Smooth-Cast® 380

High Density Urethane Tooling Resin

www.smooth-on.com

PRODUCT OVERVIEW

Smooth-Cast® 380 is a filled, high density casting resin formulated for a variety of tooling applications. This no-odor resin features a convenient **1A:1B mix ratio** by volume, a 6 minute pot-life and cure time of about 60 minutes depending on mass and temperature. Low viscosity ensures minimal bubble entrapment and long term shrinkage of cured resin is very low. Cured material is very strong can be machined, drilled, sanded, etc. Color can be added with SO-Strong® color tints.

PROCESSING RECOMMENDATIONS

Preparation - Store and use at room temperature (73°F/23°C). These products have a limited shelf life and should be used as soon as possible. Environmental humidity should be as low as possible. The Part B of this material is moisture sensitive, using XTEND-IT® dry gas blanket in the material containers will help reduce the risk of moisture contamination. Good room size ventilation is essential. Wear safety glasses, long sleeves and rubber gloves to minimize contamination risk.

TECHNICAL OVERVIEW

Mix Ratio: 1A:1B by weight or volume	
Mixed Viscosity, cps: 1,140	(ASTM D-2393)
Specific Gravity, g/cc: 1.74	(ASTM D-1475)
Specific Volume, cu. in. /lb.: 15.9	(ASTM D-1475)
Pot Life: 6 minutes *	(ASTM D-2471)
Demold Time: 60 minutes *	
Color: Tan	
Shore D Hardness: 82	(ASTM D-2240)
Ultimate Tensile, psi: 3,550	(ASTM D-638)
Tensile Modulus, psi: 490,000	(ASTM D-638)
Elongation @ Break: 1.43%	(ASTM D-638)
Flexural Strength, psi: 4,870	(ASTM D-790)
Flexural Modulus, psi: 315,000	(ASTM D-790)
Compressive Strength, psi: 7,860	(ASTM D-695)
Heat Deflection Temp: 125°F/53°C	(ASTM D-648)
Compressive Modulus, psi: 126,000	(ASTM D-695)
Shrinkage, in./in.: 0.0025 in./in.	(ASTM D-2566)

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

Applying A Release Agent - A release agent is necessary to facilitate demolding when spraying 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. Most silicone rubber molds usually do not require a release agent. Using a release agent, however, will prolong the life of the mold.

IMPORTANT: Apply release agent to all surfaces that will contact the rubber. 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 15 minutes.

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.

MIXING & MEASURING...

Mixing - Material is heavily filled and the filler will separate from the liquid during storage. **YOU MUST STIR BOTH PART A & PART B WELL BEFORE USING - It is important to stir both Parts A & B individually with a paddle or power drill mixer to re-disburse the fillers thoroughly before dispensing.** After dispensing equal amounts of Parts A and B into mixing container, **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 the container. **Remember,** Smooth-Cast® 380 **sets up quickly. Do not delay between mixing and pouring.**

POURING & CURING...

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.

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 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.

Be careful.

Part A (Yellow 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 B, follow precautions for handling isocyanates. If machining cured castings, wear dust mask or other apparatus to prevent inhalation of residual particles.

Part B (Blue Label) contains methylene diphenyldiisocyanate. Vapors, which can be significant if prepolymer is 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.

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.

Curing - Warning: Fumes, which may be visible as this product starts to "gel" and cure, will dissipate with adequate ventilation. Castings will be extremely hot immediately following cure and may burn the skin. Let cool to room temperature before handling. Smooth-Cast® 380 is ready for demold in about two hours depending on mass and mold configuration.

POST CURING & PERFORMANCE...

Post Curing - Although not necessary, post curing will increase physical properties and material performance. If using as a vacuum form mold, post curing is recommended. After curing at room temperature, expose material in the mold to 150°F/65°C for 4 – 6 hours. Let cool to room temperature before use.

Performance - Cured castings are heavy, very hard 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 castings, wear dust mask or other apparatus to prevent inhalation of residual particles. Castings can be displayed outdoors after priming and painting. Unpainted castings will darken after being exposed to UV light. Because no two applications are 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.