

# SILPAK RU-420

## Performance Polyurethane Rubber

**RU-420 A/B is a 20 shore A hardness**, polyurethane RTV elastomer that cures to a flexible rubber material with excellent tear strength and abrasion resistance. It has a 1A :2B mix ratio and low viscosity for easy processing.

### Features

- Excellent Tear Resistance and Elongation
- Low durometer for high flexibility molds
- Durable, Easy releasing molds for casting plasters and waxes without release agents
- Low-Viscosity polyurethane rubber captures detail from intricate masters.

### Applications

Applications include the following or any application where a flexible rubber part is required.

- Concrete texture and stamp pads
- Rubber molds and parts
- Casting epoxy, polyester, polyurethane resins \*\*Proper release required Pol-Ease 2300
- Prototype rubber parts

### Physical and Handling Properties

Property	Value
Color	Yellow
Mix Ratio, by weight	1A : 2B
Initial Mixed Viscosity, cP	800
Hardness, Shore A	20
Gel Time, min	20
Demold Time, hr	16
Specific Gravity	1.0
Tensile Strength, psi	220
Elongation, %	1,050
Tear Resistance, pli	45

*Values listed above are typical and not intended for use in specifications.*

## Proper Use and Safety

Read all instructions and safety data sheets prior to use. Consult safety data sheets for all recommended safety precautions.

## Master 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., MR-150, 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 MR-150, Pol-Ease® 2300 Release Agent or PolyCoat.

## Mixing

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.

Check mix ratio. Part B requires stirring before use. 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.

## Curing

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 Silpak RU-420 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 RU 420 to Shore A10, 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

Cure time can be shortened with the addition of an Accelerator, such as Poly 74/75 Part X, or by adding heat. 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 6 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. 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 Silpak RU-420 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.

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, add 0.5% UV Additive to the total mix weight to reduce the characteristic surface degradation caused by sunlight. Never store molds outside as UV exposure will eventually degrade the rubber.

## Storage & Shelf Life

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.

Part A and B must be stored in their original, tightly closed containers to protect from moisture and foreign materials. Storage area should be maintained at temperatures between 64-86°F. Use products within six months. Part Bs darken with age, but product performance is not affected. Containers should not be opened until ready or use. Once opened, storage life can be extended with the use of purging gas, such as nitrogen.

*DISCLAIMER: the information and data contained herein are based on information we believe is reliable. Each user of the material should thoroughly test application, and independently conclude satisfactory performance before commercializing. Suggestions of uses should not be taken as inducements to infringe on any patent. Silpak or Polytek Development Corp make no warranty expressed or implied, including warranties of merchantability or fitness for a particular use. Under no circumstances will Silpak or Polytek Development Corp. be liable for incidental, consequential or other damages, alleged negligence, breach of warranty, strict liability, tort, or any other legal theory arising out of the use or handling of this product.*