PRODUCT DATA SHEET

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

INTENDED USE

For identification of bacteria on the basis of urea utilization, especially for the differentiation of *Proteus*, *Salmonella* & *Shigella* species

COMPOSITION

Ingredients	Gms/Ltr
Dipotassium phosphate	9.500
Monopotassium phosphate	9.100
Yeast extract	0.100
Phenol red	0.010

PRODUCT SUMMARY AND EXPLAINATION

Diagnostic Stuart's Urea Broth Base (Urea Broth Base) is used for identification of bacteria on the basis of urea utilization, especially for differentiation of *Proteus vulgaris*, *Salmonella* and *Shigella* species and is derived by Rustigian and Stuart. Gram-negative Enterobacteria are unable to utilize urea because of less nutrients and high buffering capacity of the medium.

When organisms utilize urea, ammonia is formed during incubation which makes the reaction of these media alkaline, producing a pink-red color. Consequently, urease production may be detected by the change in the phenol red indicator.

PRINCIPLE

Monopotassium phosphate and dipotassium phosphate in the medium provide high buffering capacity. Yeast extract supplies vitamins and minerals to support growth. Phenol red is the pH indicator.

INSTRUCTIONS FOR USE

1) Dissolve 18.70gms in 950ml distilled water.
2) Gently heat to boiling with gentle swirling and dissolve the medium completely.
3) Sterilize by autoclaving at 15 psi (121°C) for 15 minutes.
4) Cool to 50°C and aseptically add 50ml of sterile 40% Urea Solution (TS 030).
5) Mix well and dispense 10ml in each into sterile tubes.

Note: Do Not Overheat or Reheat the medium as urea decomposes very easily.

QUALITY CONTROL SPECIFICATIONS

Appearance Dehydrated powder: Light yellow to light pink colour, homogenous mixture, free flowing powder
Appearance of the prepared medium: Yellowish orange colour, clear solution
pH (at 25°C): 6.8 ± 0.2

Cultural Response

Cultural characteristics observed on addition of sterile 40% Urea solution (TS 030) after inoculating (10^3CFU/ml), on incubation for 18 – 48 hours at 35 - 37°C.

Microorganisms	ATCC	Inoculum (CFU)	Growth	Urease production
Proteus vulgaris	13315	10^3	Luxuriant	Positive, cerise colour
Escherichia coli	25922	10^3	Luxuriant	Negative, no change
Salmonella typhimurium	14028	10^3	Luxuriant	Negative, no change
Klebsiella pneumoniae	13883	10^3	Luxuriant	Positive, cerise colour
Enterobacter aerogenes	13048	10^3	Luxuriant	Negative, no change

STORAGE & STABILITY

Dehydrated powder, hygroscopic in nature, store in a dry place, in tightly-sealed containers below 25°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.

REFERENCES

1. Rustigian, R., and C.A. Stuart. 1941. Decomposition of urea by Proteus. Proc. Soc. Exp. Biol. Med. 47:108-112
2. Christensen J. Bact. 52:641.
3. Ewing, W. H. An additional Shigella paradysenteriae serotype. J. Bacteriol. 51:433-445. (1946).

4. MacFaddin J. F., 2000, Biochemical Tests for Identification of Medical Bacteria, 3rd Ed., Williams and Wilkins, Baltimore. Md.