

Por-A-Kast F10

Applications

Por-A-Kast F10 (PAK F10) is used to make castings from rigid and flexible molds. Some of the most common uses of PAK F10 are pattern making, master models, rapid prototypes, special effects, and three-dimensional reproductions. However, Por-A-Kast F10 can be used for any application that requires dimensional stability.

Characteristics

Por-A-Kast F10 is a highly filled (>60% of weight), two-part polyurethane casting system. It is mixed one-to-one by volume and cures at room temperature. The main features of Por-A-Kast F10 are: low linear shrinkage, begins to gel in approximately 8 minutes, and cures to a blue 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 release agent. If you want to use an in-mold paint, like CilCoat, you should apply it after the release agent dries.

Prepare Curative and Prepolymer

Both curative (part A) and prepolymer (part B) contain a high amount of fillers which tend to settle. Before use, both curative and prepolymer should be thoroughly mixed to disperse the fillers. A shaker or high torque low RPM stirrer is recommended.

Measure Curative and Prepolymer

Note: Por-A-Kast F10 provides approximately 8 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 F10 than you can pour within its pot life. If you have a large mold that requires more Por-A-Kast F10 than you can pour in 8 minutes, you may use a rotational casting method or pour Por-A-Kast F10 more than once (if you pour it more than once, you should do so immediately).

Mix Curative and Prepolymer

Note: Por-A-Kast F10 provides approximately 8 minutes for you to mix and pour the casting before it begins to gel.

After you prepare the mold, 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 60 seconds, being careful to prevent air bubbles from forming. Use a plastic or metal spatula to mix Por-A-Kast F10.

Pour Casting

Note: Por-A-Kast F10 provides approximately 8 minutes for you to mix and pour the casting before it begins to gel.

You should take your time to carefully pour it into the mold. The best way to pour a casting with Por-A-Kast F10 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 6 hours. We recommend that you allow your cast to cure for 12 hours for best results. Por-A-Kast F10 reaches its ultimate strength and hardness in 72 hours. After Por-A-Kast F10 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 | Blue | Grey/Brown |
| Flash Point | N/A | N/A |
| Mix Ratio by Weight | 100 | 108 |
| Mix Ratio by Volume | 1 | 1 |
| Shelf Life | 12 Months | 12 Months |
| Specific Gravity @ 75° F (24° C) | 1.70 | 1.75 |
| Viscosity @ 75° F (24° C), CPS | 6700 | 2300 |

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

The following is a list of the properties of Por-A-Kast F10 after the curative and prepolymer have been mixed.

| Property | Time | Temperature |
|--------------|------------|---------------|
| Mix Time | 60 seconds | 75° F (24° C) |
| Pot Life* | 8 minutes | 75° F (24° C) |
| Gel Time* | 10 minutes | 75° F (24° C) |
| Cure Time* | 12 hours | 75° F (24° C) |
| Demold Time* | 6 hours | 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 F-10

The following table lists the properties of Por-A-Kast F10 after it has cured.

| Property | Cured Product |
|---|---------------|
| Color | Blue |
| Compressive Strength, ASTM D695-91, MPa (psi) | 469 (6801) |
| Flexural Strength, ASTM D790-92, MPa (psi) | 24.6 (3567) |
| Izod Impact – Notched, Impact Resistance, ASTM D256-92, J/m (ft. lb/in) | 79.6 (1.49) |

| Property | Cured Product |
|--|---------------|
| Linear Shrinkage, ASTM D2566, in/in | 0.04% |
| Modulus of Elasticity, ASTM D790-92, MPa (psi) | 2349 (340605) |
| Shore Hardness, ASTM D 2240-75 | 80D |
| Specific Gravity, ASTM D792-66 | 1.6 |

Storage and Handling

Keep the Por-A-Kast F10 containers 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 Por-A-Kast F10, it will not cure. If these storage requirements are met, Por-A-Kast F10 carries a shelf life warranty of six months.

Be sure to read the *Material Safety Data Sheet* that comes with Por-A-Kast F10. When working with Por-A-Kast F10, 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, 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.

Por-A-Kast F10 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.