

**MUG MFC AGAR****TM 1391**

for cultivation and enumeration of faecal coliforms by the membrane filter technique

**Composition**

Ingredients	Gms/Ltr.
Tryptose	10.000
Proteose peptone	5.000
Yeast extract	3.000
Bile salts	1.500
Sodium chloride	5.000
4-Methylumbelliferyl $\beta$ -D-Glucuronide (MUG)	0.100
Agar	15.000

\* Dehydrated powder, store in a dry place, in tightly-sealed containers at 24°C and protect from direct Sunlight.

**Instructions for Use**

Dissolve 39.60 gms in 1000 ml of distilled water. Gently heat to boiling with gentle swirling and dissolve the medium completely. DO NOT AUTOCLAVE. Mix well and pour into sterile petriplates.

**Appearance:** Yellow coloured clear to slightly opalescent

**PH (at 25°C):** 7.4  $\pm$  0.2

**Principle**

**MUG MFC AGAR** is used for cultivation and enumeration of faecal coliforms by the membrane filter technique. MUG MFC Agar is formulated by Geldrich et al.

Faecal coliforms are organisms present in the gastrointestinal tract of warm blooded animals. Presence of faecal coliforms in water is an indication of faecal contamination. *Escherichia coli* is a member of the faecal coliform group, which possess the enzyme  $\beta$ -glucuronidase. This enzyme specifically cleaves 4-Methylumbelliferyl- $\beta$  -D-Glucuronide (MUG) to form a fluorescent end product 4-Methylumbelliferone. This end product fluoresces under long wave UV light (366 nm).

Tryptose and proteose peptone provide carbon, nitrogen, vitamins and minerals necessary for the growth of faecal coliforms. Yeast extract provides B-complex vitamins, which stimulate bacterial growth. Bile salts inhibit the growth of gram-positive microorganisms. Incorporation of MUG in the medium permits rapid detection of *E. coli*, when the medium is observed for fluorescence under long-wave UV light.



## PRODUCT DATA SHEET

### Interpretation

Cultural characteristics observed after incubation at 35 - 37°C for 18 - 24 hours.

Microorganisms	ATCC	Inoculum (CFU)	Growth	Fluorescence (Under UV)
<i>Escherichia coli</i>	25922	10 <sup>3</sup>	Luxuriant	Positive
<i>Enterococcus faecalis</i>	29212	>=10 <sup>3</sup>	Inhibited	--
<i>Salmonella Typhimurium</i>	14028	10 <sup>3</sup>	Luxuriant	Negative
<i>Shigella flexneri</i>	12022	10 <sup>3</sup>	Luxuriant	Negative

### References

1. Geldreich E. E., Clark H. F., Huff C. B. and Best L. C., 1965, J. Amer. Water Works Assoc. 57:208.
2. Eaton A. D., Clesceri L. S. and Greenberg A. E., (Eds.), 1995, Standard Methods for the Examination of Water and Wastewater, 19th Ed., American Public Health Association, Washington, D.C.