



CLEAR CASTING RESIN

Applications

Clear Casting Resin is an optically clear polyurethane casting resin used where a hard, UV resistant, non-yellowing product is required. Clear Casting Resin is often used to encapsulate objects. Some of the most common uses of Clear Casting Resin are point-of-purchase displays, rapid prototypes, special effects, sculpture reproductions, giftware, etc.

Characteristics

Clear Casting Resin is a two-part polyurethane casting system. Clear Casting Resin is mixed one-to-one by volume and cures at room temperature. Cured Clear Casting Resin is UV resistant and non-yellowing. To preserve the surface clarity of Clear Casting Resin, we recommend that you use a platinum-cure or condensation-cure silicone mold material.

Clear Casting Resin provides a combination of performance properties including optical clarity, mechanical strength, hydrolysis resistance, gloss retention, and yellowing resistance. Each user must individually determine the suitability of this product for the process intended; furthermore, the conditions under which parts are made must also be taken into consideration.

Instructions for Use

Measure Curative and Prepolymer

Note: Clear Casting Resin 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 Clear Casting Resin than you can pour within its 15 minute pot life.

Mix Curative and Prepolymer

Note: Once you mix the curative and prepolymer, you have approximately 15 minutes to pour the casting.

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 45 seconds, being careful to prevent air bubbles from forming. Use a plastic or metal utensil to mix Clear Casting Resin. You can use a vacuum chamber to help remove any air bubbles that form during mixing.

Pour Casting

You should take your time to carefully pour it into the mold. The best way to pour a casting with Clear Casting Resin 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. When you have finished pouring your casting, you may tap the sides of the mold or vibrate the mold to help release additional air bubbles.

Demold and Cure Casting

Once you have poured your casting, do not disturb the mold or demold the casting for 24 hours. Although you may work with your cast immediately after demolding, for best results we strongly recommend that you post cure your cast for 6 hours at 160°F (72°C). The post cure improves the heat distortion temperature as well as numerous other properties of the material.

Properties

Curative (Part A) and Prepolymer (Part B)

The following table explains the properties of the curative and prepolymer of Clear Casting Resin before they have been mixed.

Property	Curative (Part A)	Prepolymer (Part B)
Color	Clear	Clear
Mix Ratio by Weight	1	1.04
Mix Ratio by Volume	1	1
Shelf Life	6 Months	6 Months
Specific Gravity @ 75° F (24° C)	1.03	1.07
Viscosity @ 75° F (24° C), CPS	600	100

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

The following is a summary of the properties of Clear Casting Resin after the curative and prepolymer have been mixed.

Property	Time	Temperature
Mix Time	45 Seconds	75° F (24° C)
Pot Life	15 Minutes	75° F (24° C)
Gel Time	20 Minutes	75° F (24° C)
Cure Time	8 Hours	75° F (24° C)
Demold Time	24 Hours	75° F (24° C)

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

Cured Clear Casting Resin

The following table explains the properties of Clear Casting Resin after it has cured.

Property	Cured Product
Color	Clear
Elongation, ASTM D412-80, %	<10
Heat Distortion Temperature, ASTM D648*	137° F (58° C)
Rebound, Bashore, ASTM D2632-74, %	18
Reversion Temperature	270° F (132° C)
Shore Hardness, ASTM D2240-75	D84±2
Linear Shrinkage, ASTM D2566, in/in	.0015
Specific Gravity, ASTM D792-66	1.05
Tear, Die C, ASTM D624-73, PLI	836
Tear, Split, ASTM D470-71, PLI	81
Ultimate Tensile, D412-80, PSI	6456

*Post curing at 160°F (72°C) for 6 hours increases the heat distortion temperature up to 30%.

Storage and Handling

Keep the Clear Casting Resin containers tightly closed when not in use and store in a cool, dry place. Do not expose the Clear Casting Resin curative or prepolymer to moisture! If moisture contaminates Clear Casting Resin, it will not cure. If these storage requirements are met, Clear Casting Resin carries a shelf life warranty of six months. Be sure to read the *Material Safety Data Sheet* that comes with Clear Casting Resin before using it. As with any polyurethane, 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 case of skin contact, wipe affected area with isopropyl alcohol, followed by soap and water.
- In case of eye contact, flush eyes with water for 15 minutes and consult a physician.
- If swallowed or comes into contact with eyes, seek medical attention immediately.

Clear Casting Resin Product Bulletin

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