



# VytaFlex<sub>™</sub> Series

## Liquid Urethane Rubbers

### PRODUCT OVERVIEW

Using Smooth-On's exclusive "V-Polymer" technology, **VytaFlex<sub>™</sub>** urethane rubbers are "next generation" products to our popular Reoflex Series and offer superior physical and performance properties. **VytaFlex<sub>™</sub>** urethanes are available in 10A, 20A, 30A, 40A, 50A and 60A Shore hardness's and feature convenient one-to-one by volume mix ratios. Vacuum degassing is not necessary and **VytaFlex<sub>™</sub>** rubbers cure with negligible shrinkage to a durable rubber that will last in production.

**VytaFlex<sub>™</sub> 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. They will meet the stringent demands of production casting of concrete, plasters, and other materials. Vibrant colors can be achieved by adding So-Strong<sub>™</sub> Color Tints, available from Smooth-On.

**VytaFlex<sub>™</sub> mold rubbers** work especially well for casting pigmented / colored concrete or gypsum. Molds made with VytaFlex<sub>™</sub> Series urethanes will render accurate and uniform colored castings.

### TECHNICAL OVERVIEW

	Shore A	Mix Ratio	Color	Spec. Vol.	Spec. Grav.	Mixed Viscosity	Tear (C)	Elong. At Break	Tensile Strength
<b>VytaFlex 10</b>	10	1:1 pbv	Off-White	27.9	1.00	3,100 cps.	30 pli	1,000 %	160 psi
<b>VytaFlex 20</b>	20	1:1 pbv	Clear Amber	27.7	1.00	1,000 cps	58 pli	1,000%	200 psi
<b>VytaFlex 30</b>	30	1:1 pbv	Off-White	27.3	1.02	1,800 cps	78 pli	1,000%	500 psi
<b>VytaFlex 40</b>	40	1:1 pbv	Off-White	26.9	1.03	2,000 cps	82 pli	660%	522 psi
<b>VytaFlex 50</b>	50	1:1 pbv	Off-White	26.7	1.04	2,000 cps	102 pli	400%	588 psi
<b>VytaFlex 60</b>	60	1:1 pbv	Off-White	26.6	1.04	2,000 cps	136 pli	480%	880 psi

~ Pot Life\* VytaFlex 10, 20, 30, 40: 30 minutes

~ Cure Time/Demold\*: Overnight / 16 hours

Shrinkage: Negligible

~ Pot Life: VytaFlex 50, 60: 60 minutes

\*Values measured at room temperature (72°F/23°C).

### Start By Preparing Your Model -

**Preparation . . .** Store and use at room temperature (72°F/23°C). Environmental humidity should be as low as possible. Good ventilation (room size) is essential. Wear long sleeve garments and rubber gloves to minimize skin contact.

**Some Materials Must Be Sealed . . .** Urethanes are adhesive. 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<sub>™</sub> (available from Smooth-On) is a fast drying sealer suitable for sealing porous surfaces without interfering with surface detail. Sonite Wax or high-grade shellac is suitable for rough contours. Modeling clays that contain sulfur or water should be sealed with high-grade spray shellac. 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.

**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. **IMPORTANT:** Shelf life of product is drastically reduced after opening. Remaining product should be used as soon as possible. Immediately replacing the lids on both containers after dispensing product will 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.

**Important: Pre-Mix the Part B before using.** 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 (72 F/23 C) before demolding. Vytaflex<sub>m</sub> 10 should cure for 24 hours 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. **In & Out II Concrete Release Concentrate** (available from Smooth-On) is recommended for releasing abrasive materials like **concrete**.

**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.

### *Safety First!*

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*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.

**For Technical Help: Tel. (800) 762-0744 Fax. (610) 252-6200 Website: [www.smooth-on.com](http://www.smooth-on.com)**

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