

# Mold Max<sup>®</sup> XLS<sup>®</sup> II

## eXtra Low-Shrinkage Tin Cure Silicone Rubber



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### PRODUCT OVERVIEW

Mold Max<sup>®</sup> XLS<sup>®</sup> II is a Shore 30A tin-catalyzed silicone rubber that exhibits very low long-term shrinkage. XLS<sup>®</sup> II molds last longer than other silicones in production when casting chemically harsh resins such as epoxies and polyesters as well as urethane foams. Mix ratio is 100A:10B by weight. Pot life is 40 minutes and cure time is 24 hours at room temperature. **Mold Max<sup>®</sup> XLS<sup>®</sup> II** silicone will reproduce the finest detail and is suitable for a variety of industrial and art related applications including making production molds for, reproducing prototypes, furniture, sculpture and architectural elements. **Mold Max<sup>®</sup> XLS<sup>®</sup> II** can be thickened with THI-VEX<sup>®</sup> II additive for brush-on applications.

Mold Max<sup>®</sup> XLS<sup>®</sup> II silicone can be used to cast a variety of materials including concrete, wax, gypsum, low melt alloys/metals, epoxy or polyester resins (without using a release agent) and urethane foams.

### TECHNICAL OVERVIEW

Mix Ratio: 100A : 10B by weight

Mixed Viscosity, cps: 30,000 cps (ASTM D-2393)

Specific Gravity, g/cc: 1.22 (ASTM D-1475)

Specific Volume, cu. in./lb.: 22.7 (ASTM D-1475)

Pot Life: 40 minutes (73°F/23°C) (ASTM D-2471)

Cure time: 24 hrs (73°F/23°C)

Color: Blue

Shore A Hardness: 30 (ASTM D-2240)

Tensile Strength, psi: 550 (ASTM D-412)

100% Modulus, psi: 95 (ASTM D-412)

Elongation @ Break: 375% (ASTM D-412)

Die B Tear Strength, pli: 110 (ASTM D-624)

Shrinkage, in./in.: 0.001 (ASTM D-2566)

Useful Temp. Range: -65°F to 400°F (-19°C to 205° C)

Dielectric Strength, volts/mil: >360 (ASTM D-149)

Dielectric Constant, 100 Hz: 3.4 (ASTM D-150)

Dissipation Factor, 100 Hz: 0.002 (ASTM D-150)

Volume Resistivity, ohms-cm:  $9 \times 10^{15}$  (ASTM D-257)

Thermal Conductivity: 0.24 (ASTM D-1461)

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

### PROCESSING RECOMMENDATIONS

**PREPARATION... Safety** – Use in a properly ventilated area (“room size” ventilation). Wear safety glasses, long sleeves and rubber gloves to minimize contamination risk. Wear vinyl gloves only. Latex gloves will inhibit the cure of the rubber.

**Store and use material at room temperature (73°F/23°C).** Storing material at warmer temperatures will also reduce the usable shelf life of unused material. These products have a limited shelf life and should be used as soon as possible.

**Applying a Sealer / Release Agent** - Mold Max<sup>®</sup> rubber may be inhibited by sulfur based clays resulting in tackiness at the pattern interface or a total lack of cure throughout the mold. If compatibility between the rubber and the surface is a concern, a small-scale test is recommended. Apply a small amount of rubber onto a non-critical area of the pattern. Inhibition has occurred if the rubber is uncured after the recommended cure time has passed. To prevent inhibition, a “barrier coat” of clear acrylic lacquer sprayed directly onto the pattern is usually effective. Allow to thoroughly dry.

Although not usually necessary, a release agent will make demolding easier when pouring into or over most surfaces. **Ease Release<sup>®</sup> 200** is a proven release agent for making molds with silicone rubber and for releasing new silicone from cured silicone. Mann Ease Release<sup>®</sup> products are available from Smooth-On or your Smooth-On distributor.

**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...

Before you begin, pre-mix Part B thoroughly to re-disperse pigments that may have settled. After dispensing required amounts of Parts A and B into mixing container, **mix thoroughly for 3 minutes making sure that you scrape the sides and bottom of the mixing container several times.** After mixing parts A and B, **vacuum degassing is recommended** to eliminate any entrapped air in Mold Max<sup>®</sup> XLS<sup>®</sup> II. Vacuum material for 2-3 minutes (29 inches of mercury), making sure that you leave enough room in container for product expansion.

## 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.

### Keep Out of Reach of Children

**Be careful** - Use only with adequate ventilation. Contact with skin and eyes may cause irritation. Flush eyes with soap and water for 15 minutes and seek immediate medical attention. Remove from skin with waterless hand cleaner followed by 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.

## 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 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 / Post Curing** - Allow the mold to cure overnight (at least 16 hrs) at room temperature (73°F/23°C) before demolding. Post curing the mold an additional 4 hours at 150°F (65°C) will eliminate any residual moisture and alcohol that is a by-product of the condensation reaction that can inhibit the cure of some urethane resins and rubbers. Allow mold to cool to room temperature before using. Do not cure rubber where temperature is less than 65°F/18°C.

**Thickening Mold Max® XLS® II For Brush-on Application** - THI-VEX® II is made especially for thickening Smooth-On's Mold Max® XLS® II silicone for vertical surface application (making brush-on molds). Different viscosities can be attained by varying the amount of THI-VEX® II. Apply a thin coat of rubber. Wait for rubber to become "tacky" before applying next coat. Final mold thickness should be at least 3/8" (1 cm). Allow rubber to cure overnight before applying support shell. See the **THI-VEX® II technical bulletin** (available from Smooth-On or your Smooth-On distributor) for full details.

**Accelerating Mold Max® XLS® II - Accel-T®** Silicone Rubber Accelerator will accelerate the cure time of Mold Max® XLS® II silicone rubber. Note: working time is reduced in proportion to the amount of Accel-T® added. See the technical bulletin for Accel-T® (available from Smooth-On or your Smooth-On distributor) for exact mix ratios and cure times. Using this accelerator will result in a shorter library life of the mold.

**Thinning Mold Max® XLS® II - Silicone Thinner®** is a non-reactive silicone fluid that will lower the mixed viscosity of tin cure (condensation) or platinum cure (addition) silicone rubbers.

**Silicone Thinner® offers the following advantages:** [1] A lower mixed viscosity (A+B) means that the rubber will de-air faster when vacuuming; [2] Mixed rubber (A+B) will flow better over intricate model detail; [3] Silicone Thinner® will lower the ultimate shore hardness (durometer) of cured silicone rubber; [4] Pot life

(working time) is increased in proportion to the amount of Silicone Thinner® used. **A disadvantage** is that ultimate tear and tensile are reduced in proportion to the amount of Silicone thinner added, however knotty tear properties of the Mold Max® Series rubbers are unaffected. **It is not recommended to exceed 10% by weight of total system (A+B).** See the **Silicone Thinner® technical bulletin** (available from Smooth-On or your Smooth-On distributor) for full details.

**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 can quickly 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.



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

**Toll-free: (800) 762-0744 Fax: (610) 252-6200**

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