Purpose: To obtain a three dimensional record of an impression.

Responsibility: Forensic Science Examiners assigned to the Imprint Unit are responsible to follow the guidance of this procedure.

Safety: All proper personal protection equipment will be used as appropriate. SDS on file.

Procedure:

Materials:

1. Dental stone casting material
2. Water
3. Plastic zip lock bag/mixing container
4. Scale/ruler
5. Frame material (optional)
6. Fixatives (optional)
    - Hairspray
    - Spray (clear) shellac or lacquer
7. Highlighting materials (optional)
    - Primer spray paint

Procedures:

1. Photograph all impressions prior to casting (see IM SOP-4 Photography).
2. Prepare impression for casting.
    - If necessary, use appropriate fixatives.

- If necessary, use appropriate highlighting materials.
- If appropriate place framing material around impression.

3. Mix dental stone material and water to desired consistency.
4. Pour prepared dental stone mix into and over impression.
5. Before cast hardens, scratch appropriate identifying information on the backside of cast (i.e. initials, date, case number, direction, etc.) or write identifying information on the backside of cast with permanent marker after hardening.
6. After cast hardens, remove from casting location. The cast may be photographed (see IM SOP-4 Photography).
7. After 48 hours the cast may be cleaned and re-photographed (see IM SOP-4 Photography).
8. Secure cast in proper container.
9. Mark container with appropriate identification markings, including case number, item number and description.
10. Sub-itemize the cast in Justice Trax using guidance from GL-4 and place a barcode on the evidence container. Casts will be returned to the submitting agency.

Results:

Three-dimensional reproduction of impression.

Quality Control:
When a chemical/reagent is utilized for the first time, the examiner opening/preparing the chemical or reagent will ensure that the container is properly labeled as to its contents, its safety information (NFPA or GHS) and the ability of the performance of the chemical/reagent (see section a. below). The examiner will also place the date opened/prepared and his/her initials on the container. Most chemicals/reagents are purchased as packaged kits.

Per GL-21 General Laboratory Equipment, chemicals/reagents are considered "equipment" as they can influence the correct performance of laboratory activities (i.e. creating test impressions or enhancement). The very first control test impression developed with a newly opened or prepared chemical/reagent will demonstrate the ability of the performance of that lot of chemical/reagent. A log will be kept of this control test impression. The log will include the chemical/reagent name, the date opened/prepared, the lot number, the initials of the analyst who opened/prepared it, if the control test

impression was acceptable and the manufacturer's expiration date, if there is one. This information will be logged on the Reagent Log form (QR-IM Reagents/Chemicals). Once the chemical/reagent has been found to be acceptable, a colored dot will be initialed and dated and "OK" or "OK for use" will be written on it. This dot will be taped to the chemical/reagent bottle and will signify the chemical/reagent is okay to use.

Before any chemical/reagent is used, every analyst should check for this sticker. If it is not present, the above stated procedure must be followed.

The dental stone used in this procedure is considered a one-time use product and historically will work by hardening with the addition of water. The original evidence is not affected by this product since the dental stone does not come into contact with the submitted tire or footwear. It is suggested that this product be purchased in a quantity that has the same lot if possible. One of these bags from the lot will be tested and then the lot will be considered acceptable for casework if it passes the quality control test. The quality control test should be conducted by using an item to create an impression in BioFoam or other similar substrate, and following the same procedure as creating a cast. The quality control for this product is considered acceptable if the dental stone product hardens creating a cast of the object used to create the impression.

Sources of Error: N/A

Quality Assurance: N/A

References: See Bibliography.