



Ecoflex[®] Series

Super-Soft, Addition-Cure Silicone Rubbers

Ecoflex[™] Rubbers are platinum-catalyzed silicones that are versatile and easy to use. **Ecoflex[™] Rubbers** are mixed 1A:1B by weight or volume and cured at room temperature with negligible shrinkage. Rubber also cures without a “tacky” surface. Low viscosity ensures easy mixing and de-airing, or you can choose to mix and dispense using our convenient dispensing cartridges.

Cured rubber is very soft, very strong and very “stretchy”, stretching many times its original size without tearing and will rebound to its original form without distortion. **Ecoflex[™] Rubbers** are water white translucent and can be color pigmented with SILC Pig[®] pigments for creating a variety of color effects. You can also add Smooth-On’s “Silicone Thinner” to further lower the viscosity or add Smooth-On’s “Thi-Vex” thickening agent for brush-on application.

Soft, Softer, Softest . . . Ecoflex[™] Rubbers are based on Smooth-On’s “Dragon Skin[™]” technology and are currently available in four different hardness’s: Shore A-5, Shore 00-10, 00-30 and 00-50. They are suitable for a variety of applications including making prosthetic appliances, cushioning for orthotics and special effects applications (especially animatronics where repetitive motion is required).

•Ecoflex[™] 5 has a pot life of 1 minute and a demold time of 5 minutes – Available only in dispensing cartridges.

TECHNICAL OVERVIEW

	Shore A	Mix Ratio By Weight	Color	Pot Life	Demold Time	Specific Volume	Specific Gravity	Viscosity	Die B Tear Strength	Elongation at Break	Tensile Strength	Shrinkage
Ecoflex 5	5	1:1 pbv, pbw	Translucent Clear	1 Min.	5 Min.	25.8	1.07	13,000 cps	75 pli	1,000%	350 psi	Negligible
Ecoflex 00-50	00-50	1:1 pbv, pbw	Translucent Clear	18 Min.	3 Hrs.	25.9	1.07	8,000 cps	50 pli	980%	315 psi	Negligible
Ecoflex 00-30	00-30	1:1 pbv, pbw	Translucent Clear	45 Min.	4 Hrs.	26	1.07	3,000 cps	38 pli	900%	200 psi	Negligible
Ecoflex 00-10	00-10	1:1 pbv, pbw	Translucent Clear	30 Min.	4 Hrs.	26.6	1.04	14,000 cps	22 pli	800%	120 psi	Negligible

Preparation

Applying A Release Agent

Temperature: Store and use at room temperature (72°F / 22°C). Warmer temperatures will drastically reduce working time and cure time. 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. Wear safety glasses, long sleeves and rubber gloves to minimize contamination risk. Do not use latex gloves.

Cure Inhibition – Addition cured silicone rubber may be inhibited by certain contaminants in or on the pattern to be molded (such as latex, sulfur based clays, polyesters, certain wood surfaces, epoxies, urethane rubber and tin-cured silicone rubber) 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 gummy or uncured after the recommended cure time has passed. To prevent inhibition, a “barrier coat” of clear acrylic lacquer applied to the model surface is usually effective. **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.**

Applying A Release Agent? Although not usually necessary, a release agent will make separating cured rubber from new and other substrates. Ease Release[™] 200 is a proven release agent for making molds with silicone rubber. Mann Ease Release[™] products are available from Smooth-On or your Smooth-On distributor.

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.

Mixing

Vacuuming

Ecoflex™ 00-10, 00-30 and 00-50 can be hand mixed. The mix ratio is 1A:1B by volume. Dispense equal amounts into a mixing container and aggressively hand mix for 3 minutes, making sure that you scrape the sides and bottom of your mixing container several times. Ecoflex 5 is only available in pre-packaged 400 ml cartridges. Pre-packaged cartridges require static mixer attachment and cartridge dispensing gun.

Option: Smooth-On's Silicone Thinner is available to lower the mixed viscosity of any silicone product.

Vacuuming - After mixing parts A and B, vacuum degassing prior to pouring is recommended to eliminate any entrapped air. Vacuum material for 2 -3 minutes (29 inches of mercury), making sure that you leave enough room in container for product volume expansion.

Pouring

Curing

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.

Option: Thi-Vex may be added into Ecoflex™ 00-30 & 00-50 by weight. The recommended maximum amount of Thi-Vex mixed into Ecoflex™ 00-30 & 00-50 is 2 % by weight. Thi-Vex thickener is not compatible with Ecoflex™ 00-10.

An alternative for thickening Ecoflex 00-10, 00-30 and 00-50 is to add fumed silica (Cab-O-Sil).

Curing . . . Allow rubber to cure for at least 4 hours at room temperature (75°F/22°C) before demolding. Full physical properties are attained after 24 hours cure at room temperature. Do not cure rubber where temperature is less than 65°F /18°C.

Curing can be accelerated by applying heat. Subjecting rubber to 250°F / 121°C for 1 hour will cure rubber.

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. Use in a properly ventilated area ("room size" ventilation). Wear vinyl gloves only. Latex gloves will inhibit the cure of the rubber. 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.

**Smooth-On offers an extensive line of Liquid Rubber,
Liquid Plastic, Foam and Release Agent products for
Industrial & Art-related applications.**

**Chances are there is a distributor in your area
to offer local support.**

Toll-free: (800) 762-0744

Web: smooth-on.com