TM 477 – DIAGNOSTIC STUART'S UREA BROTH BASE (UREA BROTH BASE)

INTENDED USE

A general-purpose medium for the cultivation of microorganisms, especially obligate anaerobes.

PRODUCT SUMMARY AND EXPLANATION

Rustigian and Stuart developed Urea Broth. This medium is especially recommended for the differentiation of *Proteus* species from *Salmonella* and *Shigella* species in the enteric infection diagnosis, based on urea utilization. Gram-negative enteric bacilli are unable to utilize urea because of less nutrients and high buffering capacity of the medium. Urea Broth becomes alkaline as the utilization of urea by the organisms liberates ammonia during the incubation, indicated by pink red colour. All urea test media rely on the alkalinity formation and so they are not specific for urease testing. The utilization of proteins may raise the pH to alkalinity due to protein hydrolysis and excess of amino acids results in false positive reaction. A medium without urea serves as negative control to rule out false positive results.

COMPOSITION

Ingredients	Gms / Ltr
Potassium dihydrogen phosphate	9.100
Dipotassium hydrogen phosphate	9.500
Yeast extract	0.100
Phenol red	0.010

PRINCIPLE

The medium consists of phosphates which provide essential nutrients for the growth of microorganisms. Yeast extract is a rich source of vitamin B complex. Phenol red act as an indicator in the medium.

INSTRUCTION FOR USE

- Dissolve 18.71 grams in 950 ml purified/distilled water.
- Heat if necessary to dissolve the medium completely.
- Sterilize by autoclaving at 15 psi pressure (121°C) for 15 minutes. Cool to 55°C.
- Aseptically add 50 ml of sterile 40% Urea solution. Mix well and distribute in 10 ml amounts into sterile tubes.

QUALITY CONTROL SPECIFICATIONS

Appearance of Powder : Light yellow to light pink homogeneous free flowing powder.
Appearance of prepared medium : Yellowish orange coloured clear solution in tubes.
pH (at 25°C) : 6.8 ± 0.2

INTERPRETATION

Cultural characteristics observed on addition of sterile 40% Urea solution after incubation.

Microorganism	ATCC	Inoculum (CFU/ml)	Urease	Incubation Temperature	Incubation Period

Klebsiella aerogenes	13048	50-100	Negative reaction, no change	35-37 °C	18-24 Hours
Escherichia coli	8739	50-100	Negative reaction, no change	35-37 °C	18-24 Hours
Klebsiella pneumoniae	10031	50-100	Negative reaction, no change	35-37 °C	18-24 Hours
Escherichia coli	25922	50-100	Negative reaction, no change	35-37 °C	18-24 Hours
Salmonella Typhimurium	14028	50-100	Negative reaction, no change	35-37 °C	18-24 Hours
Klebsiella pneumoniae	13883	50-100	Positive reaction, cerise colour	35-37 °C	18-24 Hours
Proteus vulgaris	13315	50-100	Positive reaction, cerise colour	35-37 °C	18-24 Hours
Proteus mirabilis	25933	50-100	Positive reaction, cerise colour	35-37 °C	18-24 Hours

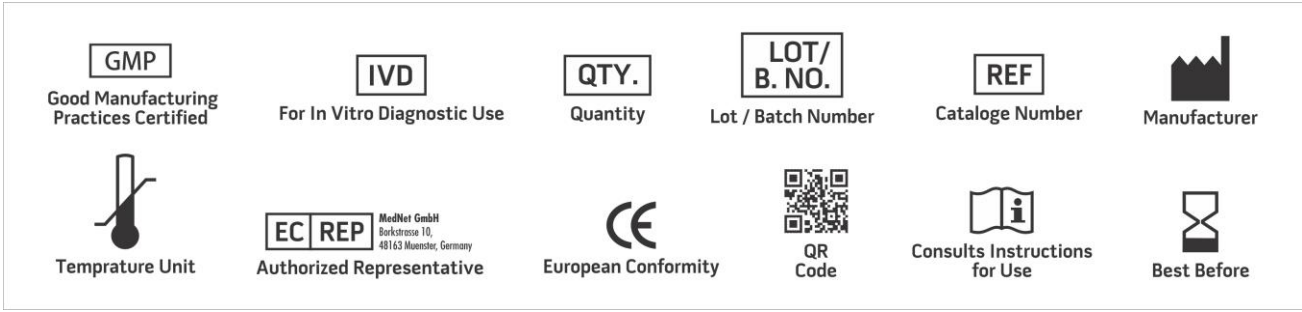
PACKAGING:
In pack size of 100 gm and 500 gm bottles.

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 Christensen, 1946, J. Bact., 52:461.
2. Finegold and Baron, 1986, Bailey and Scotts Diagnostic Microbiology, 7th ed., The C.V. Mosby Co., St. Louis
3. MacFaddin J. F., 2000, Biochemical Tests for Identification of Medical Bacteria, 3rd Ed., Williams and Wilkins, Baltimore. Md.

4. Rustigian and Stuart, 1941, Proc. Soc. Exp. Biol. Med., 47:108.



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

***For Lab Use Only**

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