# Rapid Urease Strips

Catalog No. B7725

**Intended Use and Application**

The Urease Strips/ Rapid Urease Detection Strips are intended to qualitatively detect the Urea hydrolyzing capability of various microorganisms.

**Principle**

The Urease Strips are impregnated with a proprietary formulation containing Urea and phenol red indicator. Urease producing organisms hydrolyze urea into ammonia and carbon dioxide. Ammonia production causes an alkaline shift above pH 8.0 which is readily visible by a change in color of the indicator dye from yellow to fuchsia pink.

**Reagent**

The Urease Strips are composed of a yellow color filter paper strip (test area) which is anchored onto a plastic support for convenient handling and labeling.

**Precautions and warning**

Always follow the standard laboratory aseptic technique, safety and infectious waste handling protocols including wearing gloves, goggles and a lab coat etc. Do not use the Strips if the expiration date has lapsed or the filter paper area shows any discoloration other than yellow.

## Storage

Store the Urease Strips in the original container between 2-8$^{o}$ C with the provided desiccant. Protect from light and moisture. To minimize condensation, let the container acclimatize to room temperature before opening. Close the lid promptly and securely after each use.

**Materials needed but not provided**

Disposable/platinum inoculating loop or wooden applicators, petri dish, quality control organisms, distilled water and a pipette are needed.

**Procedure**

1. Acclimatize the container to room temperature before opening. Remove the desired number of Urease Strips and promptly close the container securely. Do not insert wet objects or fingers into the container. For best results, use the growth from a blood agar plate. Take a very small sweep of pure culture or 1-2 isolated colonies, and apply directly to the test area (filter paper) surface and rub in gently with a loop. **Add one drop of distilled water** and incubate at room temperature or 37$^{o}$C from 2-30 minutes. A Petri dish with a lid is suggested for incubation longer than 15 minutes. Do not add excessive amount of water which could lead to a weaker and inconsistent reaction. Do not use excessive inoculums, and do not place strips next to each other because the generated ammonia from a positive strip can impart a false positive reaction to an adjacent negative strip.

**Results:**

Read the test at 2, 10 and 30 minutes. A color change from yellow to bright fuchsia pink in the reaction area within 30 minutes is considered a positive test. Some strong urease producing organisms belonging to *Proteus, Morganella* and *Providencia* genera will often give a positive test within two minutes. Weaker Urease producers like *Klebsiella* may take up to 30 minutes. A reddish brown discoloration on initial application of the organism should be disregarded. This is usually due to alkalinity from peptone metabolism by bacteria and will mostly dissipate after the drop of distilled water has been added**. A positive test is a clear bright Fuchsia Pink color which develops after 2 minutes and continues to increase with time.**

**User quality control:**

Quality control is required with at least one organism to demonstrate a positive reaction and at least another to demonstrate a negative reaction. Do not use the product if the reactions with the control organisms are not verifiable. Follow NCCLS/CLIA regulations and guidelines as required.

| Organism | ATCC | Result | Interpretation |
|---|---|---|---|
| *Proteus mirabilis* | 12453 | Fuchsia Pink | Positive |
| *Proteus vulgaris* | 27853 | Fuchsia Pink | Positive |
| *Morganella morganii* | *8019* | Fuchsia Pink | Positive |
| *E. coli* | *25922* | No change | Negative |
| *Salmonella typhimurium* | *13311* | No Change | Negative |

**Availability**

Catalog No. 7725 (**25)** Urease Strips
Catalog No. 7750 (**50**) Urease Strips

**Limitations**

Urease is usually one of the tests to assist in bacterial identification. Additional test are often required for the definite identification. Disregard any color changes after 30 minutes of incubation.

**References**


1. **Patrick R. Murray, Ellen Jo Baron, James H. Jorgensen, Marie Louise Landry, Michael A.Pfaller**, Manual of Clinical Microbiology, 9th ed.: American Society for Microbiology, 2007.

**2. Qadri SM, Zubairi S, Hawley HP, Ramirez EG.** 1984 Simple spot test for rapid detection of urease activity.J Clin Microbiol. Dec;20(6):1198-9.

**3. Christensen, W.B.** 1946. Urea decomposition as a means of differentiating *Proteus* and paracolon cultures from each other and from *Salmonella* and *Shigella* types. J. Bacteriol. *52*:461-466.

**4. MacFaddin, J.** 1972. Biochemical tests for the identification of medical bacteria. Williams and Wilkins Company, Baltimore, MD.



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February 08, 2013