

Poly 75-Series Liquid Rubbers

Technical Bulletin

DESCRIPTION: Poly 75-Series Liquid Rubbers consist of two parts (A and B), which, after mixing, cure at room temperature to flexible rubber. Molds made with Poly 75-Series products are excellent for casting concrete, plaster and wax. In addition, Poly 75-Series molds can be used to cast various resins and foams when properly prepared. Poly 75-Series Liquid Rubbers are formulated for good economy with high performance and durability.

BEFORE USE: Thoroughly read Safety Data Sheets, product labels and the "SAFETY" section in this Technical Bulletin.

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

PRODUCT LINE FEATURES

- Firm yet flexible mold rubbers
- Ideal for demanding, high-production casting and forming of concrete
- Dimensionally stable - molds can last for years
- Abrasion resistant for long mold life
- Easy-to-use, forgiving formulations

should be above 60°F during application and for the entire curing period.

Check mix ratio. 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 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.

PHYSICAL PROPERTIES

Product	75-59	75-60	75-65	75-70	75-75	75-79	75-80	75-90
Mix Ratio By Weight	1A:1B	1A:1B	1A:1B	1A:1B	2A:1B	2A:1B	2A:1B	2A:1B
Shore Hardness	A60	A60	A65	A70	A75	A80	A80	A90
Pour Time	10 min.	10 min.	35 min.	40 min.	20 min.	20 min.	45 min.	10-15 min.
Demold Time @ 73°F	16 hr.	16 hr.	16 hr.	16 hr.	16 hr.	16 hr.	16 hr.	16 hr.
Cured Color	Amber	Amber	Yellow	Gray	Amber	Yellow	Yellow	Tan
Mixed Viscosity (cP)	2,500	1,200	3,000	3,000	4,000	2,000	5,000	6,000
Specific Volume (in ³ /lb)	27	27	27	27	26	26	26	26
Specific Gravity	1.05	1.05	1.04	1.05	1.06	1.07	1.07	1.07
Elongation (%)	588	459	550	724	722	369	468	774
Tensile Strength (psi)	637	545	520	938	1,064	655	750	1,979
Die C Tear Strength (pli)	122	103	145	299	247	143	199	368

SOFTENING THE RUBBER: Add Poly 74/75 Part C Softener to 75-Series products 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.

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. By adding 1% Poly 74/75 Part X (by weight of total mix) to Poly 75-80, the working time is reduced to approximately 10 minutes and demolding is possible in as little as 6 hours. 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 Poly 75-Series 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.

Poly 75-Series molds 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, Poly 75-59, 75-65 and 75-80 perform best and UV resistance can be improved by adding Poly UV Additive. Add 0.5% UV Additive to the total mix weight to reduce the characteristic surface degradation caused by sunlight. Never store Poly 75-Series 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, thoroughly read Safety Data Sheets and product labels. Follow safety precautions and directions.

Part A: Keep out of reach of children. Avoid breathing fumes, vapors or mists. Use with adequate general or local exhaust ventilation to minimize exposure levels. If needed, a NIOSH-approved respirator with organic vapor cartridge may be used. If inhaled and breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing. Wear impervious gloves, such as butyl rubber or nitrile rubber. Take off contaminated clothing and wash before reuse. Wash skin thoroughly with soap and water after handling. If skin irritation occurs, get medical help. Wear eye protection, such as chemical safety glasses/goggles. If in eyes, rinse cautiously with water for several minutes, removing contact lenses if present and easy to do. If eye irritation occurs, get medical help.

Part B: Keep out of reach of children. Do not breathe fumes, vapors or mists. Use with adequate general or local exhaust ventilation to minimize exposure levels. If needed, a NIOSH-approved respirator with organic vapor cartridge may be used. If inhaled, remove victim to fresh air and keep at rest in a position comfortable for breathing. Wear impervious

gloves, such as butyl rubber or nitrile rubber. Take off contaminated clothing and wash it before reuse. Contaminated work clothing should be not allowed out of the work area. Wash skin thoroughly with soap and water after handling. If skin irritation occurs, get medical help. Wear eye protection, such as chemical safety glasses/goggles. If in eyes, rinse cautiously with water for several minutes, removing contact lenses if present and easy to do. If eye irritation occurs, get medical help. If spilled, collect spillage and avoid release to the environment.

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 age, but product performance is not affected.

DISCLAIMER: The information in this bulletin and otherwise provided by Polytek® Development Corp. 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

Sealers & Release Agents:

Pol-Ease® 2300 Release Agent
Pol-Ease® 2350 Release Agent
Pol-Ease® 2450 Release Agent
Pol-Ease® 2601 Release Agent
Pol-Ease® 2650 Release Agent
Pol-Ease® 2500 Release Agent
PolyCoat Sealer & Release Agent
Pol-Ease® Mold Dressing
Pol-Ease® Mold Rinse
Poly PVA Solution (Green or Clear)

Softener:

Poly 74/75 Part C Softener

Product Life Extender:

Poly Purge Aerosol Dry Gas

Thickeners:

Poly Fiber II

UV Stabilizer:

UV Additive

Reinforcement Material:

Tietex® Fabric