

# Simpact™ Series

## Tough, Fast Setting Urethanes



www.smooth-on.com

### PRODUCT OVERVIEW

Simpact™ Series urethanes are low odor, fast-setting urethane elastomers which offer very high tear strength, impact resistance and wear resistance. Simpact™ urethanes are phthalate free, mercury free and MOCA free. Simpact™ urethanes pour easily. Simpact™ urethanes have fast handling times, allowing them to be demolded quickly. **Full cure time is 48 hours at room temperature.**

Cured rubber has exceptional performance characteristics and dimensional stability. Simpact™ urethanes can be colored with SO-Strong™, UVO™ or Ignite™ colorants. Simpact™ urethanes are suitable for making impact resistant props, dimensionally stable prototypes and rubber mechanical parts. Simpact™ 80A offers exceptional UV resistance and can be combined with URE-FIL™ 13 to create high strength simulated vines, branches, etc. for zoos and other themed environments. See separate **Vine Making** bulletin for instructions.

### TECHNICAL OVERVIEW

	A:B Mix Ratio by Weight	A:B Mix Ratio by Volume	Mixed Viscosity (ASTM D-2393)	Specific Gravity (g/cc) (ASTM D-1475)	Specific Volume (cu. in./lb.) (ASTM D-1475)	Pot Life	Handling Time	Shore A Hardness (ASTM D-2240)*	Tensile Strength (psi) (ASTM D-412)*	100% Modulus (psi) (ASTM D-412)*	Elongation at Break (ASTM D-412)*	Die C Tear Strength (pli) (ASTM D-624)*	Color
Simpact™ 60A	100A:94B	1A:1B	1100 cps	1.08	25.7	4 min.	2 hrs.	60A	990	312	400%	142	White
Simpact™ 80A	100A:60B	N/A	2000 cps	1.09	25.4	15 min.	4 hrs.	80A	2295	1213	164%	182	Amber
Simpact™ 85A	85A:100B	N/A	1100 cps	1.09	25.4	4 min.	2 hrs.	85A	1573	1213	164%	182	Off-White

**Full Cure Time:** 48 Hours (73°F/23°C)

**Shrinkage** (ASTM D-2566): < .007 in./in.

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

### PROCESSING RECOMMENDATIONS

**PREPARATION...** These products have a limited shelf life and should be used as soon as possible. This material should be stored and used at room temperature (73°F/23°C). This material is moisture sensitive, so relative humidity should be below 50%. Wear safety glasses, long sleeves and rubber gloves to minimize contamination risk. Room size ventilation is necessary.

**These materials may congeal if exposed to cold temperatures. To reconstitute, Part A & B must be heated to 90°F (33°C) then thoroughly mixed to an even consistency.**

**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 material.

**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.

**Selecting A Mold Rubber** - Pour into a urethane rubber mold (release agent required) or a silicone rubber mold. To prevent cure inhibition, post-cure newly made tin silicone molds for 8 hours at 150°F/65°C and let cool prior to casting. If you are unsure about surface compatibility, a trial casting should be made.

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.

## Safety First!

The Material Safety Data Sheet (SDS) 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 of Simpack 60A and 95A** is an MDI prepolymer. Vapors, which can be significant if material is heated or sprayed, 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 seek immediate medical attention. Remove from skin with waterless hand cleaner followed by soap and water. Prepolymers contain trace amounts of MDI which, if ingested, must be considered a potential carcinogen. Refer to SDS.

**Part A of Simpack 80A** Part A is a modified aliphatic diisocyanate. Vapors, which can be significant if heated or sprayed, 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 seek immediate medical attention. Remove from skin with waterless hand cleaner followed by soap and water. Refer to SDS.

**Part B** is irritating to the eyes and skin. If contaminated, flush eyes with water for 15 minutes and seek 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 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 resulting in bubbles in the cured rubber. Mixing tools and containers should be clean and made of metal or plastic.

**CAUTION: Simpack™ 80A is for industrial use only. With adequate local exhaust ventilation, respiratory protection is not normally required when using this product. Where risk assessment shows air-purifying respirators are appropriate, follow OSHA respirator regulations and European Standards EN 141, 143 and 371. If breathing is affected or a dermal rash develops, immediately cease using this product and seek medical attention. Read SDS before using.**

**Shelf life of product is drastically reduced after opening.** Immediately replacing the lids on the containers after dispensing product will prolong the shelf life of the unused product. XTEND-IT™ Dry Gas Blanket (available from Smooth-On) will prolong the shelf life of unused liquid urethane products.

**IMPORTANT:** Pre Mix the Part B before using every time.

**Measuring - Simpack™ 60 is mixed 1A:1B by volume. Simpack™ 80 and Simpack™ 85 must be mixed by weight. You must use an accurate digital gram scale when weighing Simpack™ 80 and Simpack™ 85.** Dispense the required amount of Part A and Part B into a mixing container.

**Hand Mixing** - After dispensing the required amounts of Parts A and B into mixing container, mix thoroughly for at least 60 seconds making sure that you scrape the sides and bottom of the mixing container several times. Pour entire quantity into a new, clean mixing container and mix again as directed above.

**Mechanical Mixing** - drill mix using a Turbine mixer or equal for 30 seconds followed by careful hand mixing for 30 seconds as directed above. Then, pour entire quantity into a new, clean mixing container and repeat mixing procedure.

**Be Aware** - Simpack™ urethanes have a short pot life. Do not delay between mixing and pouring. Pot life at elevated temperatures will be less.

Although this product is formulated to minimize air bubbles when cured, vacuum degassing will further reduce entrapped air. A pressure casting technique using a pressure chamber can yield totally bubble free castings. Contact Smooth-On or your distributor for information about vacuum degassing or pressure casting.

## POURING, CURING, & PERFORMANCE...

**Pouring** - For best results, pour your mixture in a single spot at the lowest point of the containment field. Let the rubber seek its level. **A uniform flow will help minimize entrapped air.**

**Curing** - Allow casting to cure based on the handling time at room temperature (73°F/23°C) before demolding. Do not cure rubber in temperatures less than 65°F/18°C. This material will reach full cure in 48 hours at 73°F/23°C.

**Heat Curing** - Allow casting to cure for 48 hours at room temperature (73°F/23°C). Heat cure casting at 140°F/60°C for 6 hours. Allow casting to cool to room temperature before handling.

**Performance & Storage** - Fully cured rubber is tough, durable and will perform if properly used and stored. The physical life of the rubber depends on how you use it. Contact Smooth-On directly with questions about this material relative to your application.



**Call Us Anytime With Questions About Your Application.**

**Toll-free: (800) 381-1733 Fax: (610) 252-6200**

[www.smooth-on.com](http://www.smooth-on.com) is loaded with information about mold making, casting and more.