

PMC™-121 Series

Polyurethane Rubber Compounds



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PRODUCT OVERVIEW

The PMC™-121 Series urethane rubbers feature convenient one-to-one by volume mix ratios. PMC™-121/30 Dry and PMC™-121/30 Wet are exceptionally strong and abrasion resistant for soft urethane mold rubbers. Pick the one best suited for your application. The dry version does not exude oil and can be used for casting waxes, Smooth-On liquid plastics, gypsum plasters and other materials. The wet version exudes oil that aids in demolding hard plasters and concrete.

PMC™-121/50 is a “wet-only” mold rubber that is long lasting and durable when used in a variety of applications including reproduction of ornamental plaster, precast concrete and ceramic case molds. Note: “wet” rubber has a higher net shrinkage value vs. “dry” rubber.

PMC™-121 Series mold rubbers are easy to mix and pour and are exceptionally strong. They are suited for a variety of applications including making molds to reproduce sculpture and architectural elements, as well as for making special effects, toys and prototypes. These rubbers will meet the stringent demands of production casting of wax, plasters, concrete, resins and epoxies. Vibrant colors can be achieved by adding So-Strong™ Color Tints, available from Smooth-On.

TECHNICAL OVERVIEW

	A:B Mix Ratio by Volume	A:B Mix Ratio by Weight	Mixed Viscosity (ASTM D-2393)	Specific Gravity (g/cc) (ASTM D-1475)	Specific Volume (cu. in./lb.)	Color	Shore A Hardness (ASTM D-2240)	Tensile Strength (ASTM D-412*)	Elongation at Break % (ASTM D-412*)	100% Modulus (ASTM D-412*)	Die C Tear Strength (ASTM D-624*)
PMC™-121/30 [†]	1:1 pbv	1:1 pbw	1,800 cps	1.04	26.7	Clear Amber	30A	400 psi	1,000%	82 psi	75 pli
PMC™-121/50 ^{††}	1:1 pbv	1:1 pbw	1,400 cps	1.04	26.7	Clear Amber	50A	350 psi	500%	82 psi	85 pli

[†] Available “Dry,” or “Wet,” which exudes an oil for improved release to aid in demolding hard plasters and concrete.

^{††} Available as “Wet” Only

Pot Life: 30 minutes

Cure Time: Overnight/16 hours

Shrinkage: < .001 in./in.

* Values measured at room temperature (73°F/23°C)

PROCESSING RECOMMENDATIONS - FOR COMMERCIAL/INDUSTRIAL USE ONLY

START BY PREPARING YOUR MODEL...

Preparation - Materials should be stored and used in at room (73°F/23°C). Humidity should be low. These products have a limited shelf life and should be used as soon as possible. Wear safety glasses, long sleeves and rubber gloves to minimize contamination risk. Good ventilation (room size) is necessary. All liquid urethanes will react with moisture in the air, causing bubbles. Use in a low humidity environment (below 50% RH). Mixing containers should have straight sides and a flat bottom. Mixing sticks should be flat and stiff with defined edges for scraping the sides and bottom of your mixing container.

Some Materials Must Be Sealed - To prevent adhesion between the rubber and model surface, models made of porous materials (gypsum plasters, concrete, wood, stone, etc.) must be sealed prior to applying a release agent. SuperSeal™ or One Step™ (available from Smooth-On) are fast drying sealers suitable for sealing porous surfaces without interfering with surface detail. Shellac is suitable for rough contours. A high quality Shellac is suitable for sealing modeling clays that contain sulfur or moisture (water based). Thermoplastics (polystyrene) must also be sealed with shellac or PVA. In all cases, the sealing agent should be applied and allowed to completely dry prior to applying a release agent.

Non-Porous Surfaces - Metal, glass, hard plastics, sulfur free clays, etc. require only a release agent.

Applying A Release Agent - A release agent is necessary to facilitate demolding when casting into or over most surfaces. Use a release agent made specifically for mold making (Universal™ Mold Release available from Smooth-On). A liberal coat of release agent should be applied onto all surfaces that will contact the rubber.

IMPORTANT: To ensure thorough coverage, lightly brush the release agent with a soft brush over all surfaces of the model. Follow with a light mist coating and let dry for 30 minutes. **Because no two applications are quite the same, a small test application to determine suitability for your project is recommended if performance of this material is in question.**

IMPORTANT: Shelf life of product is reduced after opening. Remaining product should be used as soon as possible. Immediately replacing the lids on both containers after dispensing product will help prolong the shelf life of the unused product. **XTEND-IT™ Dry Gas Blanket** (available from Smooth-On) will significantly prolong the shelf life of unused liquid urethane products.

Safety First!

The Material Safety Data Sheet (MSDS) for this or any Smooth-On product should be read prior to use and is available upon request from Smooth-On. All Smooth-On products are safe to use if directions are read and followed carefully.

Be careful.

Part A is a TDI prepolymer. Vapors, which can be significant if material is heated or sprayed, cause lung damage and sensitization. Use only with adequate ventilation. Contact with skin and eyes may cause severe irritation. Flush eyes with water for 15 minutes and seek immediate medical attention. Remove from skin with waterless hand cleaner followed by soap and water. Prepolymers contain trace amounts of TDI which, if ingested, must be considered a potential carcinogen. Refer to MSDS.

Part B is irritating to the eyes and skin. If contaminated, flush eyes with water for 15 minutes and seek immediate medical attention. Remove from skin with soap and water. When mixing with Part A follow precautions for handling isocyanates.

Important: The information contained in this bulletin is considered accurate. However, no warranty is expressed or implied regarding the accuracy of the data, the results to be obtained from the use thereof, or that any such use will not infringe upon a patent. User shall determine the suitability of the product for the intended application and assume all risk and liability whatsoever in connection therewith.

MEASURING & MIXING...

Liquid urethanes are moisture sensitive and will absorb atmospheric moisture. Mixing tools and containers should be clean and made of metal, glass or plastic. Materials should be stored and used in a warm environment (73°F/23°C).

IMPORTANT: Stir Part B thoroughly before dispensing. After dispensing equal amounts of Parts A and B into mixing container, mix thoroughly for at least 3 minutes making sure that you scrape the sides and bottom of the mixing container several times.

If Mixing Large Quantities (16 lbs./7 kg. or more) at one time, use a mechanical mixer (i.e. Squirrel Mixer or equal) for 3 minutes followed by careful hand mixing for one minute as directed above. Then, pour entire quantity into a new, clean mixing container and do it all over again.

Although this product is formulated to minimize air bubbles in the cured rubber, vacuum degassing will further reduce entrapped air. A pressure casting technique using a pressure chamber can yield totally bubble free castings. Contact Smooth-On or your distributor for further information about vacuum degassing or pressure casting.

POURING, CURING & PERFORMANCE...

Pouring - For best results, pour your mixture in a single spot at the lowest point of the containment field. Let the rubber seek its level up and over the model. **A uniform flow will help minimize entrapped air.** The liquid rubber should level off at least 1/2" (1.3 cm) over the highest point of the model surface.

Curing - Allow rubber to cure overnight (at least 16 hours) at room temperature (73°F/23°C) before demolding. Cure time can be reduced with mild heat or by adding Smooth-On "Kick-IT!"™ Cure Accelerator. Do not cure rubber where temperature is less than 65°F/18°C.

Post Curing - After rubber has cured at room temperature, heating the rubber to 150°F (65°C) for 4 to 8 hours will increase physical properties and performance.

Using The Mold - If using as a mold material, a release agent should be applied to the mold before each casting. The type of release agent to use depends on the material being cast. The proper release agent for wax, liquid rubber or thermosetting materials (i.e. Smooth-On liquid plastics) is a spray release made specifically for mold making (available from Smooth-On or your distributor. Prior to casting gypsum plaster materials, sponge the mold with a soap solution for better plaster flow and easy release. In & Out™ II or Aquacon™ Water Based Release (available from Smooth-On) is recommended for releasing abrasive materials like concrete.

Performance & Storage - Fully cured rubber is tough, durable and will perform if properly used and stored. The physical life of the rubber depends on how you use it. Shrinkage will be higher with wet vs. dry rubbers. Contact Smooth-On directly with questions about this material relative to your application.



Call Us Anytime With Questions About Your Application.

Toll-free: (800) 381-1733 Fax: (610) 252-6200

www.smooth-on.com is loaded with information about mold making, casting and more.