

# Econ<sup>®</sup> 60

## Urethane Rubber



www.smooth-on.com

### PRODUCT OVERVIEW

Econ<sup>®</sup> 60 is an economical and fast curing Shore 60A urethane rubber. It has no odor, features a convenient 1A:1B by volume mix ratio and a low viscosity for easy mixing and pouring.

Working time is about 6 minutes and handling time is 4 hours at room temperature. Translucent clear amber color (light passes through) makes Econ<sup>®</sup> 60 easy to color with SO Strong<sup>®</sup>, UVO<sup>®</sup> or IGNITE<sup>®</sup> colorants.

Econ<sup>®</sup> 60 is used to make **limited run production rubber molds**, stamping pads, rubber prototype parts, rubber props and pour-in-place gaskets for industrial equipment. It is also suitable for coating fabrics.

### PROCESSING RECOMMENDATIONS

#### PREPARATION...

Store and use at room temperature (73°F/23°C). Environmental humidity should be as low as possible. Good ventilation (room size) is essential. 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.

**Some Materials Must Be Sealed** - To prevent adhesion between the rubber and porous materials (gypsum plasters, concrete, wood, stone, etc.), these surfaces must be sealed prior to applying a release agent. SuperSeal<sup>®</sup> (available from Smooth-On) is a fast drying sealer suitable for sealing porous surfaces without interfering with surface detail. 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.

#### TECHNICAL OVERVIEW

Mix Ratio: 1A:1B by volume or weight	
Mixed Viscosity (cps): 1400	(ASTM D-2393)
Specific Gravity (g/cc): 1.04	(ASTM D-1475)
Specific Volume (cu. in. /lb.): 26.7	
Pot Life: 6 min. (73°F/23°C)	(ASTM D-2471)
Handling Time: 4 Hours	
Cure time: 16 hrs. (73°F/23°C)	
Color: Translucent Amber	
Shore A Hardness: 60	(ASTM D-2240)
Tensile Strength (psi): 350	(ASTM D-412)
100% Modulus (psi): 82	(ASTM D-412)
Elongation @ Break: 500%	(ASTM D-412)
Die C Tear Strength (pli): 85	(ASTM D-624)
Shrinkage (in./in.): <0.001	(ASTM D-2566)

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

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**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 separate rubber from most surfaces. Use a release agent made specifically for mold making (Universal<sup>®</sup> 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...

**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 (73°F/23°C).

**IMPORTANT: Pre Mix Part B before using.** After dispensing the proper amounts of Parts A and B into mixing container, use a straight edged paddle and mix for two minutes, making sure that you scrape the sides and bottom of the mixing container several times.

**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 an MDI 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 MDI 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.

To minimize air bubbles in the cured rubber, vacuum degassing is recommended (29 inches of mercury). A pressure casting technique using a pressure chamber can yield totally bubble-free rubber. Contact Smooth-On or your distributor for further information about vacuum degassing or pressure casting.

## ADDING COLOR TO ECON® 60...

So-Strong® UVO® or IGNITE® colorants are compatible with Econ® 60. Some test castings may have to be made until desired effect is achieved. Pre-mix color with Econ® 60 Part B before adding Part A.

## 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** - 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** - After rubber has cured at room temperature, heating the rubber to 150°F (65°C) for 4 to 8 hours will increase physical properties and performance.

**Using Econ® 60 as a 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. **AquaCon® Water Based Concrete Release Agent** (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.



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

**Toll-free: (800) 381-1733 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.