

# Poly GlassRub 50 Liquid Rubber

# Technical Bulletin

**DESCRIPTION:** Poly GlassRub 50 Liquid Rubber consists of two parts (A and B) that, after mixing, cure at room temperature to a flexible, clear rubber. The transparency of Poly GlassRub 50 allows the mold maker to see if air bubbles are trapped against the master or forming in the casting. Additionally, clear rubber castings or objects encapsulated in clear rubber make interesting displays or original art. Cured GlassRub may yellow slightly over time or following UV exposure. PolyColor dyes can be added to the liquid rubber to make a tinted or colored, yet still clear, rubber.

**MODEL PREPARATION:** Porous models, such as wood, plaster, stone, pottery or masonry must be sealed. 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. The properly-sealed model should then be coated with a release agent (e.g., Pol-Ease® 2300 Release Agent). 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.]

Non-porous models (e.g., metals, plasticine, wax, glazed ceramics, fiberglass and polyurethanes) should be coated with 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 temperatures should be above 60°F during application and for the entire curing period.

Poly GlassRub 50 has a mix ratio of 1A:1B. 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 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 and pressure casting the mixed liquid rubber helps to provide bubble-free molds or parts, but is usually not necessary. Pressure

## Clear Polyurethane Rubber for Transparent Molds or Parts

### Why Choose Poly GlassRub?

- Glass-like appearance (pale blue clear)
- Reproduces fine detail
- Easy-to-use formulation -- 1A:1B mix ratio
- Low-viscosity mix with excellent bubble-release
- Long working time

casting may be useful for the most complex parts that cannot be vented. Once Parts A and B containers are opened and the liquids are exposed to atmospheric moisture, small bubbles may remain in the clear rubber unless it is vacuum degassed or pressure cast.

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 16 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.

**USING A GLASSRUB MOLD:** Usually, no release agent is necessary when casting plaster or wax in GlassRub. To reduce air bubbles on a plaster casting surfaces, sponge, dip or spray the mold with Pol-Ease Mold Rinse and then pour plaster on the wet mold. Before casting resin, apply Pol-Ease 2300 Release Agent to the mold. After repeated casting with certain materials, molds may shrink slightly since oils can be extracted from the mold rubber. Use of solvent-containing release agents can cause the mold to swell upon repeated exposure. The proper selection of release agent and/or barrier coat can minimize these effects.

**CASTING WITH GLASSRUB:** GlassRub 50 can be successfully cast into polyurethane rubber molds made of GlassRub 50 or Poly 74-Series

### PHYSICAL PROPERTIES

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	Poly GlassRub 50
Mix Ratio By Weight Or Volume	1A:1B
Shore Hardness	A50
Pour Time, 1-lb mix (min)	30
Demold Time (hr)	16
Specific Gravity	1.0
Cured Color	Glass-Like/Blue-Clear
Mixed Viscosity (cP)	1,200
Specific Volume (in <sup>3</sup> /lb)	27.5

products. Release agent (e.g., Pol-Ease® 2300 Release Agent) must be properly applied to polyurethane molds before GlassRub is poured. Molds made of PlatSil® products also work well and do not require release agent. Do not pour GlassRub into tin silicone molds as slight surface inhibition can produce a tacky, partially cured surface on the GlassRub part.

**FILLERS:** Various fillers can be added to GlassRub 50 to create many different looks (e.g., marble powder). All fillers must be completely dry before use. Residual moisture in a filler can create small, undesirable air bubbles in the cured rubber.

**ENCAPSULATING OBJECTS:** When encapsulating an object in GlassRub, it is important that the object be free of air pockets, which may outgas after the rubber is poured. Porous objects should be sealed with a coat of clear Krylon® spray to prevent pinhole bubbles from forming on the surface of the object being encapsulated. Objects that sink can be suspended using ultra-fine fishing line. Objects that float can be submerged using thin wire, which can be removed when the rubber begins to gel.

**COLORS:** Add PolyColors to mixed GlassRub 50 or to Part B before mixing with Part A to create clear rubber objects of any color. Experiment with PolyColors on a small scale to determine suitability. Pigments can also be added to GlassRub 50, but the resulting rubber will not be transparent. Test pigments on a small scale first to determine their compatibility and final appearance. A small addition of a PolyColor can help to eliminate post-cure yellowing, which may occur over time or after UV exposure.

**EXTERIOR USE:** GlassRub 50 is not recommended for exterior use. Poly UV Additive can be added at 0.5 to 1% total weight to reduce the onset of yellowing upon UV exposure.

**SOFTENING THE RUBBER:** Add Poly 74/75 Part C Softener to soften GlassRub rubber. Adding 25% Part C to the total mixed weight of GlassRub 50 reduces the hardness to ~A30. Adding 50% reduces the hardness to ~A25. Make small test mixes to determine the best amount for the application. Adding Poly 74/75 Part C will slow the cure of GlassRub 50, so several days should be allowed for a complete cure. The softened rubbers can be demolded overnight, but will be fragile.

**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 that cured rubber can be easily 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 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 GlassRub 50 is not to be used where food or body contact may occur. Poly GlassRub 50 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.

**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
- 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
- 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

### PolyColor Dyes

- White, Red, Green, Yellow, Blue, Brown & Black
- 4-oz bottle (0.25 lb), 1.0 pint (1.0 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

### UV Stabilizer

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

## PACKAGING

Product(s)	Kit Size (lb)	Part A		Part B	
		Weight (lb)	Volume*	Weight (lb)	Volume*
Poly GlassRub 50 Mix Ratio: 1A:1B	4.0	2.0	1 qt	2.0	1 qt
	16.0	8.0	1 gal	8.0	1 gal
	80	40	5 gal	40	5 gal
	900	450	55 gal	450	55 gal

\*Volume measurements are approximate.