

Instructions for Use

UREASE TEST TABLETS

Cat. no. K650	Urease Test Tablets	50 tablets/bottle
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SUMMARY

Several species of Enterobacteriaceae, including *Proteus*, *Klebsiella*, and some *Citrobacter* species, as well as some *Haemophilus* species and several other bacteria, fungi, and yeast species produce the enzyme urease. This enzyme hydrolyzes urea into ammonia, water and carbon dioxide.⁽¹⁾ Since most stool pathogens, particularly *Salmonella*, *Shigella*, and *Escherichia coli*, are urease-negative, it can be useful to determine an organism's urease activity. A notable exception to this is *Yersinia enterocolitica*, which is urease-positive. Urease Test tablets indicate the presence of the alkaline ammonia end product by a color change from straw color to pink or red.

PRECAUTIONS

Each tablet contains 10.0mg of urea or less than 2.0mg of urea. This product does not contain any material known at this time to be hazardous.

MATERIALS REQUIRED BUT NOT PROVIDED

Urease test tablets require preliminary growth on certain culture media. Consult a reference manual such as the *Manual of Clinical Microbiology* for the appropriate media to use.

Test tubes

Loop for harvesting colonies

Distilled water, neutral pH

QUALITY CONTROL

Urease tablets should be tested prior to use with organism of known reactivity. Discard used tests in a manner conforming with accepted laboratory procedures for biohazardous materials.

PROCEDURE

1. Add Urease Test Tablet to 1ml of distilled water in a small test tube.
2. Inoculate heavily from a culture grown on a slant or plate. Kligler, Russell, or TSI Agar may be used without affecting the results.
3. Incubate at 37°C. (*Proteus* spp. give a positive test in 1-8 hours. Some *Klebsiella* spp. strains produce urease in smaller amounts and may require up to 24 hours to show a positive reaction. Any pink or red color is a positive result).

EXPECTED REACTIONS

Organism	Reaction	% Positive
<i>Citrobacter</i> spp.	(+)	(78)
<i>Edwardsiella</i> spp.	(-)	(0)
<i>Enterobacter</i> spp.*	(-)	(10)
<i>Escherichia coli</i>	(-)	(1)
<i>Hafnia</i> spp.	(-)	(0)
<i>Klebsiella pneumoniae</i>	(+)	(96)
<i>Morganella</i> spp.	(+)	(98)
<i>Proteus mirabilis</i>	(+)	(98)
<i>Proteus vulgaris</i>	(+)	(98)
<i>Providencia</i> spp.*	(+/-)	(30)
<i>Salmonella</i> spp.	(-)	(99)
<i>Shigella</i> spp.	(-)	(0)
<i>Yersinia</i> spp.*	(+)	(80)

* Reactions vary within spp.



Proteus vulgaris (ATCC® 13315) suspension incubated with a Urease Test Tablet (Cat. no. K650) for one hour at 35°C. The pink color change was indicative as a positive urease test.



Escherichia coli (ATCC® 25922) suspension incubated with a Urease Test Tablet (Cat. no. K650) for 24 hours at 35°C. No pink color change was indicative as a negative urease test.

REFERENCES

1. Tille, P., et al. *Bailey and Scott's Diagnostic Microbiology*, C.V. Mosby Company, St. Louis, MO.

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