

POR-A-MOLD[®] SX50-1

Applications

Por-A-Mold SX50-1 (PAM SX50-1) is used to make molds of detailed masters that do not contain undercuts. PAM SX50-1's physical properties make it ideal for making concrete patterns and formliners.

Characteristics

Por-A-Mold SX50-1 is a two-part polyurethane molding system. Por-A-Mold SX50-1 is mixed one-to-one by volume (or one-to-one by weight) and cures at room temperature. PAM SX50-1 cures to a hard (Shore A50 ± 2), gray rubber.

Instructions for Use

Prepare Master and Mold Housing

First, clean and dry your master thoroughly. If the master has a porous surface (clay, concrete, plaster, etc.) or is made of sulfur-based clay, you must seal it. You can use polyurethane varnish, polyurethane sealant, or paste wax to seal your master. Next, anchor your master and seal the base so that PAM SX50-1 does not leak under your master. A hot glue gun works to anchor and seal the base at the same time. Also, you should seal all of your mold housing connections with sulfur-free clay or hot glue. Then, apply an appropriate release agent (we recommend Synlube 531) to the master and interior of the mold housing. Apply release agent sparingly, while coating all surfaces of the master. Too much release agent may cover the details of the master. You should allow the release agent to dry approximately 10 minutes before you pour your mold.

Measure Curative and Prepolymer

Note: Por-A-Mold SX50-1 provides approximately 20 minutes for you to mix and pour the mold before it begins to gel.

Make sure that curative and prepolymer are room temperature before mixing them. Please note that in cold weather it may take up to 24 hours for the curative and prepolymer to reach room temperature. Using two clean, dry, plastic containers of equal size, measure equal amounts of the curative (part A) and the prepolymer (part B).

Mix Curative and Prepolymer

After you prepare the master and mold housing and measure the curative and prepolymer, you are ready to pour the curative and prepolymer into another clean, dry, plastic container. Scrape the curative and prepolymer containers to move all of the material into the mixing container. Combine the two ingredients for several minutes until no color striations are visible. Be sure to scrape the sides and bottom of the mixing container while combining the two ingredients. You must mix the curative and prepolymer completely so that PAM SX50-1 will cure correctly. If air bubbles form during mixing, you should degas the mixture to remove them.

Pour Mold

To ensure that no air bubbles form over the details of your master, you can brush a thin base coat onto the master and then pour the rest of the SX50-1. The best way to pour a mold is to tilt your mold slightly and pour into one spot at the corner of the mold, allowing the material to cover your master slowly like the flow of lava. When you have finished pouring the mold, you may lightly spray release agent on the top of PAM SX50-1 to break any air bubbles that have risen.

Demold and Cure Mold

Once you have poured your mold, allow the mold to cure 16 hours before demolding. To prolong the life of the mold, allow it to cure for 3–4 days before using it.

Cure and Thermal Shrinkage

Por-A-Mold SX50-1 is formulated for Room Temperature (RT) Cure. Shrinkage of 0-0.125% may occur if the material is processed above room temperature. Other conditions that may cause mold shrinkage: prolonged use, storing the RT cured mold at high temperatures, or excessive heat generated during use. Shrinkage depends on the temperature and duration of exposure. See graph on page 2.

Properties

Curative (Part A) and Prepolymer (Part B)

The following table lists the properties of the curative and prepolymer of Por-A-Mold SX50-1 before they have been mixed.

Property	Curative (Part A)	Prepolymer (Part B)
Color	Gray	Amber
Mix Ratio by Weight	100	100
Mix Ratio by Volume	1	1
Shelf Life	6 Months	6 Months
Specific Gravity @ 75° F (24° C)	1.03	1.03
Viscosity @ 75° F (24° C), CPS	3200	1200

Mixed Curative (Part A) and Prepolymer (Part B)

The following is a list of the properties of Por-A-Mold SX50-1 after the curative and prepolymer have been mixed.

Property	Time	Temperature
Mix Time*	1–2 Minutes	75° F (24° C)
Pot Life*	20 Minutes	75° F (24° C)
Gel Time*	20 Minutes	75° F (24° C)
Cure Time*	24 Hours	75° F (24° C)
Demold Time*	16 Hours	75° F (24° C)

*Mix time, pot life, gel time, cure time, and demold time vary depending on mass and component temperature.

Cured Por-A-Mold SX50-1

The following table explains the properties of Por-A-Mold SX50-1 after it has cured.

Property	Cured Product
Color	Gray
Elongation, %	450
Modulus, PSI, 100%	200
200%	380
300%	620
Rebound, Bashore, %	57
Reversion Temperature	270° F (132° C)

Property	Cured Product
Shore Hardness	A50 ± 2
Specific Gravity	1.03
Tear, Die C, PLI	147
Tear, Split, PLI	20
Ultimate Tensile, PSI	1200

Thermal Shrinkage

When the RT cured mold is kept at higher temperature or heat is generated during use, the mold can shrink further depending on these conditions. For Example, a test sample, 8"x1"x0.375" was heated in an air-circulating oven at 160°F for various lengths of time. Different amounts of shrinkage were obtained depending on exposure time:

Time	Shrinkage, inches/inch	Shrinkage, %
16 hours at 160°F	0.0025	0.25
4 days at 160°F	0.0038	0.38
12 days at 160°F	0.0081	0.81

Storage and Handling

Keep the Por-A-Mold SX50-1 container tightly closed when not in use and store at temperatures between 60–90° F (16–32° C). Do not expose the curative or prepolymer to moisture! If moisture contaminates PAM SX50-1, it will not cure. If these storage requirements are met, Por-A-Mold SX50-1 carries a shelf life warranty of six months.

Be sure to read the *Material Safety Data Sheet* that comes with Por-A-Mold SX50-1. When working with PAM SX50-1, please observe the following safety precautions.

- Use only in well-ventilated areas.
- Wear safety glasses, chemical-resistant rubber or plastic gloves, and an apron.
- Avoid prolonged or repeated contact with skin.
- In the case of skin contact, wipe affected area with isopropyl alcohol, followed by soap and water.
- In the case of eye contact, flush eyes with water for 15 minutes and consult a physician.
- If swallowed, drink one to two glasses of water and seek medical attention immediately.

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