

**Connecticut Department of Public Safety
Division of Scientific Services
Forensic Laboratory**

Document ID: SOP-FB-08
Revision #: 0
Revision Date: 01/01/2011

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Document Title: Confirmatory Test for Blood (Takayama Crystal Test)

Controlled: Yes, with red stamp present

Controlled By: Quality Manager

Prepared By: _____ Date: _____

Approved By: _____ Date: _____

A. PURPOSE:

To confirm the presence of blood in a sample which gave a positive result with a screening test and a negative result for human blood.

B. RESPONSIBILITY:

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

C. SAFETY:

Use appropriate measures for the proper handling of the Takayama Reagent 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. Takayama Reagent
- b. Controls: known blood stain and blank cloth swatch
- c. Microscope slides
- d. Cover slips

2. Procedures:

- 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 question samples.
 - bb. If limited question sample is available, run the controls prior to testing the question 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 question samples.

- D. 2. b. Place a portion of the question sample on a microscope slide and cover with a cover slip
 - c. Let 1-2 drops of reagent flow slowly under the cover slip and come in full contact with the sample.
 - d. Heat the slide gently over a very low flame of an alcohol burner until small bubbles begin to appear under the cover slip. Alternately, the slide may be placed in a 37°C oven for 5-10 minutes.
 - e. Allow slide to cool under a hood.
 - f. Examine under the microscope at 100-400x, as soon as the slide cools.
 - g. If no crystals are observed, re-examine the sample periodically for several hours as weak samples may need a longer time to develop crystals.
3. Results:
- a. *Positive.* The formation of bright red crystals indicates a positive test and the confirmation of blood. Older samples may not dissolve well and crystals may form on the surface of the substrate.
 - b. *Negative.* The absence of bright red crystals indicates a negative test and blood is not confirmed.
 - c. *Inconclusive.* No discernible crystal formation.
 - d. Record the results on the appropriate Quality Record Worksheet.

E. REFERENCES:

- 1. Takayama, M. " A Method for Identifying Blood by Hemachromogen Crystalization" Kokka Igakkai Zasshi 306 : 15-33 (issue); 463-481 (cumulative),(1912) 15.
- 2. Metropolitan Police Forensic Science Laboratory. Biology Methods Manual. 1978, pp. 2-90 to 2-91.
- 3. SOP-GL-2 (Safety Manual).