

**TENNESSEE BUREAU OF INVESTIGATION**  
*Forensic Services Division*

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Violent Crime Response Team Standard Operating Procedures  
Casting Using Dental Stone

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**10. VCRT Procedures**

**10.14 Casting with Dental Stone**

**10.14.1 Scope**

Dental Stone is a plaster like material that cures much harder and is more durable and capable of producing finer detail than traditional plaster. Another advantage to dental stone is that it does not need a form surrounding the impression.

**10.14.2 Definitions**

Refer to VCRT 11.0 Definitions and Abbreviations

**10.14.3 Chemicals and Reagents**

Dental stone casting material  
Water

**10.14.4 Equipment and Supplies**

Mixing bag  
Spray wax or spray paint primer (for casting in snow)

**10.14.5 Procedure**

Comparison photographs shall be made before Casting is attempted, weather permitting. See VCRT 10.34 Comparison Photography for additional information.

Mixing

Casting material and water is added to the plastic bag; the bag is then kneaded until mixed to the proper consistency. Mixing should be started immediately after adding the water. Small amounts of water or casting material can be added to the mixture depending on whether it is too thick or too thin (the mixture should be the consistency of pancake batter). The mixing and pouring time should be completed within 3 – 4 minutes so that the casting stone doesn't start setting up before being poured.

Pouring the Casting Stone

Begin pouring outside of the impression to allow the casting material to flow into the impression. Carefully disperse the casting material evenly over the impression. This procedure is continued until the entire impression is filled with



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casting material. A retaining form is not needed unless the impression is on an incline. The opening of the bag should be close to the impression so the mixture does not have far to travel and will not destroy any detail.

Pour the mixture to a thickness to ensure the cast will not break during the lifting, transporting, and cleaning

Allow the cast to set. The time will vary depending on the temperature. In cold temperatures the set up time might be much longer than in warm temperatures.

Label the back of the cast by scratching the back of the cast before it hardens completely or use a permanent marker after hardening with:

- Initials of person making the casting
- Date and time
- Marker number or Identifier
- Location of casting with direction identification

#### Snow Method

Casts can be made of impressions in snow. The impression must first be coated with the snow wax spray or spray paint primer.

#### Removing the Cast

The firmness of the cast should be tested by gently tapping on the cast. The outer layer of the cast is set when no impression is left in the casting material.

Prior to lifting the cast from the ground, gently probe the ground beneath the cast to assist in loosing the bond. Work around the entire cast, checking for any movement to indicate that the cast has been released.

Gently lift the cast from the ground and place in a paper bag or cardboard box, dirt side up.

Do not attempt to remove any debris from the bottom or sides of the cast.

Wrap each cast separately using paper bags, etc., (never use plastic) and package in an appropriate sized box making sure to place layers of cushioning material between each cast.

The location where each cast was recovered will be recorded in the notes.