform microbes.
Sodium heptadecyl sulphate (Tergitol 7) and polyoxyethylene ether W-1 are surface active agents which inhibit growth of gram-positive bacteria as well as swarming of *Proteus*. Inhibition of gram-positive bacteria can be improved by aseptically adding penicillin G (1.0 µg/ml) after autoclaving and cooling to 45°C.

## INSTRUCTION FOR USE

- Dissolve 48.3 grams in 1000 ml purified/distilled water.
- Heat to boiling to dissolve the medium completely.
- Sterilize by autoclaving at 15 psi pressure (121°C) for 15 minutes.
- For additional selectivity, after cooling the medium to 45-50°C aseptically add 1.0 µg of Penicillin G per milliliter of medium if desired.
- Mix well and pour into sterile Petri plates.

## QUALITY CONTROL SPECIFICATIONS

**Appearance of Powder** : Yellow to blue coloured homogeneous free flowing powder
**Appearance of prepared medium** : Purple coloured clear to slightly opalescent gel forms in Petri plates
**pH (at 25°C)** : 7.4±0.2

## INTERPRETATION

Cultural characteristics observed after an incubation.

| Microorganism | ATCC | Inoculum (CFU/ml) | Growth | Recovery | Colour of colony | Incubation Temperature | Incubation Period |
|---|---|---|---|---|---|---|---|
| *Escherichia coli* | 25922 | 50-100 | Luxuriant | >=70% | yellow | 35-37°C | 18-24 Hours |
| *Klebsiella aerogenes* | 13048 | 50-100 | Luxuriant | >=70% | yellow | 35-37°C | 18-24 Hours |
| *Salmonella* Typhimurium | 14028 | 50-100 | Luxuriant | >=70% | blue | 35-37°C | 18-24 Hours |
| *Salmonella* Paratyphi A | 9150 | 50-100 | Luxuriant | >=70% | blue | 35-37°C | 18-24 Hours |
| *Shigella flexneri* | 12022 | 50-100 | Luxuriant | >=70% | blue | 35-37°C | 18-24 Hours |
| *Salmonella* Typhi | 6539 | 50-100 | Luxuriant | >=70% | blue | 35-37°C | 18-24 Hours |
| *Staphylococcus aureus* subsp. *aureus* | 25923 | >=$10^4$ | Inhibited | 0% | - | 35-37°C | 18-24 Hours |

## PACKAGING:

In pack size of 500 gm bottles.

## STORAGE

Dehydrated powder, hygroscopic in nature, store in a dry place, in tightly-sealed containers between 25-30°C and protect from direct sunlight. Under optimal conditions, the medium has a shelf life of 4 years. When the container is opened for the first time, note the time and date on the label space provided on the container. After the desired amount of medium has been taken out replace the cap tightly to protect from hydration.

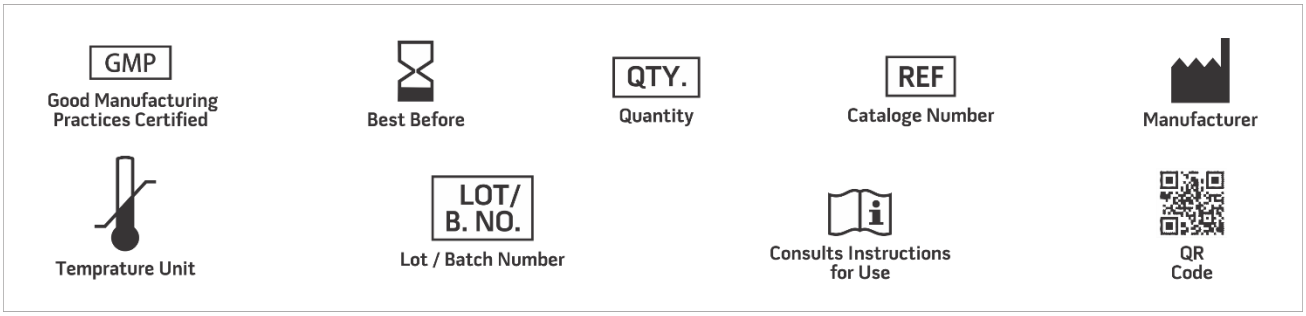
**Product Deterioration:** Do not use if they show evidence of microbial contamination, discoloration, drying or any other signs of deterioration.

## DISPOSAL

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

## REFERENCES

1. Baird R.B., Eaton A.D., and Rice E.W., (Eds.), 2015, Standard Methods for the Examination of Water and Wastewater, 23rd ed., APHA, Washington, D.C.
2. Isenberg, H.D. Clinical Microbiology Procedures Handbook 2nd Edition.
3. Jorgensen, J.H., Pfaller, M.A., Carroll, K.C., Funke, G., Landry, M.L., Richter, S.S and Warnock., D.W. (2015) Manual of Clinical Microbiology, 11th Edition. Vol. 1.
4. LeChevallier, Jakanoski, Camper and McFeters 1984 Appl. Environ. Microbiol. 48:371.
5. McFeters, Cameron and LeChevallier 1982 Appl. Environ. Microbiol., 43:97.
6. McFeters, LeChevallier and Cameron 1983, Appl. Environ. Microbiol. 45:484.
7. McFeters, Kippin and LeChevallier 1986, Appl. Environ. Microbiol., 51:1.
8. Pollard, 1946 Science, 103:758.




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

***For Lab Use Only**

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