

Dry Casting: A Method for Casting Snow Impressions

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Introduction

Snow is a fragile and challenging substrate for casting impressions. The use of snow print wax and dental stone to cast the impression has been a standard method; however, there are drawbacks such as the cost, quality, and degradation of the wax. Wax is applied to form a protective shell over the impression to prevent melting the impression through sunlight and/or the exothermic reaction of the casting material. "Dry Casting" is a "waxless" procedure for casting snow impressions. Beyond dental stone, only a water bottle and a pastry sifter are required, which keeps costs low and material degradation minimal. With dry casting, a protective shell is formed by sifting a thin layer of dry dental stone into a snow impression. The inherent moisture in the snow is absorbed by the layer of powder. The process is repeated misting new layers with water. Once hardened, the build-up of layers forms a protective shell of dental stone, fixing the impression.

Materials and Methods

A spray bottle with a "misting" nozzle, water, flour sifter or strainer, and casting material such as dental stone are the only materials needed for this method of casting.

The "dry casting" method involves a series of 3-4 thin layers of dental stone that form a shell over the snow impression. Using a sifter or strainer, dry dental stone is sifted onto the impression. Once the stone is sifted to form a layer approximately 1/8" inch thick, water is lightly sprayed from a spray bottle held directly over the impression. The spray bottle should have a misting nozzle so that the water lightly settles onto the dry stone. The water is applied until it is uniformly absorbed by the powder but not over-saturating. The moisture content of the snow also mixes with the dry stone and will determine the amount of water needed. This is especially true with the first layer when the stone is applied directly to the snow. The wetter or more slushy the snow, the less spraying is needed because the casting material absorbs the inherent moisture in the snow.

Between each of the 3-4 thin layers, wait approximately 15 minutes before sifting the next layer. Once the base layers start to cure, the remainder of the dental stone can be mixed with water and traditionally poured into the impression.

Results



Application of dental stone



Water beginning to absorb on the first layer



4th layer of powder



Application of water to 4th layer



Final pour of mixed dental stone



Original boot



Final Cast

Discussion

Dry Casting has proven to be an effective method for casting impressions in the snow. Also compared was the use of snow print wax followed by the application of dental stone. It was found that the dry casting method yielded a better result in the final cast. However, the application of the snowprint wax provided better contrast for photography but lacked some of the tread detail that was observed in the final "dry cast".



snow print without wax



snow print with wax



cast with wax



dry cast

Dry casting has been used by myself with a variety of dental stone brands and in a variety of snow conditions. The method does present a better result with wetter snow, but the dental stone brand did not appear to affect the resulting cast.

The relative ease and minimal cost make this method accessible to every investigator. Other than sifters, which are inexpensive, the materials required for dry casting are already carried by most crime scene personnel. Dry casting presents a universal method that can be successful for casting snow impressions in a variety of conditions.