

Por-A-Kast

MARK 15

Applications

Por-A-Kast Mark 15 is used to make castings from rigid and flexible molds. Some of the most common uses of Mark 15 are point-of-purchase displays, rapid prototypes, special effects, taxidermy, and sculpture reproductions. However, Por-A-Kast Mark 15 can be used for any application that requires a lightweight, durable plastic.

Characteristics

Por-A-Kast Mark 15 is a two-part, MDI-based polyurethane casting system. It is mixed one-to-one by volume and cures at room temperature. Por-A-Kast Mark 15 begins to gel in about 15 minutes and cures to a white color.

Instructions for Use

Prepare Mold

Before you begin to cast a polyurethane mold, you must prepare the mold by applying the appropriate release agent (we recommend Synlube 531). Apply release agent sparingly, while coating all internal surfaces of the mold. Too much release agent may cover the details of the mold. You should allow the release agent to dry approximately 10 minutes before you pour the casting. Please note that silicone molds do not require a separate release agent. If you want to use an in-mold paint, like CilCoat, you should apply it after the release agent dries.

Measure Curative and Prepolymer

Note: Por-A-Kast Mark 15 provides approximately 15 minutes for you to mix and pour the casting before it begins to gel. Using two clean, dry, plastic containers of equal size, measure equal amounts of the curative (part A) and the prepolymer (part B).

Do not measure more Por-A-Kast than you can pour within its 15 minutes pot life. If you have a large mold that requires more Mark 15 than you can pour in 15 minutes, you may pour Mark 15 more than once (if you pour Mark 15 more than once, you should do so immediately).

Mix Curative and Prepolymer

Note: Por-A-Kast Mark 15 provides approximately 15 minutes for you to mix and pour the casting before it begins to gel. After you prepare the mold and measure the curative and prepolymer, you are ready to pour the curative and prepolymer into another clean, dry, plastic container. Combine the two ingredients for approximately 1 minute or until no color striations are visible, being careful to prevent air bubbles from forming. To mix small amounts of Por-A-Kast Mark 15, use a plastic or metal spatula. For larger amounts, use a small hand drill with a jiffy mixer attachment. If air bubbles form during mixing, you should degas the mixture in a vacuum chamber to remove them.

Pour Casting

Note: Por-A-Kast Mark 15 provides approximately 15 minutes for you to mix and pour the casting before it begins to gel. You should take your time to carefully pour Por-A-Kast into the mold. The best way to pour a casting with Por-A-Kast Mark 15 is to tilt your mold slightly and pour into one spot of the mold. Pour slowly so that any air bubbles that may have formed during mixing can break over the lip of the container as it pours out.

Demold and Cure Casting

Once you have poured your casting, do not disturb the mold or demold the casting for 8–15 minutes. Although you may work with your cast in as little as 15 minutes after demolding, we recommend that you allow your cast to cure for 1 hour for best results. You may post cure your cast for 6 hours at 160° F (72° C). After Mark 15 has cured, you may turn, drill, grind, sand, and paint it.

Properties

Curative (Part A) and Prepolymer (Part B)

The following table lists the properties of the curative and prepolymer before they have been mixed.

Property	Curative (Part A)	Prepolymer (Part B)
Color	White	Amber
Flash Point	>275° F (135° C)	>275° F (135° C)
Mix Ratio by Weight	1	1.09
Mix Ratio by Volume	1	1
Shelf Life	12 Months	12 Months
Specific Gravity @ 75° F (24° C)	1.090	1.185
Viscosity @ 75° F (24° C), CPS	560	120

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

The following is a summary of the properties of Por-A-Kast Mark 15 after the curative and prepolymer have been mixed.

Property	Time	Temperature
Mix Time	1 Minute	75° F (24° C)
Pot Life	12–15 Minutes	75° F (24° C)
Gel Time	15–25 Minutes	75° F (24° C)
Cure Time	1 Hour	75° F (24° C)
Demold Time	8–15 Minutes	75° F (24° C)

*Pot life, gel time, cure time, and demold time vary depending on mass, mold temperature, and component temperature.

Cured Por-A-Kast Mark 15

The following table lists the properties of Por-A-Kast Mark 15 after it has cured.

Property	Cured Product
Color	White
Compressive Yield Strength, ASTM D695-96, psi	10,201.4
Elongation, ASTM D412-80, %	<10
Heat Distortion Temperature, ASTM D648, °F (°C)	137.3° F (58.5° C)
Izod Impact – Notched, One Specimen, ASTM D256-93a, ft lb/in	0.11
Izod Impact, - Notched, Four Specimens, ASTM D256-93a, ft lb/in	0.21
Izod Impact – Unnotched, ASTM D256-93a, ft lb/in	13.4
Linear Shrinkage, ASTM D2566, in/in	<0.001
Modulus of Elasticity, ASTM D790-97, MPA	1896.7

Property	Cured Product
Rebound, Bashore, ASTM D2632-74 %	20
Reversion Temperature	270° F (132° C)
Shore Hardness, ASTM D2240-75	D78±2
Specific Gravity, ASTM D792-66	1.09
Stress @ 5% Strain, ASTM D790-97, MPA	68.2
Tear, Die C, ASTM D624-73, PLI	820
Tear, Split, ASTM D470-71, PLI	115
Ultimate Tensile, D412-80, PSI	8000

Storage and Handling

Keep the Por-A-Kast Mark 15 container tightly closed when not in use and store at temperatures between 50–77° F (10–25° C). Do not expose the curative or prepolymer to moisture! If moisture contaminates Por-A-Kast Mark 15, it will not cure. If these storage requirements are met, Por-A-Kast Mark 15 carries a shelf life warranty of six months.

Be sure to read the *Material Safety Data Sheet* that comes with Por-A-Kast Mark 15 before using it. When working with Mark 15, please observe the following safety precautions.

- Use only in well-ventilated areas.
- Wear chemically resistant rubber gloves, safety glasses, 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, seek medical attention immediately.
- If swallowed, drink one to two glasses of water and seek medical attention immediately.

Por-A-Kast Mark 15 Product Bulletin

The conditions for your use and application of our products, technical assistance and information (whether verbal, written or by way of production evaluations), including any suggested formulations and recommendations, are beyond our control. Therefore, it is imperative that you test our products, technical assistance and information to determine to your own satisfaction whether they are suitable for your intended uses and applications. This application-specific analysis at least must include testing to determine suitability from a technical as well as health, safety, and environmental standpoint. PUMA Polymers has not necessarily done such testing. All information is given without warranty or guarantee. It is expressly understood and agreed that customer assumes and hereby expressly releases PUMA Polymers from all liability, in tort, contract or otherwise, incurred in connection with the use of our products, technical assistance and information. Any statement or recommendation not contained herein is unauthorized and shall not bind PUMA Polymers. Nothing herein shall be construed as a recommendation to use any product in conflict with patents covering any material or its use. No license is implied or in fact granted under the claims of any patent.