

# PMC<sup>®</sup>-724

## Polyurethane Rubber Compound



www.smooth-on.com

### PRODUCT OVERVIEW

Used by artists and industry the world over for a variety of design, casting and special effects applications, **PMC<sup>®</sup>-724** is by far the most versatile urethane rubber compound available on the market today. It is inexpensive, mixes and pours easily, and will cure to a durable rubber with negligible shrinkage. Low viscosity ensures flawless pick-up of even the finest detail with minimal bubble entrapment.

**PMC<sup>®</sup>-724 PUTS YOU IN CONTROL!** Using optional '**Part D**', you can thicken **PMC<sup>®</sup>-724** to a paste-like consistency for vertical surface brush-on applications or for getting into those hard-to-reach undercuts. If you like to work with a more flexible rubber, optional '**Part C**' (SO-FLEX<sup>®</sup>) is available to soften **PMC<sup>®</sup>-724** all the way down to a Shore A6. Typical applications include reproducing sculpture (lost wax process), creating special effects, making fiberglass panel & part molds, on-site architectural restoration and new construction molds. A variety of colors and special effects can be achieved by adding SO-Strong<sup>®</sup> urethane colorants.

**Important:** This rubber will last and perform in production, often for hundreds of castings (depending on what you are casting into the mold). It also exhibits good physical properties and chemical resistance. But **PMC-724<sup>®</sup>** does not have a long "library life". Molds will soften and revert to a liquid within 2 – 5 years, depending on exposure to moisture. Smooth-On makes many different mold rubbers that offer a very long library life (25 years and more depending on application). Contact Smooth-On for information about its complete line of silicone and polyurethane mold rubbers.

### TECHNICAL OVERVIEW\*

Mix Ratio: 10A:100B by weight

Mixed Viscosity (cps): 4,000\*\* (ASTM D-2393)

Specific Gravity (g/cc): 1.38 (ASTM D-1475)

Specific Volume (cu. in. /lb.): 20.1

Pot Life: 20 minutes (73°F/23°C) (ASTM D-2471)

Cure time: 16 hrs (73°F/23°C)

Color: Off-White

Shore A Hardness: 40 down to 6\*\*\* (ASTM D-2240)

Tensile Strength (psi): 600 (ASTM D-412\*)

100% Modulus (psi): 80 (ASTM D-412\*)

Elongation @ Break: >700% (ASTM D-412\*)

Die C Tear Strength (pli): 90 (ASTM D-624\*)

Compression Set: 5%

Shrinkage: < .001 in./in. (ASTM D-2566)

\*These are neither minimum or maximum, but average values

\*\*Will vary depending on % of Part D thixotropic agent added

\*\*\*Will vary depending on % of Part C flexibilizer added

### PROCESSING RECOMMENDATIONS

#### START BY PREPARING YOUR MODEL...

**Preparation** - Store and use at room temperature (73°F/23°C). Material has 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.

**Some Materials Must Be Sealed** - Models should be clean and dry. Polyurethane rubbers are adhesive and will bond to many surfaces if not properly prepared. Models made of porous materials (such as plaster, concrete, wood, etc.) must be sealed prior to applying a release agent. Sonite Wax<sup>®</sup> (available from Smooth-On) is suitable for sealing porous surfaces. Apply two thin layers of wax and let dry. 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.

**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 release the cured rubber from your model. Use a release agent specifically made for mold making/casting. Smooth-On's Universal<sup>®</sup> Mold Release agent is ideal for most applications (available from Smooth-On or a Smooth-On distributor).

**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 the release agent 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.**

#### 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:** Shelf life of product is drastically reduced after opening. Immediately replacing the lids on both containers after dispensing product will prolong the shelf life of the unused product. XTEND-IT<sup>®</sup> Dry Gas Blanket (available from Smooth-On) will significantly prolong the shelf life of unused liquid urethane products.

**You must mix Part B thoroughly before you begin.** The mix ratio for this product is 1 part A to 10 parts B. You must use an accurate scale to weigh the components of PMC<sup>®</sup>-724. Use only a triple beam balance or gram scale. After dispensing the required 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 kgs. 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 PMC<sup>®</sup>-724 is formulated to minimize air bubbles in the cured mold, vacuum degassing will further reduce entrapped air. This is usually not necessary.

**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.

## POURING & CURING...

**Pouring** - For best results, pour the mixture in a single spot at the lowest point of the mold. Let the rubber seek its level, filling the detail and undercuts of your model. A uniform flow will help minimize entrapped air.

**Curing** - Allow the mold to cure overnight (at least 16 hours) at room temperature (73°F/23°C) before demolding. The mold will cure faster at higher temperatures and will cure slower at lower temperatures. Do not cure the mold where the temperature is less than 65°F/18°C.

## USING THE MOLD, PERFORMANCE & STORAGE...

**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. PMC®-724 is not suitable for production casting of concrete. We recommend Vytaflex® series rubber or other rubber that has superior abrasion resistance.

**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. Contact Smooth-On directly with questions about this material relative to your application.

**Mold Life** - PMC®-724 is not a permanent mold material and has limited library life. Cured rubber will last and perform in production, often for hundreds of castings (depending on what you are casting into the mold). However, rubber will soften with age due to ambient moisture in the air and should be discarded before becoming too soft to handle. With proper care, PMC®-724 rubber should not soften appreciably for 2-4 years.

### Safety First!

The Material Safety Data Sheet for this or any Smooth-On product should be read before using and is available upon request. All Smooth-On products are safe to use with proper handling and precautions. Read and follow directions carefully.

#### Be careful

Part A is a TDI prepolymer. Vapors, which can be significant if prepolymer is heated or sprayed, may 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 soap and water.

Prepolymers contain trace amounts of TDI which, if ingested, must be considered a potential carcinogen. Refer to the MSDS for this product. Avoid skin contact by wearing long sleeve garments and latex gloves. If skin contact is made, remove immediately with soap and water. If eye contact is made, flush eyes with water for 15 minutes and seek immediate medical attention.

**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 a patent. User shall determine the suitability of the product for its intended applications and assumes all risk and liability whatsoever in connection therewith.

## SOFTENING PMC®-724 USING "PART C" (SO-FLEX®)...

You can achieve varying degrees of hardness (all the way down to Shore A6) by adding different percentages of Part C. Part C should be weighed and must be thoroughly mixed with the appropriate amount of Part B before combining with Part A.

The table at right indicates the effect of different percentages of Part C on the Shore A hardness of the cured rubber. (Important: Use of 'Part C' to soften the rubber may shorten mold life.) \*Shore A Hardness after 72 hours at 73°F/25°C.

PARTS BY WEIGHT						Shore A Hardness*
Part B	+	Part C	+	Part A	=	
100	+	0	+	10	=	40A
100	+	20	+	10	=	25A
100	+	40	+	10	=	15A
100	+	60	+	10	=	10A
100	+	80	+	10	=	6A

## THICKENING PMC®-724 FOR BRUSH-ON APPLICATIONS USING "PART D"...

For vertical surface brush-on applications, you can attain different viscosities in the mixed uncured rubber by varying the percentage of Part D. (**Note:** Part D and Part A are available for purchase separately). Consistencies can range from that of thin latex paint to a grease-like putty which can be applied to your piece using a brush or a spatula.

Part D may be added in amounts up to 2 parts by weight per 100 parts of Part B. It must be thoroughly mixed into Part B before combining with Part A. Also, for each 1 part of Part D used, one extra part of Part A must be added as follows:

PARTS BY WEIGHT						Consistency
Part B	+	Part D (Mix Thoroughly With Part B)	+	Part A (Mix Again)	=	
100	+	1	+	11	=	Latex Paint
100	+	2	+	12	=	Grease-Like

The rubber will be applied in successive layers. After applying a layer of rubber to the model, wait 30 – 40 minutes for the rubber to become "tacky" before applying the next layer. "Tacky" means sticky to the touch, but will not come off on your gloved hand. Apply a minimum of 4 layers (3/8" – 1 cm). The pot life of mixed PMC®-724 with Part D added may be slightly shorter than without Part D. The cured rubber containing Part D is slightly harder than without Part D.



**Call Us Anytime With Questions About Your Application.**

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

The new [www.smooth-on.com](http://www.smooth-on.com) is loaded with information about mold making, casting and more.