

Development Corp.

# 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 that, after mixing, cure at room temperature to flexible, high-strength, mold rubber. Poly 74 Series Rubbers make durable, easy releasing molds for casting plasters and waxes without release agents, but are also excellent for casting cement, epoxy, polyester, urethane and acrylic with proper release agents.

**MODEL PREPARATION:** Porous models, such as wood or plaster, must be sealed with wax, soap (for 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. If a model is sealed with shellac, it must thoroughly coated 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:** Most Poly 74 Series Part Bs require stirring before use (i.e., Poly 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.

**SOFTENING THE RUBBER:** Add Poly 74 Part C Softener to 74 Series products for a lower viscosity mix and a softer cured 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 Cab-O-Sil® 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*.

### PHYSICAL PROPERTIES

	<u>Poly 74-20</u>	<u>Poly 74-29</u> (74-29 White)	<u>Poly 74-30</u> (74-30 Clear)	<u>Poly 74-40</u>	<u>Poly 74-44</u>	<u>Poly 74-45</u>	<u>Poly 74-55</u>
Mix Ratio, By Weight	1A:2B	1A:1B	1A:1B	2A:1B	2A:1B	1A:1B	4A:1B
Hardness, Shore A	20	30	30	40	45	45	55
Pour Time (min)	30	30	30	20	20	30	15
Color*	Yellow	Black (White)	Varies (Clear)	Varies	Gray	Yellow	Clr Yellow
Mixed Viscosity (cP)	800	2,800	2,000	3,400	3,500	2,500	4,000
Specific Volume (in <sup>3</sup> /lb)	27.5	27.5	27.5	27.5	27.5	27.5	27.5
Shrinkage Upon Cure	Nil	Nil	Nil	Nil	Nil	Nil	Nil

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

**PACKAGING**

Product	Total Unit Weight	Containers			
		Size		Net Weight (lb)	
		A	B	A	B
<b>Poly 74-20</b> Mix Ratio :1A:2B	6 lb	1 qt	2x1 qt	2.0	4.0
	24 lb	1 gal	2x1 gal	8.0	16.0
	120 lb	5 gal	2x5 gal	40.0	80.0
<b>Poly 74-29, 74-30, Poly 74-30 Clear, Poly 74-45</b>	1,350 lb	55 gal	2x55 gal	450	900
	4 lb	1 qt	1 qt	2.0	2.0
	16 lb	1 gal	1 gal	8.0	8.0
	80 lb	5 gal	5 gal	40.0	40.0
<b>Poly 74-40, Poly 74-44</b> Mix Ratio: 2A:1B	900 lb	55 gal	11x5 gal	450	450
	6 lb	2x1 qt	1 qt	4.0	2.0
	24 lb	2x1 gal	1 gal	16.0	8.0
	120 lb	2x5 gal	5 gal	80.0	40.0
<b>Poly 74-55</b> Mix Ratio: 4A:1B	675 lb	55 gal	6x5 gal	450	225
	1,350 lb	2x55 gal	55 gal	900	450
	5 lb	2x1 qt	1 pt	4.0	1.0
	20 lb	2x1 gal	2x1 qt	16.0	4.0
	40 lb	5 gal	1 gal	32.0	8.0
	100 lb	2x5 gal	5 gal	80.0	20.0
	562.5 lb	55 gal	3x5 gal	450	112.5

**USING THE MOLD:** Usually no release agent is necessary when casting plaster or molten wax in Poly 74 Series molds. Sponging, dipping or spraying the mold with Pol-Ease® Mold Rinse before pouring plaster in the mold reduces air bubbles in the plaster and aids release. Pol-Ease® 2300 is an excellent release agent for 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 cement 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:** Tools should be scraped clean before the rubber cures. Denatured ethanol is a good cleaning solvent, but is highly flammable and must be handled with extreme caution. Work surfaces can be waxed or coated with Pol-Ease 2300 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 products 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.

<b>ACCESSORIES</b>
<b>Poly 74 Part C Softener</b> 1 pint (1 lb), 1 gal (8 lb), 5 gal (40 lb)
<b>Poly 74/75 Part X Accelerator</b> 1 pint (1 lb), 1 gal (8 lb)
<b>Pol-Ease® 2300 Release Agent</b> 12 oz. can, Case of 12 cans
<b>Pol-Ease® 2601 Release Agent</b> 1 qt (2 lb), 5 gal (40 lb), Drum (450 lb)
<b>Pol-Ease® Mold Rinse</b> 5 gal (40 lb)
<b>Poly PVA Solution (Green or Clear)</b> 1 qt (2 lb), 5 gal (40 lb)
<b>Poly Purge™ Aerosol Dry Gas</b> 10 oz can, Case of 12 cans
<b>Cab-O-Sil®</b> 5 gal, 1 bag (10 lb)