

TASK® 4

Urethane Casting Compound



www.smooth-on.com

PRODUCT OVERVIEW

TASK® 4 is a unique polyurethane casting resin that is very strong when cast in Ultra-Thin sections ranging from 0.03" to 0.50" (0.075cm to 1.27cm). **TASK® 4** has a very low mixed viscosity, ensuring flawless pick-up of even the finest detail. Cured plastic exhibits very low shrinkage which is why this plastic has become a favorite of prototype and design professionals throughout the world. Pot life is 20 minutes and cure time is 16 hours at 73°F/23°C.

Vibrant colors and color effects are possible by adding SO-Strong® color tints. Fully cured models made from **TASK® 4** are tough, durable, machinable and paintable. They resist moisture and mild solvents. Applications for **TASK® 4** include making prototype and architectural models, model toys, durable miniatures, ultra-thin mechanical parts and special effect props.

PROCESSING RECOMMENDATIONS

PREPARATION... Materials should be stored and used in a warm environment (73° F / 23° C). This product has 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 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.

MEASURING & MIXING...

Measuring - The proper mixing ratio of **TASK® 4** is 100 Parts A to 100 Parts B by weight. You must use an accurate scale (gram scale or triple beam balance scale) to weigh these components properly. Dispense the required amount of Part A into a mixing container. Weigh out the appropriate amount of Part B and combine with Part A.

Mixing - Materials should be stored and used in a warm environment (73° F / 23° C). **You must stir Part A & Part B before using.** Add Part A to Part B and mix thoroughly. Stir slowly and 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 container.

If tinting or pigmenting **TASK® 4**, add the tint or pigment dispersion to Part B and mix thoroughly before adding Part A.

TECHNICAL OVERVIEW

Mix Ratio: 100A:100B by weight

Mixed Viscosity, cps: 250 (ASTM D-2393)

Specific Gravity, g/cc: 1.167 (ASTM D-1475)

Specific Volume, cu. in. /lb.: 23.9 (ASTM D-1475)

Pot Life: 20 min. @ 73° F / 23°C ** (ASTM D-2471)

Cure time: 16 hours @ 73° F / 23°C **

Color: Ivory

Shore D Hardness: 83 (ASTM D-2240)

Ultimate Tensile, psi: 6,500 (ASTM D-638)

Tensile Modulus, psi: 130,000 (ASTM D-638)

Elongation @ Break: 4% (ASTM D-638)

Flexural Strength, psi: 9,000 (ASTM D-790)

Flexural Modulus, psi: 204,000 (ASTM D-790)

Compressive Strength, psi: 7,400 (ASTM D-695)

Heat Deflection Temp: 110°F/45°C (ASTM D-648)

Compressive Modulus, psi: 75,000 (ASTM D-695)

Shrinkage, in./in.: 0.0035 (ASTM D-2566)

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

** Depending on mass

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.

POURING, CURING & PERFORMANCE...

Pouring - If casting TASK® 4 into a rubber mold, pour mixture in a single spot at the lowest point of the mold. If encapsulating an object, do not pour the mixture directly over the object.

Pour mixture in a single spot at the lowest point of the mold. If encapsulating an object, do not pour the mixture directly over the object. Let the mixture seek its level. A uniform flow will help minimize entrapped air.

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/cm²) air pressure for 16 hours.

Curing - For most applications, room temperature curing at 73°F (23°C) for 16 hours is adequate. Castings will reach ultimate physical properties at room temperature in 7 days.

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.

Post Curing - Castings will reach “full cure” faster and achieve maximum physical properties and heat resistance if TASK® 4 is post cured. Post curing is recommended if castings are thin or of low mass concentration. Castings should be post cured in a mold or support structure. Allow the material to cure for 6 - 8 hours at room temperature followed by 16 hours at 150 - 160°F (65 - 72°C). The casting or part should be allowed to cool to room temperature before handling.

Performance - Cured castings of TASK® 4 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). Castings can be displayed outdoors after priming and painting.

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.

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