

# Poly-Fast 72-40 Liquid Rubber

# Technical Bulletin

**DESCRIPTION:** Poly-Fast 72-40 Liquid Rubber consists of two parts (A and B) that, after mixing in the correct ratio, cure at room temperature to a versatile mold rubber. This liquid rubber may be poured or thickened and applied by trowel or brush, to make tough, flexible molds. These molds are useful for casting wax or plaster.

**MODEL PREPARATION:** Poly-Fast 72-40 may be subject to cure inhibition by certain contaminants and may stick to some surfaces. If there is any question about the compatibility between the rubber and the prepared surface, a test cure should be made on an identical surface to verify that satisfactory results are obtained.

Porous models such as wood, plaster, stone, pottery or masonry must be vented from beneath to prevent trapped air from forming bubbles in the liquid rubber. They must also be sealed and then coated with a release agent. Multiple coats of paste wax dried and buffed will seal most surfaces. Potters soap can be used as a sealer for plaster. Models made of Roma Plastalina should be sealed with shellac. Other sealers, such as lacquer and paints, may be softened by Poly-Fast 72-40. CAUTION: Shellac must be thoroughly coated with release agent (i.e., Pol-Ease® 2300 Release Agent) because polyurethane rubbers bond tenaciously to shellac.

Non-porous surfaces, such as metals, plasticene, wax, ceramics, fiberglass and cured Polytek rubbers, should be coated with a release agent such as Pol-Ease® 2300 Release Agent. Some plastics, such as styrene, and coatings, such as lacquer, may be softened by Poly-Fast 72-40. These surfaces must be coated with a barrier such as Poly PVA Solution.

**MIXING AND CURING:** All materials should be at room temperature. Stir individual components before use. The proper mix ratio is 1A to 10B, by weight, and must be carefully followed. An error of 5% in the weight of either component can affect the physical properties of the cured rubber, and an error of 15% can result in a soft, poorly cured compound. Weigh Part B into a clean container, then weigh the appropriate amount of Part A on top of the Part B. While mixing, scrape the sides of the mixing container several times to ensure thorough mixing. Vacuum degassing helps to provide bubble-free molds, but is usually not necessary. Allow Poly-Fast 72-40 to cure 8 hours at room temperature, 77°F (25°C), before demolding. Ultimate properties are reached in 3 days. Curing in a warm location, up to 150°F (65°C), accelerates the cure, while a cool location slows the cure. Avoid curing in areas where the temperature is below 60°F (15°C).

Both Parts A and B react with atmospheric moisture and, therefore, should be used up as soon as possible after opening. Before resealing, Poly Purge, a heavier-than-air dry gas, can be sprayed into open containers to displace moist air and extend storage life.

**THICKENING FOR BRUSH-ON:** PolyFiber II, fine polyethylene fiber, or Fumed Silica, can be added to mixed, uncured Poly-Fast 72-40 to produce varying viscosities. Consistencies can range from that of a thin latex paint to a grease-like putty that can be spread onto a vertical surface. A liquid thickener, Part D, is also available for use with Poly-Fast 72-40. If using Part D, one part D added to

## Flexible, Polyurethane Rubber

### Why Choose Poly-Fast 72-40 Rubber?

- For sculptural applications and investment casting with wax
- Pour or brush-on with the addition of a liquid thickener
- Vary hardness with the addition of softener
- Good flow and bubble release resulting in reproduction of the finest details
- For long library life from cured molds, consider Poly 74-Series rubbers

100 parts B results in a light-cream consistency, and two parts D results in a grease-like consistency. Part D must be mixed into Part B thoroughly before Part A is added. One extra part of A must be added for each part of D that is used. Use of Part D requires careful weighing and must be handled with caution since it is corrosive.

**MOLD RELEASE:** Typically, no release agents are necessary when casting wax or gypsum in Poly-Fast 72-40 molds. When casting epoxy, urethane or polyester resins, a release agent must be used. A barrier coat, like Poly PVA Solution (top coated with a release agent), may also be necessary. Repeated contact of the rubber with solvents and oils may cause mold swelling or shrinkage.

**SOFTER MOLDS:** Add Poly-Fast 72-40 Part C to create rubber as soft as Shore A6. Part C should be weighed and thoroughly mixed with the proper amount of Part B prior to combining with Part A. Each 20 parts of Part C added to 100 parts total A + B lowers the hardness by approximately 10 to 15 Shore A points.

**CLEAN UP:** Wipe tools clean before the rubber cures. Denatured ethanol is a good cleaning solvent, but is highly flammable and must be handled with caution. Coat work surfaces with wax, Pol-Ease® 2300 Release Agent or PolyCoat so cured rubber can be removed.

**SAFETY:** Before use, read product labels and Safety Data Sheets. Follow safety precautions and directions. Use only with adequate ventilation. Contact with uncured products may cause eye, skin and

PHYSICAL PROPERTIES	
	Poly-Fast 72-40
Mix Ratio By Weight	1A:10B
Shore Hardness	A40
Pour Time (min)	30
Cured Color	Ivory
Mixed Viscosity (cP)	4,000
Specific Volume (in <sup>3</sup> /lb)	20

respiratory irritation, and dermal and/or respiratory sensitization. Avoid contact with skin and eyes. If skin contact occurs, remove with waterless hand cleaner or alcohol, and then soap and water. In case of eye contact, flush with water for 15 minutes and call physician. Poly-Fast products are not to be used where food or body contact may occur. Poly-Fast rubber burns readily when ignited.

**SHELF LIFE & STORAGE:** For best results, store products in unopened containers at room temperature (60-90°F/15-32°C). Use products within six months. Cured molds slowly soften with age. Thorough mixing of components in the proper mix ratio contributes to longer mold life as will storage of molds in a dark, cool, dry area. With proper care, 72-40 molds should not soften appreciably for 2 to 4 years. Molds should be discarded before they become too soft to handle. Do not store molds outdoors, as exposure to sunlight and standing water or moisture will cause rapid deterioration of the rubber.

**DISPOSAL:** Dispose of Poly-Fast 72-40 Liquid Rubber and cured rubber in accordance with local and federal environmental regulations. Upon disposal, liquid Part B and cured Poly-Fast 72-40 rubber are, most likely, hazardous waste owing to mercury content.

**DISCLAIMER:** The information in this bulletin and otherwise provided by Polytek® is considered accurate. However, no warranty is expressed or implied regarding the accuracy of the data, the results to be obtained by the use thereof, or that any such use will not infringe any patent. Before using, the user shall determine the suitability of the product for the intended use and user assumes all risk and liability whatsoever in connection therewith.

**Accessories:**

*Sealers & Release Agents*

- Pol-Ease® 2300 Release Agent - 12-oz can, case of 12 cans
- Pol-Ease® 2350 Release Agent - 1.5 lb, 26 lb
- Pol-Ease® 2450 Release Agent - 1.5 lb, 30 lb
- Pol-Ease® 2601 Release Agent - 2 lb, 40 lb
- Pol-Ease® 2650 Release Agent (Silicone-Free) - 1.5 lb, 35 lb
- Pol-Ease® 2500 Release Agent - 12-oz can, case of 12 cans
- PolyCoat Semi-Permanent Sealer/Release - 1qt, 1 gal
- Pol-Ease® Mold Dressing - 40 lb
- Pol-Ease® Mold Rinse - 40 lb
- Poly PVA Solution (Green or Clear) - 2 lb, 40 lb

*Softener*

- Poly-Fast 72 Part C Softener - 9 lb, 45 lb

*Thickeners*

- Poly-Fast 72 Part D Thickener - 1 pt each A + D (2.0 lb)  
*(includes extra Part A)*
- PolyFiber II - 1-gal pail, 5-gal pail, Bag (15 lb)
- Fumed Silica - 5-gal pail, Bag (~10 lb)

*Product Life Extender*

- Poly Purge Aerosol Dry Gas - 10-oz can, case of 12

*UV Stabilizer*

- UV Additive - 4-oz bottle, 1-pint bottle (1 lb)

*Reinforcement Material for Blanket Molds*

- Tietex® Fabric (40-in wide) - 10-ft sheet, 324-ft roll

POLY-FAST 72-40 - PACKAGING - 1A:10B MIX RATIO				
Kit Size (lb)	Part A		Part B	
	Weight (lb)	Volume*	Weight (lb)	Volume*
49.5	4.5	0.5 gal	45	5 gal
495	45	5 gal	450	55 gal

\*Volume measurements are approximate.