

TECHNICAL NOTE

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A New Improved Technique for Casting Impressions in Snow

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ABSTRACT: Sulfur has, up to now, been the medium of choice for casting shoe and tire impressions in snow. Even under perfect conditions casting impressions in snow using sulfur results in some melting, giving the resultant casts a somewhat porous appearance with corresponding loss of the original detail. A new product developed in Sweden can be used to avoid these problems. It gives casts that have considerably more detail than sulfur casts. The new method employs a two-step process. First, a layer of Snow Print Wax[®] aerosol is sprayed over the whole impression and allowed to dry. Second, a viscous mixture of plaster of paris and water at 25°C is poured into the impression. The plaster of paris is covered with layers of newspaper to keep it from freezing. When the casting material has set, the cast is removed from the snow. The wax layer adheres to the plaster.

KEYWORDS: criminalistics, snow, impressions, castings

The present procedure for casting impressions in snow has involved the use of molten sulfur. This has been somewhat tricky because if the sulfur was too hot, melting would occur and valuable detail would be destroyed. Even under perfect conditions some melting takes place and gives the casts a somewhat porous appearance. In loose powdery snow the sulfur has a tendency to flow through the impression and collect under the surface. This can be a serious problem.

A new product called Snow Print Wax[®] seems to avoid these drawbacks and at the same time provides easily produced plaster casts of superior quality. The product was developed in Sweden and is available in the United States.

Procedure

Snow Print Wax is provided in an aerosol can. The can comes with several spray heads which have different size orifices. The recommended procedure is to spray three light layers at an interval of 1 to 2 min between layers. It is then allowed to dry for approximately 10 min. If

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the can becomes cold it may lose pressure. If this occurs, the pressure can be raised by immersing the can in warm water for a minute or two. The water should not be above 35°C. If the can cannot be warmed, a spray head with a larger orifice can be used.

The red color of Snow Print Wax highlights detail in the impression. Photographs taken of impressions that have been sprayed are far superior to photographs of impressions that have not been sprayed. The obvious red color of the Snow Print Wax in or around an impression identifies it as being of evidential value.

A viscous mixture of plaster of paris or similar type of casting material and water at about 25°C is poured into the impression. The casting material should be covered with several layers of newspaper to prevent freezing. Rather than plaster of paris we routinely use a dental plaster called Duroc®. Duroc is manufactured by Ransom & Randolph Co. and may be available at local dental supply houses.

After the casting material has hardened the cast can be removed. The wax layer will adhere to the cast. The adhering layer of Snow Print Wax remains soft for some time and therefore the cast should be handled carefully until the layer has had a chance to harden.

Observations

One would expect the best detail to be present on the layer of Snow Print Wax adhering to the cast. On occasion, I have found it beneficial to wash the layer off the cast using hot water. Visualizing the detail appeared easier when this was done. It has not been determined whether it is better to leave the layer of Snow Print Wax on the cast or wash it off. That determination will have to be made by the individual examiner.

I have obtained good casts of shoe impressions in snow even under surprisingly poor snow conditions. The wax layer appears to form a moisture barrier between the snow and the casting material. Test casts were made with and without Snow Print Wax using Duroc as a casting material. Casts made without Snow Print Wax recorded absolutely no tread detail. The snow melted and water must have mixed with the Duroc and prevented proper setting. All casts made with Snow Print Wax had useable detail.

The procedure is illustrated in Figs. 1 through 3. A shoe and a cast of the shoe impression in snow using Snow Print Wax are illustrated in Figs. 4 and 5.



FIG. 1—Two or three thin layers of Snow Print Wax are sprayed into the impression.



FIG. 2—A lukewarm (25°C) viscous mixture of plaster and water is poured into the layer of wax.



FIG. 3—The Snow Print Wax adheres to the plaster.



FIG. 4—Athletic shoe.



FIG. 5—Cast of the shoe impression in snow using Snow Print Wax.

Acknowledgment

The photographs were furnished by Kjell Carlsson of the Stockholm Police Department Crime Laboratory, Stockholm, Sweden.

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