Smooth-Cast® 300 Series

Bright White, Ultra Low Viscosity Liquid Plastics

www.smooth-on.com

PRODUCT OVERVIEW

The **Smooth-Cast® 300 Series** of liquid plastics are ultra-low viscosity casting resins that yield castings that are **bright white and virtually bubble free.** Vacuum degassing is not necessary. They offer the convenience of a 1A:1B by volume or 100A:90B by weight mix ratio. The differences between them are pot life and demold time.

These resins readily accept fillers (such as URE-FIL® 3 from Smooth-On) and can be colored with SO-Strong® or Ignite® color tints (Smooth-Cast® 325 series accepts pigments better than the Smooth Cast® 300 series). Fully cured castings are tough, durable, machinable and paintable. They resist moisture and mild solvents. Applications for **Smooth-Cast® 300 Series Liquid Plastics** include reproducing small to medium size sculptures, making prototype models, special effect props and decorative jewelry.

Those interested in making roto cast pieces should refer to the Smooth-Cast® 65D technical bulletin.

TECHNICAL OVERVIEW

	Pot Life @ 73° F / 23°C (ASTM D-2471)	**Cure Time **** @ 73° F / 23°C	**Tensile Strength** (ASTM D-638)	**Tensile Modulus** (ASTM D-638)	**Elongation at Break %** (ASTM D-638)	**Flexural Strength** (ASTM D-790)	**Flexural Modulus** (ASTM D-790)	**Compressive Strength** (ASTM D-695)	**Compressive Modulus** (ASTM D-695)	**Shrinkage** in./in. (ASTM D-2566)
Smooth-Cast® 300Q	30 Sec.	4 - 5 Min.	3,000 psi	139,500 psi	5%	4,510 psi	128,000 psi	4,000 psi	45,800 psi	0.01
Smooth-Cast® 300	3 Min.	10 Min.	3,000 psi	139,500 psi	5%	4,510 psi	128,000 psi	4,000 psi	45,800 psi	0.01
Smooth-Cast® 305	7 Min.	30 Min.	3,000 psi	134,000 psi	7.50%	4,000 psi	118,000 psi	3,800 psi	44,900 psi	0.0065
Smooth-Cast® 310	15-20 Min.	3 - 4 Hours	3,000 psi	134,000 psi	7.50%	4,000 psi	118,000 psi	3,800 psi	44,900 psi	0.0065

Mix Ratio; 1A:1B by volume or 100A:90B by weight

Mixed Viscosity, cps; 80 (ASTM D-2393)

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

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

Color; White

Shore D Hardness; 70 (ASTM D-2240)

Heat Deflection Temp; 120°F/50°C (ASTM D-648)

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

* * Depending on Mass

PROCESSING RECOMMENDATIONS

PREPARATION... Safety Materials should be stored and used in a warm environment (73° F / 23° C). These products have a limited shelf life and should be used as soon as possible. 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. Mixing should be done in a well-ventilated area. Wear safety glasses, long sleeves and rubber gloves to minimize contamination risk. **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**.

Applying A Release Agent - A release agent is necessary to facilitate demolding when casting into or over most surfaces. Use a release agent made specifically for mold making (Universal® Mold Release or Mann's Ease Release® 200 available from Smooth-On or your Smooth-On distributor). 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.

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.***

Smooth-Cast® 300 PART A
WARNING: IRRITANT TO EYES, SKIN & MUCOUS MEMBRANES. Contains Methylene Diphenyl Isocyanate. Do not get in eyes, mucous membranes or on skin. Do not take internally. Do not breathe fumes. Use only with adequate ventilation. Wear chemical-resistant gloves and eye protection when using this product.
First Aid: In case of eye contact, flush thoroughly with water for 15 minutes and get immediate medical attention. In case of skin contact, wash thoroughly with soap and water. If irritation persists, get medical attention. If swallowed, do not induce vomiting. Drink 1-2 glasses of water and get immediate medical attention. If vapors are inhaled or if breathing becomes difficult, remove person to fresh air. If symptoms persist, get medical attention. **Keep Out Of Reach Of Children.**

Smooth-Cast® 300 PART B:
CAUTION: In case of eye contact, flush with water for 15 minutes. If irritation persists, get medical attention. For skin contact, wash with soap and water. **Keep Out Of Reach Of Children.**

CAUTION: HOT! When combined, parts A & B generate heat in excess of 212°F (100°C) which could cause burns to the skin. Let cured plastic cool before handling. **Keep Out Of Reach Of Children.**

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.

MEASURING & MIXING...

Liquid urethanes are **moisture sensitive** and will absorb atmospheric moisture. Mixing tools and containers should be clean and made of metal, glass or plastic. Materials should be stored and used in a warm environment (73°F/23°C).

Stir or shake both Part A & Part B thoroughly before dispensing. After dispensing equal amounts of Parts A and B into mixing container (100A:90B by weight) and mix **thoroughly**. Stir deliberately making sure that you scrape the sides and bottom of the mixing container several times. Be careful not to splash low viscosity material out of the container.

POURING, CURING & PERFORMANCE...

Pouring **-** Pour your mixture in a single spot at the lowest point of the containment field and let the mixture seek its level. This will help minimize air entrapment.

For Best Results . . . Best results are obtained using a pressure casting technique. After pouring the mixed compound, the entire casting assembly (mold, dam structure, etc.) is placed in a pressure chamber and subjected to 60 PSI (4.2 kg/cm^2) air pressure for the full cure time of the material.

Curing - Warning: Fumes, which may be visible as this product starts to "gel" and cure, will dissipate with adequate ventilation. Only use this product with room size ventilation and do not inhale/breathe fumes. Castings will be extremely hot immediately following cure and may burn the skin. Let cool to room temperature before handling. Smooth-Cast® 300 will cure in 7 - 10 minutes (Smooth-Cast® 305 in 30 – 40 minutes and Smooth-Cast® 310 in 2 - 4 hours) depending on mass and mold configuration.

Post Cure **-** Castings will reach "full cure" faster and achieve maximum physical properties if post cured. Allow material to cure for recommended Cure Time at room temperature followed by 4 - 6 hours at 150°F/65°C. Allow casting to come to room temperature before handling.

Performance **-** Cured castings are rigid and durable. They resist moisture, moderate heat, solvents, dilute acids and can be machined, primed/painted or bonded to other surfaces (any release agent must be removed). If machining cured material, wear dust mask or other apparatus to prevent inhalation of residual particles. Castings can be displayed outdoors after priming and painting. Unpainted castings will yellow over time - more quickly when exposed to ultra-violet light.

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

Call Us Anytime With Questions About Your Application.

Toll-free: **(800) 762-0744** Fax: **(610) 252-6200**

The new **www.smooth-on.com** is loaded with information about mold making, casting and more.