EC MEDIUM w/ MUG

INTENDED USE
Remel EC Medium w/ MUG is a liquid medium recommended for use in qualitative procedures for the fluorogenic assay of coliforms from water, wastewater, and food samples.

SUMMARY AND EXPLANATION
Hajna and Perry developed EC Medium for detection of *Escherichia coli* and other coliforms in water, milk, shellfish, and other materials.[1,2] *E. coli* is an indicator organism of fecal contamination or unsanitary conditions. Previous methods were found to be inadequate for detection of *E. coli* due to the presence of injured cells which are more sensitive to additives, temperatures, and selective media.[3] Feng and Hartman incorporated 4-methylumbelliferyl-β-D-glucuronide (MUG) into conventional coliform assays.[4] *E. coli* detection rates were improved using EC Medium w/ MUG because fluorescence could be detected within 4-24 hours. EC Medium w/ MUG is recommended by the American Public Health Association (APHA) and Food and Drug Administration (FDA) for detection of *E. coli* in water, wastewater, and foods.[5,6]

PRINCIPLE
Casein and meat peptones provide essential amino acids, peptides, and nitrogenous compounds necessary for bacterial growth. Lactose provides a ready source of energy, and fermentation of lactose is detected by gas production in the fermentation vial. Bile is a selective agent which inhibits the growth of some gram-positive cocci and sporeformers. Sodium chloride is a source of essential electrolytes and maintains osmotic equilibrium. Dipotassium phosphate and monopotassium phosphate are buffers which control the pH in the presence of fermentative action. MUG is the substrate hydrolyzed by glucuronidase to yield a fluorescent end product, 4-methylumbelliferone.

REAGENTS (CLASSICAL FORMULA)*

Meat Peptone	10.0	g	Dipotassium Phosphate	4.0	g
Casein Peptone	10.0	g	Bile	1.5	g
Lactose	5.0	g	Monopotassium Phosphate	1.5	g
Sodium Chloride	5.0	g	4-Methylumbelliferyl-β-D-glucuronide (MUG)	0.05	g
			Demineralized Water	1000.0	ml

pH 6.9 ± 0.2 @ 25°C

*Adjusted as required to meet performance standards.

PRECAUTIONS
This product is For Laboratory Use only. It is not intended for use in the diagnosis of disease or other conditions.

PREPARATION OF DEHYDRATED CULTURE MEDIUM
1. Suspend 37 g of medium in 1000 ml of demineralized water.
2. Dispense into tubes containing fermentation vials.
3. Sterilize by autoclaving at 121°C for 15 minutes or following established laboratory guidelines.

PROCEDURE
1. Consult current editions of appropriate references for the recommended procedure for sample preparation, inoculation, and testing.[5,6]
2. Incubate aerobically for the proper time duration at the appropriate temperature following established laboratory procedures.
3. Observe for gas production in the fermentation vial. Observe the medium for blue fluorescence using a longwave ultraviolet light (365 nm), in a darkened room. Further biochemical and/or serological testing may be required to confirm the identity of the organism. Consult appropriate references for further instructions.[5,6]

QUALITY CONTROL
Each lot number of EC Medium w/ MUG has been manufactured, packaged, and processed in accordance with current Good Manufacturing Practice regulations. All lot numbers have been tested using the following quality control organisms and have been found to be acceptable. Testing of control organisms should be performed in accordance with established laboratory quality control procedures. If aberrant quality control results are noted, sample results should not be reported.

CONTROL	INCUBATION	RESULTS
Escherichia coli ATCC® 25922	Aerobic, 24 h @ 33-37°C	Good growth w/ blue fluorescence
Enterococcus faecalis ATCC® 29212	Aerobic, 24 h @ 33-37°C	Inhibition (complete)

BIBLIOGRAPHY

1. Hajna, A.A. and C.A. Perry. 1943. Am. J. Public Health. 33:550-556.
2. Perry, C.A. and A.A. Hajna. 1944. Am. J. Public Health. 34:735-738.
3. Dutka, B.J., S. Kuchma, and K.K. Kwan. 1979. Water, Air, Soil Pollut. 1979:349-362.
4. Feng, P.C.S. and P.A. Hartman. 1982. Appl. and Environ. Microbiol. 43:1320-1329.
5. Food and Drug Administration. 2000. Bacteriological Analytical Manual Online. AOAC International, Gaithersburg, MD.
6. Eaton, A.D., L.S. Clesceri, E.W. Rice, and A.E. Greenberg. 2005. Standard Methods for the Examination of Water and Wastewater. 21st ed. APHA, Washington, D.C.

Refer to the front of Remel *Technical Manual of Microbiological Media* for **General Information** regarding precautions, product storage and deterioration, specimen collection, storage and transportation, materials required, quality control, and limitations.

IFU 7655, Revised February 9, 2010

Printed in U.S.A.

remel

12076 Santa Fe Drive, Lenexa, KS 66215, USA
General Information: (800) 255-6730 Website: www.remel.com Email: remel@remel.com
Local/International Phone: (913) 888-0939 International Fax: (913) 895-4128