 Recommended for the identification of bacteria on the basis of urea utilization, specifically for the differentiation of Proteus species from Salmonella and Shigella species.

**Urea Broth Base**

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| REF: LV.1/UB01.100.0100 100 gram REF: LV.1/UB01.250.0250 250 gram |  REF: LV.1/UB01.500.0500 500 gram  |

# CLINICAL SIGNIFICANCE

# Urea Broth (Filter Sterilizable) was developed by Rustigian and Stuart. 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.

# METHOD PRINCIPLE

# 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.

# MEDIA COMPOSITION

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| **Item**  | **Formula in g/L**  |
| Monopotassium phosphate Dipotassium phosphate Yeast extract Phenol red  | 9.19.50.10.01 |

## Final pH 6.8 ± 0.2 at 25°C

# PRECAUTIONS AND WARNINGS

Media to be handled by entitled and professionally educated person.

Good Laboratories practices using appropriate precautions should be followed in:

* Wearing personnel protective equipment (overall, gloves, glasses...).

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| **Microorganism** | **Urease**  |
| *Klebsiella aerogenes ATCC 13048* | negative reaction, no change |
| *Escherichia coli ATCC 8739* | negative reaction, no change |
| *Klebsiella pneumoniae ATCC 10031* | positive reaction, cerise colour |
| *Escherichia coli NCTC 9002* | negative reaction, no change |
| *Escherichia coli ATCC 25922* | negative reaction, no change |
| *Salmonella Typhimurium ATCC 14028* | negative reaction, no change |
| *Klebsiella pneumoniae ATCC 13883* | positive reaction, cerise colour |
| *Proteus vulgaris ATCC 13315* | positive reaction, cerise colour |
| *Proteus mirabilis ATCC 25933* | positive reaction, cerise colour |

* Do not pipette by mouth.
* In case of contact with eyes or skin; rinse immediately with plenty of soap and water. In case of severe injuries, seek medical advice immediately.
* Handle specimens and inoculated culture bottles as though capable of transmitting infectious agents. All inoculated culture bottles, specimen collection needles, and blood drawing devices should be decontaminated according to country requirement for waste disposal.

S56: dispose of this material and its container at hazardous or special waste collection point.

S57: use appropriate container to avoid environmental contamination.

S61: avoid release in environment.

For further information, refer to the Urea Agar Base material safety data sheet.

# MEDIA STORAGE AND STABILITY

**Lab.Vie**. Urea Agar Base should be stored between 10-30°C in a firmly closed container and the prepared medium at 2-8°C. Use before expiry date on the label. On opening, product should be properly stored dry, after tightly capping the bottle in order to avoid lump development due to the hygroscopic nature of the product. Improper storage of the product may lead to lump formation. Store in a dry ventilated area protected from extremes of temperature and sources of ignition. Seal the container tightly after use. Product performance is best if used within stated expiry period.

## PROCEDURE

## Suspend 18.71 grams in 1000 ml distilled water.

## Adjust pH to 6.8 ± 0.2 at 25°C.

##  Sterilize by autoclaving at 15 lbs 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.

## Deterioration

**Lab.Vie**. Urea Broth Base is Light yellow to light pink homogeneous free flowing powder. Prepared Media is Yellowish orange coloured clear solution in tubes. If there are any physical changes for powder or signs of deterioration (shrinking, cracking, or discoloration), and contaminations for hydrated media, discard the medium.

**SPECIMEN COLLECTION AND PRESERVATION**

# For clinical samples follow appropriate techniques for handling specimens as per established guidelines (11, 12). For food and dairy samples, follow appropriate techniques for sample collection and processing as per guidelines (9, 10, 13). After use, contaminated materials must be sterilized by autoclaving before discarding.

# TYPE OF SPECIMEN

# Pure Isolates

# EQUIPMENT REQUIRED NOT PROVIDED

# Sterile cups

# Sterile tubes

# Incubator

# Autoclave

# QUALITY CONTROL

To ensure adequate quality control, it is recommended that positive and negative control included in each run. If control values are found outside the defined range, check the system performance. If control still out of range please contact the technical support.

# PERFORMANCE CHARACTERISTICS

Cultural characteristics observed after incubation at 35 - 37°C for 18 - 24 hours

# REFERENCES

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10. Wehr H. M. and Frank J. H., 2004, Standard Methods for the Microbiological Examination of Dairy Products, 17th Ed., APHA Inc., Washington, D.C.

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| **SYMBOLS IN PRODUCT LABELLING**  |
|   IVD For in-vitro diagnostic use  |   Number of <n> test in the pack  |
|  LOT Batch Code/Lot number  | A black and white triangle with a exclamation mark  Description automatically generated Caution  |
|  REF Catalogue Number  | Do not use if package is damaged   |
|   Temperature Limitation   Expiration Date   Manufactured by  |  Consult Instruction for use      |