

# Poly 74-Series RTV Liquid Rubbers

## Flexible, High-Strength, Polyurethane Mold Rubbers

**DESCRIPTION:** Poly 74-Series Liquid Rubbers consist of Part A and Part B, which, after mixing, cure at room temperature to flexible, high-strength, mold rubbers. Poly 74-Series Rubbers make durable, easy releasing molds for casting plasters and waxes without release agents. When coated with a proper release agent, Poly 74-Series molds are excellent for casting concrete and various resins, such as epoxy, polyester, urethane and acrylic.

**MODEL PREPARATION:** Porous models (i.e., wood, plaster, stone) must be sealed with wax, soap (plaster only), petroleum jelly, paint, PVA or shellac. Sealed or non-porous models must be coated with Pol-Ease® 2300 Release Agent or wax and allowed to dry. Alternatively, PolyCoat, a sealer and semi-permanent release agent, can be used on porous or non-porous models. Shellac-sealed models must be coated thoroughly with release agent since Poly 74-Series rubbers bond tenaciously to shellac. If there is any question about the compatibility between the rubber and the prepared model surface, perform a test cure on an identical surface to determine that complete curing and good release is obtained.

Porous models must be vented from beneath to prevent trapped air from forming bubbles in the rubber.

**MIXING AND CURING:** Several Poly 74-Series Part Bs require stirring before use (i.e., Poly 74-20, 74-29, 74-30 and 74-40). Weigh Part B into a clean metal or plastic mixing container. 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 to cure at room temperature, 77°F (25°C). Ultimate properties are reached in about seven days, but molds may be used with care after curing for 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 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 Part C Softener to 74-Series products for a lower viscosity mix and a softer rubber. When Part C is used, cure time is longer and there is some loss of strength in the rubber and increased tendency to shrink after repeated castings. To soften Poly 74-30 to Shore A15, mix 1A:1B:1C, by weight. The quantity of Part C required to soften other products varies and should be determined through experimentation.

**ACCELERATING THE CURE:** Add Poly 74/75 Part X to Poly 74-Series rubbers to accelerate the cure. Part X is most useful when making brush-on molds to decrease the time needed between coats. By adding 3% Part X (by weight of the total mix) to 74-30 or 74-29, the working time is reduced to approximately 8 minutes -- in the time it takes to mix the next batch, the previous layer gels enough to apply the next coat. Demolding is possible in as little as 4 hours after the final layer is applied. Rapid curing with Part X allows a shell or mother mold to be made in the same day. Exercise caution when using Part X for poured molds since the rapid onset of gelling may trap air bubbles on or near the surface of the master.

**THICKENING FOR BRUSH-ON:** Add Poly Fiber II or Fumed Silica to mixed Parts A and B to thicken the liquid mix to a gel for application by brush or trowel. For details, refer to Polytek's *Manual & Catalog*.

**USING THE MOLD:** Usually no release agent is necessary when casting plaster or molten wax in Poly 74-Series molds. Sparging, dipping or spraying the mold with Pol-Ease® Mold Rinse before pouring plaster in the mold reduces air bubbles in the plaster and

### PHYSICAL PROPERTIES

	74-20	74-24	74-29 (White)	74-30 (Clear & HT)	74-40	74-41	74-44	74-45	74-50	74-55
Mix Ratio, By Weight	1A:2B	1A:1B	1A:1B	1A:1B	2A:1B	1A:1B	2A:1B	1A:1B	2A:1B	4A:1B
Hardness, Shore A	20	25	30	30	40	40	45	45	50	55
Pour Time (min)	30	20	30	25-30	20	20	20	30	15	15
Color*	Yellow	Amber	Black	Varies	Varies	Amber	Gray	Yellow	Amber	Amber
Mixed Viscosity (cP)	800	2,000	2,800	2,000	3,400	2,000	3,500	2,500	2,000	4,000
Specific Vol. (in <sup>3</sup> /lb)	27.5	27.5	27.5	27.5	27.5	27.5	27.5	27.5	27.5	27.5

\* Part Bs may darken with age, but cured rubber properties are not affected.

74-Series Packaging					
Product (Mix Ratio)	Unit Weight (lb)	Unit Components			
		Part A (lb)	Part B (lb)	Part A (volume)	Part B (volume)
<b>Poly 74-20</b> Mix Ratio: 1A:2B	6	2.0	4.0	1 qt	2 x 1 qt
	24	8.0	16.0	1 gal	2 x 1 gal
	120	40.0	80.0	5 gal	2 x 5 gal
	1,350	450	900	55 gal	22 x 5 gal/2 x 55 gal
<b>Poly 74-24, 74-29, 74-29 White, 74-30, 74-30 Clear, 74-30 HT, 74-41, 74-45</b> Mix Ratio: 1A:1B	4	2.0	2.0	1 qt	1 qt
	16	8.0	8.0	1 gal	1 gal
	80	40.0	40.0	5 gal	5 gal
	900	450	450	55 gal	55 gal/11 x 5 gal
<b>Poly 74-40, 74-44, 74-50</b> Mix Ratio: 2A:1B	6	4.0	2.0	2 x 1 qt	1 qt
	24	16.0	8.0	2 x 1 gal	1 gal
	120	80.0	40.0	2 x 5 gal	5 gal
	675	450	225	55 gal	6 x 5 gal
	1,350	900	450	2 x 55 gal	55 gal
<b>Poly 74-55</b> Mix Ratio: 4A:1B	5	4.0	1.0	2 x 1 qt	1 pt
	20	16.0	4.0	2 x 1 gal	2 x 1 qt
	40	32.0	8.0	5 gal	1 gal
	100	80.0	20.0	2 x 5 gal	5 gal
	562.5	450	112.5	55 gal	3 x 5 gal

aids release. Pol-Ease® 2300 Release Agent is excellent for casting most resins. Water-based form releases, such as Pol-Ease® 2601, are preferred for concrete casting. Exposure to solvent-containing form releases should be kept to a minimum to reduce likelihood of mold distortion due to shrinkage or swelling. Shrinkage may become apparent after repeated casting with resins having strong solvating power or porous casting materials such as plaster or concrete, which can extract oils from the mold. The proper choice of release agent and/or barrier coat can minimize this effect.

Poly 74-Series molds will last many years if stored undistorted on a flat surface in a cool, dry location out of direct sunlight.

**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 or Pol-Ease® 2300 Release Agent so cured rubber can be removed.

**SAFETY:** Before use, read product labels and Material 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 or alcohol then soap and water. In case of eye contact, flush with water for 15 minutes and call physician. Use only with adequate ventilation. Poly 74-Series products are not to be used where food or body contact may occur. Poly 74-Series rubbers burn readily when ignited.

**STORAGE LIFE:** At least six months in unopened containers stored at room temperature (60-90°F).

**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.

## ADDITIVES & ACCESSORIES

### Fumed Silica

5 gal, 1 bag (10 lb)

### Pol-Ease® 2300 Release Agent

12-oz. can, case of 12 cans

### Pol-Ease® 2450 Release Agent

1 qt (2 lb), 5 gal (40 lb)

### Pol-Ease® 2500 Release Agent

12-oz. can, case of 12 cans

### Pol-Ease® 2601 Release Agent

1 qt (2 lb), 5 gal (40 lb), Drum (450 lb)

### Pol-Ease® 2650 Release Agent

1 qt (1.5 lb), 5 gal (35 lb), Drum (375 lb)

### Pol-Ease® Mold Rinse or Mold Dressing

5 gal (40 lb)

### Poly 74 Part C Softener

1 pint (1 lb), 1 gal (8 lb), 5 gal (40 lb)

### Poly 74/75 Part X Accelerator

1 pint (1 lb), 1 gal (8 lb)

### Poly PVA Solution (Green or Clear)

1 qt (2 lb), 5 gal (40 lb)

### Poly Purge™ Aerosol Dry Gas

10-oz can, Case of 12 cans

### PolyCoat

1 qt (1.5 lb), 1 gal

### Poly Fiber II

5-gal pail (~3 lb), bag (10 lb)