



PACE TECHNOLOGIES

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**POLYCAST Clear Casting Resin
(Product Data Sheet)**

Description: POLYCAST Casting Resin is a water-clear casting resin designed for applications in which extreme clarity and absence of color when cured are required. Suggested applications include castings metallographic samples, object for display and biological encapsulations. POLYCAST resin is a low-viscosity, low reactivity, orthophthalic polyester. It is prepromoted for curing with various methyl ethyl ketone peroxides (MEKPs).

Features:

- Low shrinkage
- Low viscosity
- U-V stabilized

Benefits:

- Minimal warping
- Outstanding air release
- Meets California rule 50 and SCAQMD 1162
- Water white when cured
- Designed for small or large castings

Typical Liquid Specifications @ 25°C

Weight per gallon (lbs)	Viscosity* CPS	Thx Index Minutes	Gel Time (minutes)	Total Time to Peak Temp. (minutes)	Peak Exotherm (°F)
9.17-9.33	450-600	N/A	14-20	35-65	260-300

*Brookfield LVF #2 @60

Typical Mechanical Properties

Characteristic	Test Method	1/8" Clear Casting
Barcol Hardness	D-2583-75	37
Heat Deflection Temp. (°F)/°C	D-648	(160)/171
Flexural Strength, psi	D-790	12,000
Flexural Modulus, x 10 ⁵ , psi	D-790	Not available
Tensile Strength, psi	D638	10,000
Tensile Modulus, x 10 ⁵ psi	D-638	Not available
Tensile Elongation @Break, %	D-638	Not available

MULTIPLE LAYER CASTING (EMBEDDING)

Embedding objects in plastic resin involves making a casting of 2 or more layers with embedments sandwiched between layers. Generally, you work in reverse when embedding objects. The first layer you pour becomes the top or face of your casting. Pour first layer of catalyzed resin into mold. Allow to get until firm enough to support the embedments (20-30 minutes). Catalyze second batch of resin and stir. To avoid trapping air, dip embedments into catalyzed resin; set in place face down on the first gelled layer. Pour balance of catalyzed resin over embedments. If embedments are not yet covered pour a third layer after the second layer has gelled. Embedments can be placed in several levels to create a “floating” appearance. After final layer has been poured allow casting to harden completely before removing from the mold.

Layer Thickness	Drops of Hardener per oz of resin
1/8"	15
1/4"	8
1/2"	6
3/4"	2
1-1.5"	4

Multiple Layers (Layer number)	Drops of Hardener per oz of resin
1st layer	5
2nd	4
3rd	3
4th	2
5th and more	2

METALLOGRAPHIC MOUNTS

READ WARNINGS AND ALL INSTRUCTIONS BEFORE STARTING.

The addition of the hardener to the resin starts a chemical reaction, creating heat, which cures (hardens) the resin. For best results, measure resin into a graduated unwaxed mixing cup and add the appropriate amount of catalyst. DO NOT add excessive catalyst, as castings may fracture. MIX THOROUGHLY for approximately 60 seconds, scraping sides and bottom of mixing container. Pour into mold and allow to harden completely before removing from mold. Curing (hardening) time is dependent upon amount of catalyst used, thickness of the casting, room temperature and resin temperature, humidity and humidity. DO NOT RETURN CATALYZED RESIN TO THE CAN. KEEP CAN TIGHTLY CAPPED WHEN NOT IN USE.

MIXING:

For standard 1-inch to 1.5-inch metallographic mounts:

- Add 15-20 drops of POLYCAST Hardener to 30 ml (1 oz) POLYCAST resin.
- Blend mixture thoroughly.
- Cure at room temperature for 4-8 hours.

TIPS

- Curing under air or water pressure will reduce air bubbles
- Curing while submerged in water will also reduce resin shrinkage
- Preheat sample to 85°F will minimize shrinkage gap between resin and sample edge.

Storage: Keep away from ignition sources: flames, pilot lights, electrical sparks, and sparking tools. NO SMOKING. Do not store in direct sunlight. Store separate from oxidizing materials, peroxides, and metal salts. Keep container closed when not in use. To ensure maximum stability and maintain optimum **resin** properties, resins should be stored in closed containers at temperature below 75°F (25°C). Copper or copper containing alloys should be avoided as containers. Inventory levels should be kept to a reasonable minimum with first-in, first-out stock rotation.

Safety: NEVER ADD SALTS (PROMOTERS) OR PROMOTED RESINS TO A PEROXIDE. When adding peroxides to a **resin** solution, promptly and thoroughly mix the resulting product. Never add organic peroxides to a hot diluent or process. Prevent contamination with foreign materials, including without limitation, accelerators or promoters (such as dimethyl aniline, other amines, and cobalt compounds), heavy-metal oxides or salts (particularly those of cobalt, iron, and copper), strong acids, and sanding dusts. Use containers made of glass, polypropylene, Teflon, polyethylene, or ceramic to prevent contamination of this material during its handling.

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