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## TECHNICAL INFORMATION

### Liquid Silicone Casting Kit

#### Catalog No. 640C

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#### INTRODUCTION

Footwear identification has advanced in recent years from a mere aid to investigation to an accepted laboratory technique on a level with ballistics and fingerprint examinations. Not long ago, footwear evidence was acceptable only as supporting or corroborative—but not sufficient proof in itself. However, in the past three decades, court rulings have increasingly accepted footwear evidence as positive proof of presence, even in the most serious of offenses.

This bulletin describes the use of Liquid Silicone Rubber and the other components in the 640C Casting Kit. Liquid Silicone Rubber may be used for foot, tire and tool mark impressions.

#### CAUTION

- Before using this kit, consult the appropriate Material Safety Data Sheets (MSDS) found on our website at [www.sirchie.com/support](http://www.sirchie.com/support).



## PROCEDURE

All impressions, whether they are of footwear, tires, or tool marks, should be photographed before an attempt at casting is made.

First, the casting frame (FCF100 or FCF200) should be placed around the impression area unless the impression is too small to warrant it. Foreign matter such as twigs, leaves, etc. should be removed with care not to damage any detail before applying the hardener or base builder. *DO NOT remove any debris imbedded in the impression.* The impression area can then be prepared for the casting compound by applying Dust and Dirt Hardener (638C32).

The Silicone Rubber Release Agent (SRA10) is applied lightly to the impression area after adequate setup time of the Dust and Dirt Hardener, if used, has been observed.

After initial preparations are completed, the Silicone Rubber Mixture (Rubber, Thinner and Catalyst) is gently poured into the impression until the entire impression area is filled. After hardening is complete (about 15 minutes), remove the cast. *Note: The casting removed from the original impression is a negative (mirror image) of the impression.*

## KIT COMPONENTS

Liquid Silicone Rubber (634C)

A free-flowing, white rubber-based material. After the addition of a Catalyst, 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 Silicone Rubber well, as it settles in storage. This base is workable for 1-2 minutes and will be tack-free in 30 minutes.

When making larger castings (i.e., full foot or tire impressions), the Silicone Rubber base may be thinned as much as one part rubber to one part thinner (1:1). For tool marks and other small impressions, the Silicone Rubber does not need to be thinned. The recommended mixture for foot and tire impressions is: 1 lb. (454g) jar of Liquid Silicone Rubber (634C);



1 lb. (454g) jar of 636C Thinner; and 1 vial of Silicone Catalyst (TM1). *NOTE: Stir Silicone Rubber and Thinner well before adding the Catalyst.*

### Silicone Catalyst (TM1)

This material is used to catalyze the Liquid Silicone Rubber. Add one part Catalyst to 200 parts of the Liquid Silicone Rubber by weight (1:200). Generally, use 1 lb. (454g) of Liquid Silicone Rubber to 1 vial of Catalyst. When using smaller quantities, proportionate measurement is used (1:1—i.e., 1/4 jar of Liquid Silicone Rubber to 1/4 vial Catalyst). This proportion holds true whether or not Thinner has been added.

**CAUTION: Catalyst may cause skin irritation—handle with care.**



### Silicone Rubber Thinner (636C)

The Thinner is an inert Silicone fluid used to lower the consistency of the Liquid Silicone Rubber. Adding 10% Thinner reduces the consistency of the Silicone Rubber base to 1/4 the original compound without causing significant change in working time or the catalyzed rubber base or the ultimate physical properties of the cured rubber. Addition of more than 10% of Thinner elevates the setup time accordingly. Mix the Thinner with the Silicone Rubber Compound, stirring well. Next, add the Catalyst in the recommended proportion.

### Dust and Dirt Hardener (638CA)

Dust and Dirt Hardener is utilized when casts are to be made of impressions in sand or soft soil. Place the casting frame (FCF100 or FCF200) around the impression and spray 3-4 light coats of Hardener into and around the impression. *DO NOT spray directly at the impression, but rather in a manner that allows the Hardener to fall into the impression as a mist.* Spraying directly at the impression under elevated pressure will disturb the impression characteristics. Allow at least 2-3 minutes between each coat of Hardener. Normally 3-4 coats will be sufficient.



When preparing impressions in snow, we recommend the use of Snow Impression Wax (SP100). The Gas Power Unit (637C1) should have 638Y Spray Head Cleaner run through after use. Follow instructions on using the Gas Power Unit.

#### Silicone Rubber Release Agent (SRA10)

This release agent is used to aid in separation of the set rubber from the impression area before pouring the catalyzed casting compound into it. It should be used 10 minutes after application of the Dust and Dirt Hardener. *DO NOT hold the nozzle too close in order to avoid **wetting** the impression area.* A light coating is sufficient.



#### 640C CONTENTS:

- 2- 634C Liquid Silicone Rubber, 1 lb. (454g)
- 1- 636C Silicone Rubber Thinner, 16 oz. (473ml)
- 2- TM1 Vials of Catalyst
- 1- SRA10 Aerosol Silicone Rubber Release Agent, 4.5 oz. (133ml)
- 1- KCP142 Steel Spoon
- 1- KCP155 Spatula, 7" (17.8cm), Steel Blade
- 1- 642C Flexible Mixing Bowl, 4.25" (10.8cm)
- 1- 643C Flexible Mixing Bowl, 4.75" (12.1cm)
- 1- 644C Flexible Mixing Bowl, 5.25" (13.3cm)
- 1- SP1000 Snow Impression Wax, Net Wt. 15 oz. (425g)
- 2- 639C4 Base Builder, 8 oz. vol. (236ml)
- 1- 638CA Aerosol Dust & Dirt Hardener, Net Wt. 15 oz. (425g)
- 1- SK900 Tape Measure, English/metric, 100 ft. (30m)
- 25- 608E01 Evidence Tags w/Ties
- 1- KCP200 Surface Brush
- 1- FCF100 Adjustable Casting Frame, 7.25" x 12'-18" (18.4cm x 30.5cm-45.7cm)
- 1- Technical Instructions
- 1- 640CC Black Molded Copolymer Carrying Case w/ Folding Handle and Locking Latches, Includes Molded Inserts; Dimensions: 17' x 13' x 7.375' (43.2cm x 33cm x 18.7cm); Weight: 16.5 lbs. (7.5kg)