Smooth-Cast® Semi-Rigids

Semi-Rigid Urethane Casting Resins

www.smooth-on.com

PRODUCT OVERVIEW

The **Smooth-Cast® Semi-Rigid** line of low-cost semi-rigid urethane casting resins cure quickly to semi-rigid plastics that offer excellent impact resistance. These plastics are easy-to-use (mix ratio is 1A:1B by volume) and have low viscosities for minimal bubble entrapment. Vibrant colors are possible by adding SO-Strong® color tints or Ignite® color pigments.

Shore Hardness Available:	45D	60D & 61D	65D	70D (for comparison)
	Softer, Semi-Rigid	Some Flexibility	More Rigid	Rigid, Not Flexible

These semi-rigid plastics will really take a beating and offer exceptional abrasion resistance. They are good for making high-impact resistance tools, prototypes, abrasion resistant parts, foundry patterns, roller facings, vibration pads, fast concrete stamping pads, etc.

Smooth-Cast® 65D has a unique gradual cure profile which makes it ideal for rotational casting applications.

TECHNICAL OVERVIEW

	A:B Mix Ratio by Volume	A:B Mix Ratio by Weight	Pot Life @ 73° F / 23°C (ASTM D-2471)	Cure Time ** @ 73° F / 23°C	Shore Hardness	Mixed Viscosity	Specific Gravity	Specific Volume	Tensile Strength (ASTM D-638)	Elongation at Break (ASTM D-638)	Shrinkage in./in. (ASTM D-2566)	Color
Smooth-Cast® 45D	1A:1B	115A:100B	5 min	30 min	45D	500 cps	1.08	25.6	1,500 psi	100%	0.01	Caramel
Smooth-Cast® 60D	1A:1B	115A:100B	5 min	30 min	60D	1,500 cps	1.05	26.4	2,200 psi	30%	0.015	Caramel
Smooth-Cast® 61D	1A:1B	115A:100B	7 min	60 min	61D	1,500 cps	1.08	25.6	1,800 psi	20%	0.015	Caramel
Smooth-Cast® 65D	1A:1B	100A:90B	2.5 min	10-15 min	65D	120 cps	1.05	26.4	2,400 psi	20%	0.01	White

*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.

Be Careful **- Part A** (Yellow Label) contains methylene diphenyldiisocyante. 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. If machining cured castings, wear dust mask or other apparatus to prevent inhalation of residual particles.

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.

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).

The components (Parts A and B) should be at room temperature (73°F/23°C). Combine equal amounts of Parts A & B by volume in a mixing container. Make sure that you scrape the bottom and sides of your container several times. **Smooth Cast® 45D, 60D & 65D** are very fast setting materials. **Do not delay between mixing and pouring.** Also, the higher the mass concentration, the faster the material gels and cures.

POURING, CURING & PERFORMANCE...

Pouring **-** For best results, 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.

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.