



# EVERGREEN™ Series

Isocyanate Free Liquid Urethane Rubbers

## PRODUCT OVERVIEW

The EVERGREEN™ Series of liquid urethane rubbers represents a new direction in urethane rubber technology. These urethanes are isocyanate free and contain no free TDI, MDI, MOCA or MERCURY (*contains no suspected carcinogens*). Each has a very low viscosity (no vacuuming necessary) for minimal bubble entrapment. They also feature a convenient one-to-one by volume mix ratios (except the 60A, which is 2A:1B by volume) and cure with negligible shrinkage.

**Compared to other urethanes, this rubber exhibits superior release characteristics when casting polyester, urethane and other types of resins.**

**Shore Hardness Range: 10A, 20A, 30A, 40A, 50A & 60A .**

Soft  $\xrightarrow{\hspace{2cm}}$  Medium

Do Not Cast Wax – Evergreen rubbers will leave the surface of wax castings tacky.

The EVERGREEN™ Urethanes are suitable for a variety of applications and can be used to cast urethane, polyester or epoxy resins, gypsum plasters and concrete. Also good for industrial parts, special effects, etc.

## TECHNICAL OVERVIEW

	Shore A	Mix Ratio By Volume	Color	Spec. Vol.	Spec. Grav.	Viscosity	Tear(pli)	Elong/Break	Tensile	Compr. Set
Evergreen 10	10	1A:1B	Off-White	27.4	1.01	600 cps	>25 pli	>1,000 %	200 psi	15.40%
Evergreen 20	20	1A:1B	Blue	27.1	1.024	1,000 cps	>30 pli	>650 %	250 psi	10.80%
Evergreen 35	35	1A:1B	Cl. Amber	27	1.00	1,000 cps	>300 pli	>400%	300 psi	13.60%
Evergreen 40	40	1A:1B	Red	26.7	1.036	1,000 cps	>70 pli	>500%	500 psi	18%
Evergreen 50	50	1A:1B	Off-White	26.9	1.03	1,400 cps	>100 pli	>450%	500 psi	23.80%
Evergreen 60	60	2A:1B	Tr. Yellow	26.5	1.046	2,000 cps	>100 pli	>500%	650 psi	35.40%
~Pot Life: 30 Minutes			~Cure Time/Demold: 16 Hours			Shrinkage: Negligible				

### Start By Preparing Your Model -

**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™** (available from TCS, Inc) will have minimal effect on surface detail and texture. **Modeling clays** that contain sulfur (Roma Plastalina) or moisture must also be sealed. **SuperSeal™**, spray shellac or PVA are suitable sealing agents. Sulfur-free and non-water based clays require release agent only. **In all cases**, the sealing agent should be applied and allowed to completely dry prior to applying a release agent.

**Applying A Release Agent . . .** Although Evergreen exhibits good release properties, a release agent is recommended to facilitate demolding when casting into or over most surfaces. Use a release agent made specifically for mold making (**Universal Mold Release™** or **Ease Release 200™** available from TCS, Inc). 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. **If there is any question** about the effectiveness of a sealer/release agent combination, a small-scale test should be made on an identical surface for trial.

### **Measuring & Mixing . . .**

Liquid urethanes are **moisture sensitive** and will absorb atmospheric moisture. Mixing tools and containers should be clean and made of metal, glass or plastic. Materials should be stored and used in a warm environment (72° F / 23° C). **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 TCS, Inc) 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 cured mold, vacuum degassing will further reduce entrapped air. A pressure casting technique using a pressure chamber can yield totally bubble free castings. Contact TCS, Inc for further information about vacuum degassing or pressure casting.

### ***Pouring***

### ***Curing***

### ***Mold 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 the mold to cure overnight (at least 16 hours) at room temperature (77°F/25°C) before demolding. Do not cure rubber where temperature is less than 65°F /18°C. Post curing the rubber in an oven at 150°F / 65°C for 4 - 6 hours will improve physical properties of the rubber.

**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 **liquid rubber, urethane resins** (i.e. Smooth-On liquid plastics), **polyester or epoxy resin** is **Universal Mold Release<sup>™</sup>** (available from TCS, Inc). Prior to casting **gypsum plaster materials**, sponge the mold with a soap solution for better plaster flow and easy release. **In & Out Water Based Release Concentrate** (available from TCS, Inc) is recommended for releasing abrasive materials like **concrete**.

**Mold Performance & Storage -** The physical life of the mold depends on how you use it (materials cast, frequency, etc.). Casting abrasive materials such as concrete will eventually erode mold detail, while casting non-abrasive materials (wax) will not affect mold detail. Before storing, the mold should be cleaned with a soap solution and wiped fully dry. Two part (or more) molds should be assembled. Molds should be stored on a level surface in a cool, dry environment. Do not stack molds, expose them to moisture or UV light.

*The Material Safety Data Sheet (MSDS) for this or other product should be read prior to use and is available at [www.SCULPT.com](http://www.SCULPT.com). All Smooth-On products are safe to use if directions are read and followed carefully.*

**Be careful.** If contaminated, flush eyes with water for 15 minutes and seek immediate medical attention. Remove from skin with soap and water Refer to MSDS. **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.

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

Phone: (212) 367-7561

Fax: (212) 243-6374

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