

FormRub Series Liquid Rubbers Technical Bulletin

DESCRIPTION: FormRub Series Liquid Rubbers consist of two parts (A and B), which, after mixing, cure at room temperature to flexible rubber. Molds made with FormRub are excellent for casting concrete, plaster and wax. In addition, when coated with a proper release agent, FormRub molds can be used to cast various resins and foams. FormRub Liquid Rubbers are formulated for good economy with high performance and durability.

MODEL PREPARATION: Porous models, such as wood, plaster, stone, pottery or masonry must be sealed 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. Lacquer, paint, PVA, and Pol-Ease® 2350 Release Agent also work well as sealers for many surfaces. Alternatively, PolyCoat, a sealer and semi-permanent release agent, can be used on most porous or non-porous models. Porous models must be vented from beneath to prevent trapped air from forming bubbles in the rubber.

Models made of sulfur-containing modeling clay (e.g., Roma Plastilina) should be sealed with shellac [CAUTION: When shellac is used as the sealer, it must be thoroughly coated with release agent because polyurethane rubbers bond tenaciously to shellac. In fact, uncoated shellac may be used to bond polyurethanes to certain surfaces].

Non-porous models (e.g., metals, plasticine, wax, glazed ceramics, fiberglass and polyurethanes) and sealed, porous models should be coated with a release agent such as Pol-Ease® 2300 Release Agent or PolyCoat.

If there is any question about the compatibility between the liquid mold rubber and the prepared model surface, perform a test cure on an identical surface to determine that complete curing and good release are obtained.

MIXING AND CURING: Before use, be sure that Parts A and B are at room temperature and that all tools are ready. Surface and air temperature should be above 60°F during application and for the entire curing period.

Read product labels to ascertain correct mix ratio and determine if pre-mixing of Part A or Part B component is required. Weigh Part B into a clean metal or plastic mixing container and then weigh the appropriate amount of Part A into the same container. Mix thoroughly. Hand mixing with a Poly Paddle is best to avoid mixing

Flexible Polyurethane Rubbers for Molds and Parts

Why Choose FormRub Series Rubbers?

- Soft to firm, flexible mold rubbers
- Low viscosity
- Ideal for demanding, high-production casting and forming of concrete
- Dimensionally stable and abrasion resistant -- molds can last years
- 1A:1B mix ratios

air into the rubber. While mixing, scrape the sides and bottom several times to ensure thorough mixing. Pour the rubber as soon after mixing as possible for best flow and air bubble release. Vacuum degassing helps to provide bubble-free molds, but is usually not necessary.

Allow rubber to cure at room temperature, 77°F (25°C). Carefully demold after approximately 16 hours. Final cure properties are obtained in about seven days, but molds may be used with care after curing for 24-48 hours. Heat accelerates the cure -- low temperatures slow 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 resealed or 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. For 55-gallon drums of Parts A and B, affix Drierite® cartridges on the small bung during dispensing to protect product from moist air entering the drum.

SOFTENING THE RUBBER: Add Poly 74/75 Part C Softener to FormRub for a lower viscosity mix and a softer cured rubber. When using Part C, cure time is longer and there is some loss of strength in the rubber and increased tendency to shrink after repeated castings. Determine the quantity of Part C required through experimentation.

PHYSICAL PROPERTIES				
	FormRub 35	FormRub 50	FormRub 60	FormRub 65
Mix Ratio By Weight	1A:1B	1A:1B	1A:1B	1A:1B
Shore Hardness	A35	A50	A60	A65
Pour Time, 1-lb mix (min)	15	15	22	35
Cured Color	Turquoise	Opaque Orange	Opaque Off-White/Tan	Clear Yellow/Amber
Initial Mixed Viscosity (cP)	600	800	2,000	1,500
Specific Volume (in ³ /lb)	27.2	26.6	26.6	26.6

ACCELERATING THE CURE: Cure time can be shortened with the addition of an Accelerator, such as Poly 74/75 Part X, or by adding heat. Exercise caution when using Part X since the rapid onset of gelling may trap air bubbles on or near the surface of the model. Heat also accelerates the cure. It is recommended not to exceed 140°F (60°C).

USING THE MOLD: Typically, no release agent is necessary when casting plaster or wax in FormRub molds. For casting plaster, sponge, dip or spray the mold with Pol-Ease® Mold Rinse and then pour plaster on the wet mold to reduce air bubbles in the plaster and aid release. For casting resin, first spray the mold with Pol-Ease® 2300 Release Agent or PolyCoat. For casting concrete, use a form release, such as Pol-Ease® 2650 or 2601. Avoid solvent-containing releases, since they can cause mold distortion (i.e., shrinkage or swelling).

After repeated casting with certain resins, plaster and concrete, molds may shrink slightly since these materials extract oils from the mold. The proper selection of release agent and/or barrier coat can minimize this effect. If shrinkage becomes evident, a light application of Pol-Ease® Mold Dressing can help to restore the mold to its original dimensions.

FormRub molds can last many years if stored undistorted on a flat, non-porous surface in a cool, dry location out of direct sunlight. If occasional outdoor use is required, add 0.5% UV Additive to the total mix weight to reduce the characteristic surface degradation caused by sunlight. Never store FormRub molds outside as UV exposure will eventually degrade the rubber.

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. Contact with uncured products may cause eye, skin and respiratory irritation, and dermal and/or respiratory sensitization. Avoid contact with skin and eyes. If skin contact occurs, remove with waterless hand cleaner then soap and water. In case of eye contact, flush with water for 15 minutes and call physician. Use only with adequate ventilation. FormRub products are not to be used where food or body contact may occur. FormRub rubbers burn readily when ignited.

SHELF LIFE: For best results, store products in unopened containers at room temperature (60-90°F/15-32°C). Use products within six

months. Part Bs darken with ages; but product performance is not affected.

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:

Accelerator

Poly 74/75 Part X Accelerator - 1 lb, 8 lb

Sealers & Release Agents

Pol-Ease® 2300 Release Agent - 12-oz can, case of 12

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 - 1.5 lb, 35 lb

Pol-Ease® 2500 Release Agent - 12-oz can, case of 12

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 74/75 Part C Softener - 1 lb, 8 lb, 40 lb

Product Life Extender

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

Thickeners

Fumed Silica - 5-gal Pail, Bag (~10 lb)

PolyFiber II - 1-gal Pail, 5-gal Pail, Bag (15 lb)

Reinforcement Material for Blanket Molds

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

PACKAGING

Product(s)	Kit Size	Part A	Part B
		Weight (lb) / Volume*	Weight (lb) / Volume*
FormRub 35, FormRub 50, FormRub 60, FormRub 65 Mix Ratio: 1A:1B	16.0 lb 80 lb 900 lb	8.0 / 1 gal 40 / 5 gal 450 / 55 gal	8.0 / 1 gal 40 / 5 gal 450 / 55 gal

*Volume measurements are approximate.