

SER: Urine - Test for Urea

Principle

Urea is the chief product of protein metabolism and is found in high concentrations in urine.

This is a screening test for the presence of urine.

Equipment and Supplies

This procedure uses the following laboratory equipment and supplies:

- balance
- filter paper
- Pasteur pipettes

Reagents

This procedure uses the following reagents:

- Bromothymol Blue solution
 - Dissolve 40 milligrams of bromothymol blue in 10 mL of deionized water.
- Urease solution
 - Dissolve 10 milligrams of urease in 4 mL of deionized water. This reagent must be made fresh daily.

Filter paper preparation

Use the following procedure to prepare a batch of filter papers.

Step	Action
1	Cut filter paper into approximately 1.5 inch squares
2	Place one drop of <i>Bromothymol Blue solution</i> on each piece of filter paper, allow it to dry.
3	Test each batch of filter papers with a positive control (urine) and a negative control (water). If the paper does not give the proper results, discard.
4	Label each batch of filter papers with the preparer's initials and date.
5	Store the prepared filter paper in a $-20^{\circ}\text{C} \pm 10^{\circ}\text{C}$ freezer.

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Quality control The prepared filter paper must be tested on a positive control (urine) and a negative control (water) each day of use. The results of these tests are recorded in the examination documentation.

Records Records documenting the preparation and quality control testing of the filter papers will be kept in the *Biology Quality Control Log Book*.

Sample preparation Remove an area of the suspected urine stain.

Procedure Use the following procedure to test for urea.

Step	Action
1	Put a cutting from the suspected urine stain in the middle of the prepared filter paper.
2	Add one drop of deionized water. Note: a blue color change at this step indicates a false positive result.
3	Add one drop of <i>Urease solution</i> over the cutting.

Interpretation The rapid development of a blue color is a positive (+) result for the presence of urea.

The absence of the blue color is a negative (-) result for the presence of urea.

In addition to the results of the test, the presence of urine may be supported by odor and visualization with an alternate light source.
