

# Smooth Cast® 57D

## Semi-Rigid Urethane Casting Resin



www.smooth-on.com

### PRODUCT OVERVIEW

Smooth-Cast® 57D is a semi-rigid urethane plastic that offers a gradual cure profile (does not snap cure), making it suitable for machine or hand rotational casting.

**Use For Rotational Casting** - Once poured into a suitable rubber mold configuration, the mold can be rotated so that the resin mixture gradually coats the inside of the mold cavity. After an adequate wall thickness is attained inside the mold, the result is a cured hollow casting that is semi-rigid and highly impact resistant.

**Use as a Casting Resin** – Smooth-Cast® 57D can also be used as a casting resin for making solid, semi-rigid castings that are tough and durable.

Mix ratio is 1A:1B by volume. Working time is 3 minutes, demold time is 30 minutes and full cure properties are attained after 24 hours. Color is white translucent and the material is very easy to color with SO-Strong®, UVO® or Ignite® colorants. Cured resin is also easy to paint with acrylic paints or UreCoat® flexible coating for applications requiring thick, durable finishes.

### PROCESSING RECOMMENDATIONS

#### Preparation . . .

Materials should be stored and used in a warm environment (73°F / 23°C). This material has a limited shelf life and should be used as soon as possible. Mixing should be done in a well-ventilated area. Wear safety glasses, long sleeves and rubber gloves to minimize contamination risk. All liquid urethanes are moisture sensitive and will absorb atmospheric moisture.

Mixing tools and containers should be clean and made of metal, glass or plastic. 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.

#### TECHNICAL OVERVIEW

Mix Ratio; 1A:1B by volume or 100A:93B by weight

Mixed Viscosity (cps); 300 (ASTM D-2393)

Specific Gravity, g/cc; 1.05 (ASTM D-1475)

Specific Volume, cu. in. /lb.; 26.4 (ASTM D-1475)

Pot Life; 3 minutes @73° F / 23°C (ASTM D-2471)

Cure time; 30 minutes @73° F / 23°C \*\*

Color; Translucent White

Shore D Hardness; 57 (ASTM D-2240)

Ultimate Tensile, psi; 2,420 (ASTM D-638\*)

Elongation @ Break; 100% (ASTM D-638\*)

Shrinkage; 0.012 in/in (ASTM D-2566\*)

\* Value measured after 7 days at 73°F/23°

\*\* Depending on Mass

#### Applying A Release Agent . . .

A release agent is necessary to facilitate demolding when casting into or over many surfaces. Use a release agent made specifically for mold making and casting such as Mann's **Ease Release® 200** available from Smooth-On. A liberal coat of release agent should be applied onto all surfaces that will contact the plastic.

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

Smooth-On silicone rubber molds usually do not require a release agent unless casting silicone into the mold. Applying a release agent will prolong the life of the mold.

#### Mixing . . .

**Pre-Mix PART-A and PART-B Thoroughly Before You Begin.** After pre-mixing both parts, dispense required amounts of Parts A and B into mixing container and **mix thoroughly**. Stir for at least 30 seconds, making sure that you scrape the sides and bottom of the mixing container several times.

**IMPORTANT:** Shelf life of product is reduced after opening. Remaining product should be used as soon as possible. Immediately replacing the lids on both containers after dispensing product will help prolong the shelf life of the unused product. XTEND-IT® Dry Gas Blanket (available from Smooth-On) will significantly prolong the shelf life of unused liquid urethane products.

## Safety First!

The material safety data sheet (MSDS) for this or any Smooth-On product should be read before using and is available on request. All Smooth-On products are safe to use if directions are read and followed carefully. **Keep Out of Reach Of Children.**

**Be Careful. Part A** (Yellow Label) contains methylene diphenyl diisocyanate. Vapors, which can be significant if heated or sprayed, may cause lung damage and sensitization. Use only with adequate ventilation. Contact with skin and eyes may cause severe irritation. Flush eyes with water for 15 minutes and get immediate medical attention. Remove from skin with soap and water.

**Part B** (Blue Label) is irritating to the eyes and skin. Avoid prolonged or repeated skin contact. If contaminated, flush eyes with water for 15 minutes and get immediate medical attention. Remove from skin with soap and water. When mixing with Part A, follow precautions for handling isocyanates.

**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 a copyright or patent. User shall determine suitability of the product for the intended application and assume all associated risks and liability.

## Curing & Performance

### Curing . . .

**Important:** Use this product with at least room size ventilation or in proximity to a forced outlet air vent and do not inhale/breathe fumes. Fumes, which may be visible with a significant mass concentration, will quickly dissipate with adequate ventilation. Castings with significant mass may be hot to the touch and irritate skin immediately following cure. Let casting cool to room temperature before handling.

Demold time of the finished casting depends on mass and mold configuration. Low mass or thin-walled castings will take longer to cure than castings with higher mass concentration.

If making rotational or hollow castings, backfilling with a rigid foam (Foam-iT! 5 or other) will provide lightweight reinforcement. Foam backfilling is recommended if castings will be subjected to temperatures above 85°F / 30°C.

### Performance . . .

Cured castings are semi-rigid and impact resistant. They resist moisture, mild heat, solvents (intermittent contact) and can be primed/painted or bonded to other surfaces (any release agent must be removed) using Urebond or similar flexible adhesive. If machining material, wear breathing protection. Unpainted castings may discolor in proportion to duration and intensity of exposure to UV light.

If suitability of any Smooth-On material is in question for your application, a small scale test is recommended before using for an important project.



**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.