

TENNESSEE BUREAU OF INVESTIGATION
Forensic Services Division

Violent Crime Response Team Standard Operating Procedures
Sodium Rhodizonate



10. VCRT Procedures

10.2 Sodium Rhodizonate Test

10.2.1 Scope

The Sodium Rhodizonate Test is a chemically specific chromophoric (color-producing) test for lead. This test is used to corroborate visible physical characteristics and to detect lead residues not visible to the unaided eye.

10.2.2 Definitions

Refer to VCRT 11.0 Definitions and Abbreviations

10.2.3 Precautions/ Limitations

The VCRT Member shall handle the evidence as gently as possible, keeping in mind that the residues are very fragile by nature and can be lost if over handled.

10.2.4 Chemicals and Reagents

Mixing Procedure

Sodium Rhodizonate Solution (#1)

This product is commercially purchased but requires a working solution be made prior to use at each crime scene.

Prepare a saturated Sodium Rhodizonate solution using Sodium Rhodizonate and distilled water. Add Sodium Rhodizonate to the distilled water and mix until the solution is the color of a strong tea.

If there is surplus of this solution it should be disposed of and not retained.

Buffer Solution for Sodium Rhodizonate test (#2)

Dissolve 1.9 grams of Sodium Bitartrate and 1.5 grams of Tartaric Acid in 100 milliliters of distilled water.

- 10.2.4.1 The dry ingredients for both Sodium Rhodizonate Solution (#1) and Buffer Solution for Sodium Rhodizonate test (#2) can be premeasured and bagged at the laboratory prior to departure for the crime scene



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10.2.5 Equipment and Supplies

Spray bottles
Photographic Camera

10.2.6 Test Procedure

Control

Positive Control/Negative Control - Wipe a clean area on filter paper with a lead bullet to be used as the positive lead control.

First - spray the control area of the filter paper with a buffer solution consisting of sodium bitartrate and tartaric acid in distilled water.

Second - spray the same area with a saturated solution of Sodium Rhodizonate in distilled water.

The presence of lead will be indicated by a pink reaction and no reaction will be seen in the areas not wiped with the lead control.
Document the results of the controls in the notes.

Application

Spray the tested area with the Buffer Solution (#2).

Spray the Sodium Rhodizonate Solution (#1) onto the questioned area.

Repeat this process on all holes/areas to be tested. Both sides of a hole should be tested if there is a question of entrance vs. exit.

Record all observations in notes.

10.2.7 Interpretation of Results

The VCRT member shall document their findings in their notes. If possible, the VCRT member should consider photographing the evidence item before and after chemical application.

Document the results of the controls in the notes.

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Record the results, both positive and negative, of the Sodium Rhodizonate test in the notes.

Document the lot numbers from the dry mix and the Sodium Rhodizonate in the notes.