TECHNICAL INFORMATION

Silicone Tool Mark Kit

Catalog No. STM100

TOOL MARK EVIDENCE

A valuable clue in the investigation of many crimes is the discovery of an identifying mark of the tool which was used to accomplish the perpetration of a burglary, or it may be the weapon used in an assault. The nature of the tool is usually determined by an examination of the mark or indentation which it has left on some wood surface or on a metal part. If the search for the tool is successful, the investigator is confronted with the problem of matching the tool with the tool impression. Sometimes the tool mark will indicate the degree of skill with which the tool was used. In rare instances, small particles of metal or paint from the area at which the tool was applied will be found, and a subsequent spectrographic or X-ray diffraction analysis may yield conclusive proof.

VALIDITY

The ultimate purpose of a comparison of the tool with the impression is to demonstrate that the impression was made by this particular tool. The method of proof in such an investigation is similar to that of a firearms identification. The characteristic marks of the impression are produced by defects in the tool. A test impression is made with the tool, and the characteristics of the test impression are correlated with those of the impression found at the scene of the crime. The greater the percentage of characteristic marks that are common to the

100 HUNTER PLACE, YOUNGSVILLE, NC 27596 USA
Ph: (919) 554-2244, (800) 356-7311 • Fax: (919) 554-2266, (800) 899-8181 • Web: www.sirchie.com • Email: sirchieinfo@sirchie.com

two impressions, the stronger is the proof that they were made by the same instrument, since the probability increases exponentially with the number of characteristics.

PHOTOGRAPHIC PROCEDURE

On discovering a tool impression such as a jimmy mark on a window or a hammer mark on the wood, the first step should be the photograph. Two photographs should be taken utilizing the proper equipment: one showing the background or setting of the impression and another showing the impression alone (i.e., a close-up such as a one-to-one photograph). A photo evidence rule should be included in both of these photographs.

At The Scene

A mold of the impression should now be made by means of Silicone Putty. It is advisable to make two molds to ensure a faithful reproduction. This mold is a replica of the tool itself and is commonly referred to as a negative mold.

At The Laboratory

If it is at all practical, the surface bearing the tool mark should be removed, if portable, and taken to the laboratory. At the laboratory a cast must be made of the surface impression by means of Liquid Silicone Positive compound in conjunction with the negative mold aforementioned.

KIT COMPONENTS

IMP001 Impression Compound—This compound is a cross between regular Liquid Silicone Rubber and Silicone Rubber Putty. The method of use is similar to putty in that the consistency is somewhat thick, and doesn't pour as freely as a liquid, but resultant casts are flexible.

3/16" x 3" x 7" Seamed Edge Glass Mixing Slab—Utilized in the preparation of both the impression compound.

Stainless Steel Spatula—Utilized in the preparation of both the Impression Compound and Liquid Silicone Positive Compound.

635CA Silicone Rubber Release Agent—This release agent is used to aid in the separation of either of the compounds from the impression area before adding the catalyzed compounds into it. Do not hold nozzle too close to avoid "wetting" the impression area.

LSP001 Liquid Silicone Positive Compound/Gray Tint—This is a free-flowing, gray, rubber-based materials. After catalyzing, the material is poured into the desired location, and it will fill all indentations and crevices in minute detail. Before adding the catalyst, stir the Liquid Silicone Positive Compound well, as it settles on storage. The catalyzed base is workable for three (3) minutes and will be tack-free in 30 minutes.

SCA Silicone Catalyst—SCA is used to catalyze the Liquid Silicone Positive Compound. Add one (1) part of catalyst to 100 parts of the Silicone Base Compound by weight--Generally one tablespoon of Liquid Silicone Positive compound to three drops of catalyst.

3.5" Diameter Flexible Mixing Bowl—The bowl is utilized for mixing Liquid Silicone Positive Compound. It eliminates the necessity of scraping clean with a spatula and is chemical and oil resistant.

Clay—This clay is used to restrict LSP001 Liquid Silicone Positive Compound.

MAKING NEGATIVE MOLDS

1. Foreign matter such as wood shavings, chips, etc. should be removed with care so as not to damage any minute detail.
2. The Silicone Release Agent is applied lightly to the impression area to avoid "wetting" the surface.
3. With the combination spoon/spatula applicator, measure an equal (50/50) amount of both catalyst and base compound.
4. Combine these two materials by kneading together with both hands. Work the combined compounds until the color is uniform (not to exceed two to three minutes).
5. Apply to the surface or object under investigation. Apply pressure to the catalyzed mass to force it into the impression.

6. Allow at least five minutes for setup. Compound is cured when a fingernail can no longer indent it. Remove the cast. NOTE: The casting removed from the original is a negative mold of the impression of the tool.
7. When cleanup is accomplished, evidence identification tags, etc. are applied.

MAKING POSITIVE MOLDS

1. Free the negative mold of any foreign matter which might interfere with minute details.
2. When the negative mold is cleaned as directed, build a small, encircling dam of clay around the mold that is to be cast.
3. The Silicone Release Agent is applied lightly to cover the negative mold and clay dam. CAUTION: Avoid "wetting."
4. Upon completion of the catalyzing of the Liquid Silicone Positive Compound, stir well and pour sufficient amount over the negative mold. Allow twenty minutes of setting time.
5. When the above is accomplished, first remove the clay dam and then separate the negative mold from the positive cast.
6. Evidence identification tags, etc. must be completed and applied.

REPLACEMENT SUPPLIES

IMP001 Impression Compound, Heavy, 50ml
IMP002 Impression Compound, Light, 60ml
LSP001 Liquid Silicone Positive Compound, Gray Tint
SCA Silicone Catalyst
641C Flexible Mixing Bowl, 3.5" (89 mm)
SRA10 Silicone Release Agent, 6 fl. oz. (177ml)
STM1002 7.25" (184 mm) Stainless Steel Spatula
SMS001 Seamed-Edge Glass Mixing Slab
STM1003 Modeling Clay, .25 lb. (113 g)