



## UREA DISKS

- For in vitro use only -

Catalogue No. DU75

Our Urea Disks are used to differentiate and characterize microorganisms based on their ability to produce the enzyme urease.

Urea is a diamide of carbonic acid that is hydrolyzed by the enzyme, urease, to release ammonia as an end product. The presence of ammonia results in an alkaline shift in the pH, which causes the phenol red indicator contained on the disk to change from yellow to pink. Our Urea Disks can be used to help identify *Mycobacterium* species and more specifically nonphotochromogens (NC) and scotochromogens (S). *M. scrofulaceum* (S) is urease positive whereas members of the *M. avium* complex (NC) are urease negative. Rapid confirmation of *Helicobacter pylori* is also possible when a Gram stain and oxidase test are performed in conjunction with the urease test.

### Recommended Procedure

1. Make a heavy suspension of the organism to be tested in 0.5 mL sterile water or saline.
2. Aseptically add one disk to the suspension.
3. Incubate at 35°C and check for results after one hour and four hours of incubation for *H. pylori* and *Mycobacterium* species.
4. If no color change is observed incubate *Mycobacterium* suspension for up to 72 hours, while checking for color change at 24 hour intervals.

### Interpretation of Results

If a pink color develops, then urease activity is present and the test is positive.

If there is no color change or the color changes to yellow, then urease activity is absent and the test is negative.

- *H. pylori* produces large amounts of extracellular urease therefore only a maximum incubation time of four hours is required for urease detection
- Consult appropriate references as *Mycobacterium* shows highly variable urease test results
- Urea is heat labile therefore avoid exposure to extraneous sources of heat, and avoid incubation beyond the recommended times, which may produce false positives
- The urease test is pH dependent therefore ensure that the pH of the sterile water or saline used to make the test suspension is  $7.0 \pm 0.2$  or false positives or negatives may occur
- Urea is known to undergo autohydrolysis therefore ensure that the Urea Disks are stored as recommended
- Do not use if disks are discolored and appear pink or red, which indicates urea decomposition

### Quality Control

<u>Organism</u>	<u>Expected Results</u>
<i>Helicobacter pylori</i> ATCC 43526	+ve Pink
<i>Escherichia coli</i> ATCC 25922	-ve Yellow or no color change

## **Storage and Shelf Life**

Our Urea Disks should be stored at -20°C. At this temperature they have a shelf life of 26 weeks from the date of manufacture.

## **References**

1. Murphy DB, Hawkins JE. Use of urease test disks in the identification of mycobacteria. *Journal of Clinical Microbiology* 1975; 1:5.
2. Baron EJ, Tenover FC, Tenover FC. *Bailey and Scott's diagnostic microbiology*. 8th ed. St. Louis: Mosby, 1990.
3. Murray PR, Baron EJ, Pfaller M, Tenoer F, Tenover FC, Tenover FC. *Manual of Clinical Microbiology*. 7th ed. Washington: ASM, 1999.

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