



Product Datasheet

Urethane Casting System

BC8402

Version: 032513

Applications

BC8402 is used to make rigid castings from flexible molds. Some of the most common uses are to make parts for point-of-purchase displays, rapid prototypes, special effects, taxidermy, and sculpture reproductions. BC8402 can be used for any application that requires a lightweight, hard white plastic.

Characteristics

BC8402 is a two-part polyurethane casting system. BC8402 is mixed one-to-one by volume (or 100 Iso Part A to 89 Curative Part B by weight) and cures at room temperature. BC8402 contains no fillers and cures to a 70-74D white rigid plastic.

Instructions for Use

Mold Preparation

Begin by applying an appropriate release agent to your mold. In general, silicone molds do not require mold release but a light coating of wax will prolong the mold life. It is recommended that a silicone release (spray or brush-on) be used with urethane molds. Always test your mold system and release agent with BC8402 before committing to a large casting. Also, make sure that the mold release is completely dry before casting. Unevaporated mold release carrier fluid can cause surface defects in your casting and condensation moisture on the mold surface can cause bubbles to form.

Measure Curative and Iso

Note: BC8402 provides approximately 1.5 minutes for you to mix and pour the before it begins to gel.

Make sure that Curative and Iso 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 volumes of the Iso (Part A) and Curative (Part B).



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Mix Curative and Iso

After you prepare the mold and measure the Curative and Iso, you are ready to pour the Curative and Iso into another clean, dry, plastic mixing container. Scrape the Curative and Iso containers to move all of the material into the mixing container. Very carefully mix the two ingredients for 30-60 seconds until no striations are visible. Be sure to scrape the sides and bottom of the mixing container while combining the two ingredients. Take care not to entrain air bubbles in the mix. You must mix the blended Curative and Iso completely so that BC8402 will cure correctly.

Pour Mold

The best way to pour a casting is to tilt your mold slightly and pour into one spot at the corner of the mold from a close distance, allowing the material to flow into the mold slowly. When you have finished pouring the material, you may lightly spray release agent on the surface of BC8402 to break any air bubbles that have risen.

Demold and Cure Mold

Once you have poured your casting, allow it to cure a minimum of 15 minutes before demolding, although a 30 minute demold time is recommended. Note that the thickness of your casting will determine curing time. Thin pieces or castings with sections less than ½ inch thick will require longer cure time to achieve full properties. The cure rate of parts with thin sections can be increased by heating the mold and casting to 120-140°F for 30-40 minutes. However, higher processing temperatures will lead to slightly more shrinkage (~0.1 – 0.3%). After the material has cured, it may be drilled, ground, turned or sanded. Before painting, it is recommended that the mold release be washed off using alcohol or acetone (take proper precautions when using flammable solvents).

Properties:

The following table lists the properties of the Curative and Iso of BC8402 before they have been mixed.

Property	Iso (Part A)	Curative (Part B)
Color	Clear, amber	Clear, light yellow
Mix Ratio by Weight	100	89
Mix Ratio by Volume	1	1
Shelf Life	6 Months	6 Months
Specific Gravity @ 75° F (24° C)	1.112	0.988
Viscosity @ 75° F (24° C), CPS	50	100



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

The following is a list of the properties of BC8402 after the Curative and Iso have been mixed.

Property	Time	Temperature
Mix Time*	30 seconds	75° F (24° C)
Pot Life*	1.5 – 2.0 minutes	75° F (24° C)
Gel Time*	2.0 – 2.5 minutes	75° F (24° C)
Cure Time*	30 minutes	75° F (24° C)
Demold Time*	30 minutes	75° F (24° C)

*Mix time, pot life, gel time, cure time, and demold time vary depending on mass and component temperature. Gel time is measured on a 200 gram mix.

Cured BC8402

The following table explains the properties of BC8402 after it has cured.

Property	Cured Product
Color	White to off-white
Elongation, %	<10
Rebound, Bayshore, %	25-35
Reversion Temperature	270° F (132° C)
Shore Hardness	D73± 2
Specific Gravity	1.00

Storage and Handling

Keep the BC8402 Part A and Part B containers tightly closed when not in use and store at temperatures between 70–80° F (21–26° C). Do not expose the Curative or Iso to moisture! If moisture contaminates BC8402 components, it will not cure properly. If these storage requirements are met, BC8402 carries a shelf life warranty of six months.



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Be sure to read the *Material Safety Data Sheets* that come with BC8402.

When working with this material please observe the following safety precautions.

- Wear safety glasses, chemical-resistant rubber or plastic gloves and an apron.
- Avoid contact with skin.
- In the case of skin contact, wipe affected area with isopropyl alcohol, followed by thorough washing with 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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