Document Title: Test for Creatinine (Jaffe)
Controlled: Yes, with red stamp present
Controlled By: Quality Manager

Prepared By: _____ Date: _____

Approved By: _____ Date: _____

A. PURPOSE:

To determine the presence of creatinine in a Forensic sample, which indicates the presence of urine.

B. RESPONSIBILITY:

Forensic Science Examiners from the Connecticut State Forensic Science Laboratory who have been trained in the discipline of testing for creatinine according to SOP-FB-31 (Training Manual).

C. SAFETY:

Use appropriate measures for the proper handling of picric acid solution, sodium hydroxide and glacial acetic acid according to SOP-GL-2 (Safety Manual).

D. PROCEDURE:

This test will be performed at the discretion of the examiner based on the submitting agency requests, case information and the condition of the evidence.

1. Materials:
   a. Picric Acid Solution (saturated)
   b. 10% NaOH
   c. Distilled water (dH_2O)
   c. Glacial Acetic Acid
   d. Controls: positive (known urine stain) and negative (blank filter paper), include substrate control as needed
   e. Disposable pipet or micropipet and tips
   f. Test tubes

2. Procedure:
   a. Test a positive and negative control with the following procedure (steps 2.b. – 2.g.).

      aa. The controls may be run concurrently with the questioned samples.

      bb. If limited questioned sample is available, run the controls prior to testing the questioned sample. If controls yield the appropriate results then test the questioned sample.

      cc. If controls do not yield the appropriate results, review the procedure and retest the controls prior to the questioned samples.

D. 2. b. Extract a portion of the questioned sample or stain in a test tube or spot plate with enough dH_2O to cover the sample. Let stand for a minimum of 15 minutes or longer as necessary.

c. Remove substrate from test tube.

d. Add equal amounts of picric acid solution and 10% NaOH to an equal amount of the extract.

e. Allow to stand for 15 minutes and observe the color of the extract.

f. Add glacial acetic acid in excess (double the total volume of extract, picric acid and 10% NaOH) and observe the color of the extract.

g. It should be noted that the detection of a urine or ammonia-type odor may also be used in the interpretation of the results (sample may need to be heated at 37°).

3. Results:
   a. *Positive*. A positive result is indicated by a color change from yellow to orange/ reddish-orange and develops fully within 15 minutes. A color change back to yellow after the addition of glacial acetic acid, confirms the presence of creatinine.

   b. *Negative*. A negative result is indicated by the bright yellow color of the picric acid.

   c. *Inconclusive*. A sample that remains unchanged after the addition of glacial acetic acid is considered inconclusive.

   d. It is important to compare results against the positive and negative controls.

   e. Record the results of the controls and samples on the appropriate Quality Record Worksheet.

   f. A 2nd examiner will observe and confirm results and initial the appropriate Quality Record Worksheet.

4. Record solutions used on the General Reagent Sheet (FBQR-09).

E. REFERENCES:

1. Jaffe, M. "Uebeden Niederschlag,WelchenPikrinsaure in normalen Harn erzeugt and uber line neue Reaktion des Kreatininis. " Z. Physical Chem, 10: 391-400. 1886.

2. Metropolitan Police Forensic Science Laboratory. Biology Methods Manual. 1978, pp. 4-4 to 4-5.

3. SOP-GL-2 (Safety Manual).