



Reference : 02-202  
Product :  
UREA BROTH BASE

Scharlau Microbiology - Technical data sheet

### Specification

Differential liquid medium for urease detection according to the Rustigian and Stuart formulation.

### Formula \* in g/L

Monopotassium phosphate..... 9,10  
Disodium phosphate..... 9,50  
Yeast extract..... 0,10  
Phenol red..... 0,01

Final pH 6,8 ±0,2 at 25 °C

\* Adjusted and /or supplemented as required to meet performance criteria

### Directions

Dissolve 19 g of powder into 950 mL of distilled water and sterilize in the autoclave at 121°C for 15 minutes. Let it cool to 50-55°C and then add 50 mL of Urea Sterile Solution 40% (Art. No. 06-083). Mix well and dispense in haemolysis tubes (3,0 mL/tube).

### Description

According to Rustigian and Stuart, this Urea Broth is excellent for identifying enterobacteria, since within this family, only *Proteus* may alkalize the medium over pH 8,1. Despite the fact that some authors prefer a buffering potency 10 to 100 times lower to obtain faster results this does not compensate for the instability of the medium.

Urease production is shown by the indicator turning to dark pink, produced by strong alkalization by ammonium. With plenty of inoculum (2-3 loops in 3-5 mL of medium), *Proteus* produces the colour change after 6-8 hours, other positive enterobacteria need up to 24-48 hours.

### Quality control

**Incubation temperature:** 37°C ±1,0

**Incubation time:** 6- 18 h

**Inoculum:** ≥ 10<sup>8</sup> CFU (specificity) according to ISO 11133:2014/Amd 1:2018 & Adm 2:2021.

### Microorganism

*Escherichia coli* ATCC® 25922

*Enterobacter aerogenes* ATCC® 13048

*Salmonella typhimurium* ATCC® 14028

*Proteus mirabilis* ATCC® 43071

*Proteus mirabilis* ATCC® 29906

*Proteus vulgaris* ATCC® 6380

### Growth

Good

Good

Good

Good

Good

Good

### Remarks

Urease (-)

Urease (-)

Urease (-)

Urease (+)

Urease (+)

Urease (+)



Left: *Proteus mirabilis* ATCC 43071  
Right: Uninoculated tube (Control)



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### References

- DOWNES, F.P. & K. ITO (2001) Compendium of Methods for the Microbiological Examination of Foods. 4th ed. APHA. Washington.
- FDA (Food and Drug Administrations) (1998) Bacteriological Analytical Manual. 8th ed. Rev. A. AOAC International. Gaithersburg. MD. USA.
- ISO 11133:2014/ Adm 1:2018. Microbiology of food, animal feed and water. Preparation, production, storage and performance testing of culture media.
- PASCUAL ANDERSON. M<sup>a</sup>.R<sup>o</sup>. (1992) Microbiología Alimentaria. Díaz de Santos. S.A. Madrid.
- RUSTIGIAN, R. & C.A. STUART (1941) Decomposition of urea by Proteus. Proc. Soc. Exp. Biol. Med. 47:108.

### Storage

For laboratory use only. Keep tightly closed, away from bright light, in a cool dry place (+4 °C to 30 °C).

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