

# SORTA-Clear™ Series

Addition Cure Silicone Rubber Compounds



www.smooth-on.com

Sorta-Clear™ 18, 37 and 40 are Food Safe

## PRODUCT OVERVIEW

**SORTA-Clear™ Series** rubbers are premium water white translucent silicone rubbers (platinum catalyst) which cure at room temperature with negligible shrinkage. Available in Shore **12A, 18A, 37A and 40A hardness**, these rubbers feature high tensile and tear strength. SORTA-Clear™ 12 and SORTA-Clear™ 37 offer the convenience of a 1A:1B by volume mix ratio. The 18A and 40A products require a gram scale for measuring parts A + B.

**SORTA-Clear™** silicones are ideal for making prototype, jewelry or other molds of any configuration where model visibility is important (i.e. extracting a model from the mold via cutting). Materials such as urethane, epoxy or polyester resins can then be cast into SORTA-Clear™ silicone without application of a release agent. Other materials such as wax and low melt metal alloys can also be cast into SORTA-Clear™. SORTA-Clear™ can be pigmented with **SILC Pig™ silicone pigments**.

**SORTA-Clear™ 18, SORTA-Clear™ 37 and SORTA-Clear™ 40** are **FOOD SAFE** and can be used for culinary applications including casting chocolate and other confections. (See separate technical bulletin for usage instructions available at [www.smooth-on.com](http://www.smooth-on.com)). **SORTA-Clear™ 12 is not food safe**, and should not be used for food related applications. **SORTA-Clear™ 18 is SKIN SAFE** and certified by an independent laboratory.

## TECHNICAL OVERVIEW

|                 | Mixed Viscosity<br>(ASTM D-2393) | Specific Gravity<br>(g/cc) (ASTM D-1475) | Specific Volume<br>(cu. in. /lb.) (ASTM D-1475) | Mix Ratio          | Pot Life<br>(ASTM D-2471) | Cure Time | Shore A Hardness<br>(ASTM D-2240) | Tensile Strength<br>(ASTM D-412) | 100% Modulus<br>(ASTM D-412) | Elongation at Break %<br>(ASTM D-412) | Die B Tear Strength<br>(ASTM D-624) |
|-----------------|----------------------------------|--|---|--------------------|---------------------------|-----------|-----------------------------------|----------------------------------|------------------------------|---------------------------------------|-------------------------------------|
| SORTA-Clear™ 12 | 6,000 cps                        | 1.07                                     | 25.9  | 1A:1B by volume    | 40 min.                   | 12 hrs    | 12A                               | 320 psi                          | 23 psi                       | 590%                                  | 80 pli                              |
| SORTA-Clear™ 18 | 21,000 cps                       | 1.08                                     | 25.6  | 100A:10B by weight | 60 min.                   | 24 hrs    | 18A                               | 425 psi                          | 35 psi                       | 545%                                  | 80 pli                              |
| SORTA-Clear™ 37 | 35,000 cps                       | 1.08                                     | 25.6  | 1A:1B by volume    | 25 min.                   | 4 hrs     | 37A                               | 600 psi                          | 90 psi                       | 400%                                  | 105 pli                             |
| SORTA-Clear™ 40 | 35,000 cps                       | 1.08                                     | 25.6  | 100A:10B by weight | 60 min.                   | 16 hrs    | 40A                               | 800 psi                          | 90 psi                       | 400%                                  | 120 pli                             |

\*All values measured after 7 days at 73°F/23°C

**Shrinkage\*** (in./in.) (ASTM D-2566): < .001

**Color:** Water Clear Translucent

## PROCESSING RECOMMENDATIONS

**PREPARATION... Safety** – Use in a properly ventilated area (“room size” ventilation). Wear safety glasses, long sleeves and rubber gloves to minimize contamination risk. Wear vinyl gloves only. Latex gloves will inhibit the cure of the rubber.

**Store and use material at room temperature (73°F/23°C).** Warmer temperatures will drastically reduce working time and cure time. Storing material at warmer temperatures will also reduce the usable shelf life of unused material. These products have a limited shelf life and should be used as soon as possible.

**Cure Inhibition** – Addition-cure silicone rubber may be inhibited by certain contaminants in or on the pattern to be molded resulting in tackiness at the pattern interface or a total lack of cure throughout the mold. Latex, tin-cure silicone, sulfur clays, certain wood surfaces, newly cast polyester, epoxy or urethane rubber may cause inhibition. If compatibility between the rubber and the surface is a concern, a small-scale test is recommended. Apply a small amount of rubber onto a non-critical area of the pattern. Inhibition has occurred if the rubber is gummy or uncured after the recommended cure time has passed.

**Because no two applications are quite the same, a small test application to determine suitability for your project is recommended if performance of this material is in question.**

To prevent inhibition, one or more coatings of a clear acrylic lacquer applied to the model surface is usually effective. Allow any sealer to thoroughly dry before applying rubber. Note: Even with a sealer, platinum silicones will not work with modeling clays containing heavy amounts of sulfur. Do a small scale test for compatibility before using on your project.

## Safety First!

The Material Safety Data Sheet (MSDS) for this or any Smooth-On product should be read prior to use and is available upon request from Smooth-On. All Smooth-On products are safe to use if directions are read and followed carefully.

### Keep Out of Reach of Children

**Be careful.** Use only with adequate ventilation. Contact with skin and eyes may cause irritation. Flush eyes with water for 15 minutes and seek immediate medical attention. Remove from skin with waterless hand cleaner followed by soap and water.

**Important:** The information contained in this bulletin is considered accurate. However, no warranty is expressed or implied regarding the accuracy of the data, the results to be obtained from the use thereof, or that any such use will not infringe upon a patent. User shall determine the suitability of the product for the intended application and assume all risk and liability whatsoever in connection therewith.

**Applying A Release Agent** - Although not usually necessary, a release agent will make demolding easier when pouring into or over most surfaces. Ease Release™ 200 is a proven release agent for making molds with silicone rubber. Mann Ease Release™ products are available from Smooth-On or your Smooth-On distributor.

**IMPORTANT:** To ensure thorough coverage, lightly brush the release agent with a soft brush over all surfaces of the model. Follow with a light mist coating and let the release agent dry for 30 minutes.

If there is any question about the effectiveness of a sealer/release agent combination, a small-scale test should be made on an identical surface for trial.

### MEASURING & MIXING...

Before you begin, pre-mix Part B thoroughly. After dispensing the required amounts of Parts A and B into mixing container, **mix thoroughly for 3 minutes making sure that you scrape the sides and bottom of the mixing container several times.** After mixing parts A and B, vacuum degassing is recommended to eliminate any entrapped air in liquid rubber. Your vacuum pump must pull a minimum of 29 inches of mercury (or 1 Bar / 100 KPa). Leave enough room in container for material expansion. Vacuum material until it rises, breaks and falls. Vacuum for 1 minute after material falls.

### POURING, CURING & MOLD PERFORMANCE...

**Pouring** - For best results, pour your mixture in a single spot at the lowest point of the containment field. Let the rubber seek its level up and over the model. **A uniform flow will help minimize entrapped air.** The liquid rubber should level off at least 1/2" (1.3 cm) over the highest point of the model surface.

**Curing** - Allow the material to cure fully at room temperature (73°F/23°C) before demolding. SORTA-Clear™ 12 cures in 12 hours, SORTA-Clear™ 18 cures in 24 hours, SORTA-Clear™ 37 cures in 4 hours, and SORTA-Clear™ 40 cures in 16 hours. Do not cure rubber where temperature is less than 65°F/18°C.

Time to demold can be reduced with mild heat. **IMPORTANT: Rubber will darken considerably when exposed to heat.** Note: Allow mold to cool to room temperature before handling.

Smooth-On's Plat Cat™ platinum silicone accelerator can also be used to accelerate Sorta-Clear rubber. See the Plat Cat™ technical bulletin at [www.smooth-on.com](http://www.smooth-on.com).

**Post Curing** - Post curing the mold will aid in quickly attaining maximum physical and performance properties. After curing at room temperature, expose the rubber to 176° F / 80° C for 2 hours and 212° F / 100° C for one hour. Allow mold to cool to room temperature before using. **IMPORTANT:** Rubber will darken considerably when exposed to heat.

**Using The Mold** - New silicone rubber molds exhibit natural release characteristics. Depending on what is being cast into the mold, mold lubricity may be depleted over time and parts will begin to stick. No release agent is necessary when casting wax or gypsum. Applying a release agent such as Ease Release™ 200 (available from Smooth-On) prior to casting polyurethane, polyester and epoxy resins is recommended to maximize mold life. Visit Smooth-On's FAQ section at [www.smooth-on.com](http://www.smooth-on.com) for information on a powder coating technique that will yield a dry matte finish to cured castings.

**Mold Performance & Storage** - The physical life of the mold depends on how you use it (materials cast, frequency, etc.). Casting abrasive materials such as concrete can quickly erode mold detail, while casting non-abrasive materials (wax) will not affect mold detail. Before storing, the mold should be cleaned with a soap solution and wiped fully dry. Two part (or more) molds should be assembled. Molds should be stored on a level surface in a cool, dry environment.



**Call Us Anytime With Questions About Your Application.**

**Toll-free: (800) 381-1733 Fax: (610) 252-6200**

The new [www.smooth-on.com](http://www.smooth-on.com) is loaded with information about mold making, casting and more.