

SILPAK RU-470

Liquid Rubber—Urethane RTV

RU-470 A/B—70 A Shore is a liquid, two-component, Urethane Elastomer RTV that is easily processed. This system provides a flexible rubber compound. rubber. Molds are used to cast concrete, wax, and plaster parts. In addition, molds can be used to cast various resins and foams when properly prepared and release is used. Silpak RU-470 Liquid Rubber is formulated for good economy with high performance and durability.

Features

- Excellent Strength Properties
- Dimensionally Stable—Minimal Shrinkage
- Abrasion Resistant for long mold life
- Ideal for demanding, high-production casting and forming of concrete
- Easy to Process with 1 to 1 Mix Ratio

Applications

Molds are used to cast concrete, wax, and plaster parts. Also makes molds that are compatible for casting Silicone Platinum RTV. Use for making molds or rubber parts. Molds are used to cast:

- Plaster Parts
- Rubber parts
- Concrete Texture stamps and form liners
- Wax

Physical and Handling Properties

Property	Typical Value
Cured Color	Clear Yellow
Mix Ratio, by weight	1A:1B
Initial Mixed Viscosity, at 77°F, cP	3,000
Shore Harness	A70
Pour Time	90 min.
Demold Time at 73°F	16 hrs.
Specific Volume (in ³ /lb)	27
Specific Gravity	1.04
Tensile Strength, psi	422
Elongation, %	460
Die C Tear Strength (pli)	95

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

Preparation of Master

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. Pottery 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. 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. While mixing, scrape the sides and bottom several times to ensure thorough mixing while avoiding whipping in air. 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 RU-470 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 Silpak RU-470, 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 Mold

Typically, no release agent is necessary when casting plaster or wax with Silpak RU-470 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.

Silpak RU-470 molds last many years if stored undistorted on a flat, non-porous surface in a cool, dry location out of direct sunlight. Add 0.5% UV Additive to the total mix weight to reduce the characteristic surface degradation caused by sunlight. Never store Silpak RU-470 molds outside as UV exposure will eventually degrade the rubber.

Storage & Shelf Life

A and B components must be stored in their original, unopened containers at temperatures between 65°F and 85°F. Shelf life of materials when kept in unopened sealed containers, at the recommended storage conditions, is 6 months. Containers should not be opened until ready for use. Use products within six months. Part Bs darken with age, but product performance is not affected.

Proper Use and 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 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 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.

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