

UREA BROTH

CAT N°: 1226

For the differentiation of Enterobacteria, particularly *Proteus* from *Salmonella* and *Shigella* from clinical samples

FORMULA IN g/l

Urea	20.00	Yeast Extract	0.10
Dipotassium Phosphate	9.50	Phenol Red	0.01
Monopotassium Phosphate	9.10		

Final pH 6.8 ± 0.2 at 25°C

PREPARATION

Suspend 3.87 grams of the medium in 100 ml of distilled water without heating. When the powder is dissolved, sterilize by filtration. Dispense quantities of 0.5 to 2 ml in small sterile tubes. Larger volumes can be used but the reactions will be slower. Do not sterilize in autoclave. Do not boil the medium.

When there is no filter available, the medium can be sterilized at 100 -110°C for 10 minutes. If the medium is prepared and inoculated immediately it provides good results without sterilizing. The prepared medium should be stored at 2-8°C. The color is red-orange.

The dehydrated medium should be homogeneous, free-flowing and pink in color. If there are any physical changes, discard the medium.

USES

UREA BROTH can be used for the determination of the urea activity of Enterobacteriaceae, as well as microorganisms of the families of *Brucella*, *Bacillus*, *Micrococcus*, *Mycobacteria* and *Proteus*. It can be used for the identification of bacteria on the basis of urea utilization. It is especially recommended for the differentiation of members of the genus *Proteus* from those of *Salmonella* and *Shigella*.

Urea is a source of nitrogen for those organisms producing urease. Yeast extract is a source of vitamins, particularly of the B-group essential for bacterial growth. Potassium phosphates provide buffering capacity. Phenol red is the pH indicator.

Prepare a heavy suspension of the organism isolated from plated media and inoculate the Urea Broth tubes. Incubate at 35 ± 2°C for 18 – 24 hours.

When organisms utilize urea, ammonia is results during incubation making the reaction of these media alkaline. Positive urease tubes turn the phenol indicator a deep violet-red color (alkalinization). Therefore, urease production may be detected by a change in the phenol red indicator.

Developed by Rustigian and Stuart, this highly buffered medium usually reacts only to the high outputs of ammonia by *Proteus*, *Morganella* and *Providencia* in the first 24 hours of incubation.

MICROBIOLOGICAL TEST

The following results were obtained in the performance of the medium from type cultures after incubation at a temperature of 35 ± 2°C and observed after 24 hours.

Microorganisms

Urease

<i>Escherichia coli</i> ATCC 25922	-
<i>Klebsiella pneumoniae</i> ATCC 13883	+
<i>Proteus vulgaris</i> ATCC 13315	+
<i>Salmonella typhimurium</i> ATCC 14028	-

BIBLIOGRAPHY

Rustigian and Stuart. Proc. Soc. Exp. Biol. and Med. 47:109, 1941. Stuart, Van Stratum and Rustigian. J. Bact. 48:437. 1945. McKay, Edwards and Leonar A. J. Clin. Path. 17:479, 1947. Gordon and Mihn. J. Gen. Microbiol., 21:736. 1959. Goldsmith and Latlief. Applied Microbiol., 3:195. 1955.



STORAGE

Once opened keep powdered medium closed to avoid hydration.

