

ReoFlex™ Series

Liquid Urethane Rubbers



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PRODUCT OVERVIEW

ReoFlex™ urethane rubbers offer superior physical and performance properties for production casting of wax, plasters, and resins. ReoFlex™ urethanes are available in 20A, 30A, 40A, 50A and 60A Shore hardnesses and feature convenient one-to-one by volume mix ratios. Vacuum degassing is not necessary and ReoFlex™ rubbers cure with negligible shrinkage to a durable rubber that will last in production. ReoFlex™ “Wet” rubbers will shrink somewhat over time vs. “Dry” formulations.

ReoFlex™ mold rubbers are used for a variety of applications including making molds to reproduce sculpture and architectural elements, as well as for making special effects, toys and prototypes. Vibrant colors can be achieved by adding So-Strong™ Color Tints, available from Smooth-On.

Casting Concrete? Look into the VytaFlex™ series of urethane mold rubbers. VytaFlex™ urethanes were formulated specifically for casting concrete / pigmented concrete and feature Smooth-On's exclusive 'V-Polymer™' technology.

TECHNICAL OVERVIEW

| | A:B Mix Ratio by Volume | A:B Mix Ratio by Weight | Mixed Viscosity (ASTM D-2393) | Specific Gravity (g/cc) (ASTM D-1475) | Specific Volume (cu. in./lb.) | Color | Shore A Hardness (ASTM D-2240) | Tensile Strength (ASTM D-412*) | 100% Modulus (ASTM D-412*) | Elongation at Break % (ASTM D-412*) | Die C Tear Strength (ASTM D-624*) |
|-------------|----------------------------|----------------------------|----------------------------------|--|----------------------------------|-----------|-----------------------------------|-----------------------------------|-------------------------------|---|--------------------------------------|
| ReoFlex™ 20 | 1:1 pbv | 1:1 pbw | 1,800 cps | 1.01 | 27.3 | Off-White | 20A | 200 psi | 27 psi | 1,000% | 60 pli |
| ReoFlex™ 30 | 1:1 pbv | 1:1 pbw | 1,500 cps | 1.01 | 27.5 | Off-White | 30A | 450 psi | 67 psi | 1,000% | 82 pli |
| ReoFlex™ 40 | 1:1 pbv | 1:1 pbw | 1,500 cps | 1.02 | 27.2 | Off-White | 40A | 490 psi | 73 psi | 1,000% | 85 pli |
| ReoFlex™ 50 | 1:1 pbv | 1:1 pbw | 2,000 cps | 1.01 | 27.4 | Off-White | 50A | 580 psi | 152 psi | 435% | 120 pli |
| ReoFlex™ 60 | 1:1 pbv | 1:1 pbw | 1,800 cps | 1.04 | 26.7 | Off-White | 60A | 782 psi | 256 psi | 581% | 132 pli |

***Pot Life: ReoFlex™ 20, 30, 40:** 30 minutes
ReoFlex™ 50, 60: 50 minutes

***Cure Time:** Overnight/16 hours
Shrinkage: < .001 in./in.

* Values measured at room temperature (73°F/23°C)

PROCESSING RECOMMENDATIONS

START BY PREPARING YOUR MODEL...

Preparation - Store and use at room temperature (73°F/23°C). Environmental humidity should be as low as possible. Good ventilation (room size) is necessary. This product has a limited shelf life and should be used as soon as possible. Wear safety glasses, long sleeves and rubber gloves to minimize contamination risk. All liquid urethanes will react with moisture in the air, causing bubbles. Use in a low humidity environment (below 50% RH). Mixing containers should have straight sides and a flat bottom. Mixing sticks should be flat and stiff with defined edges for scraping the sides and bottom of your mixing container.

Some Materials Must Be Sealed - To prevent adhesion between the rubber and model surface, models made of porous materials (gypsum plasters, concrete, wood, stone, etc.) must be sealed prior to applying a release agent. SuperSeal™ or One Step™ (available from Smooth-On) is a fast drying sealer suitable for sealing porous surfaces without interfering with surface detail. Sonite™ Wax or shellac is suitable for rough contours. A high quality shellac is suitable for sealing modeling clays that contain sulfur or moisture (water based). Thermoplastics (polystyrene) must also be sealed with shellac or PVA. In all cases, the sealing agent should be applied and allowed to completely dry prior to applying a release agent.

Non-Porous Surfaces - Metal, glass, hard plastics, sulfur free clays, etc. require only a release agent.

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 is a TDI 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 TDI which, if ingested, must be considered a potential carcinogen. Refer to MSDS.

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.

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 available from Smooth-On). A liberal coat of release agent should be applied onto all surfaces that will contact the rubber.

IMPORTANT: 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 30 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.**

MEASURING & MIXING...

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

IMPORTANT: Stir Part B thoroughly before dispensing. After dispensing equal amounts of Parts A and B into mixing container, mix thoroughly for at least 3 minutes making sure that you scrape the sides and bottom of the mixing container several times.

If Mixing Large Quantities (16 lbs./7 kgs. or more) at one time, use a mechanical mixer (i.e. Squirrel Mixer or equal) for 3 minutes followed by careful hand mixing for one minute as directed above. Then, pour entire quantity into a new, clean mixing container and do it all over again.

Although this product is formulated to minimize air bubbles in your the cured rubber, vacuum degassing prior to pouring rubber will further reduce entrapped air.

POURING, CURING & PERFORMANCE...

For best results, pour your mixture in a single spot at the lowest point of the containment field. Let the rubber seek its level up and over the model. A **uniform flow will help minimize entrapped air.** The liquid rubber should level off at least 1/2" (1.3 cm) over the highest point of the model surface.

Curing - Allow rubber to cure overnight (at least 16 hours) at room temperature (73°F/23°C) before demolding. Cure time can be reduced with mild heat or by adding Smooth-On "Kick-It™" Cure Accelerator. Do not cure rubber where temperature is less than 65°F/18°C.

Post Curing - Optional...Following an overnight cure, heating the rubber to 150°F (65°C) for 4 to 8 hours will increase physical properties and performance.

Using The Mold - If using as a mold material, a release agent should be applied to the mold before each casting. The type of release agent to use depends on the material being cast. The proper release agent for **wax, liquid rubber or thermosetting materials** (i.e. Smooth-On liquid plastics) is a spray release made specifically for mold making (available from Smooth-On or your distributor). Prior to casting **gypsum plaster materials**, sponge the mold with a soap solution for better plaster flow and easy release.

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.



Call Us Anytime With Questions About Your Application

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

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