

THERMACAST | DIRECT METAL CASTING RESIN

1. Product Overview

ThermaCAST™ is a high-temperature engineering resin developed for creating 3D-printed moulds for direct metal casting.

With exceptional heat resistance up to 550°C*, it enables the casting of metals such as pewter and zinc alloys directly from printed moulds. The resin combines high hardness and stability with fine detail reproduction, ideal for intricate casting applications.

Designed for industrial and prosumer use, ThermaCAST delivers consistent, reliable performance for moulds, tools, and metal prototypes.

Optimised for MSLA 3D printers ensuring fast print speeds and clean post-processing.

2. Key Features & Benefits

- ✓ Withstands direct metal casting up to 550°C*
- ✓ Creates durable, reusable moulds for pewter and zinc alloys
- ✓ High hardness and heat deflection temperature
- ✓ Excellent detail and dimensional stability
- ✓ Fast print speeds for production efficiency
- ✓ Compatible with MSLA 3D Printers

3. Applications

- ★ Direct metal casting for jewellery and decorative items
- ★ Automotive and machinery component moulds
- ★ Industrial prototype tooling and small-batch production
- ★ Custom tools, awards, and artistic castings

4. Physical Properties

Property	Value	Test Method
Viscosity @ 25 °C	600 cps	ASTM D2196
Odour	Low	VDA 270
Shelf Life	12 months	Internal QC
Optimal UV Cure	385–410 nm	Internal
Cure Speed	Fast (3 sec layers)	Internal
Tensile Strength (MPa)	45	ASTM D638
Elongation at Break (%)	1–2	ASTM D638
Shore Hardness (D)	95–98	ASTM D2240
Heat Deflection Temp (°C)	150	ASTM D648
Direct Heat Resistance (°C)	550*	Internal

*Heat performance based on optimal mould design and controlled casting conditions. Actual results may vary depending on metal type, wall thickness, and pour volume. Exceeding recommended casting parameters may cause mould degradation or failure.

5. Printer Compatibility

- MSLA resin printers
- Curing wavelength 365–405 nm
- Tested with Phrozen, Anycubic, Elegoo, Creality, Uniformation, and many more!

10. Disclaimer

The information provided in this Technical Data Sheet is based on laboratory testing and intended as a general guideline. Actual results may vary depending on printing conditions, curing methods, and environmental factors. Monocure3D assumes no liability for improper use of this product.

6. Printing & Post-Processing Guidelines

Tested with: Anycubic M7 / Phrozen Mini 8K

Layer thickness 50–100 µm

Base layer exposure 30–35 seconds

Normal exposure 2–3 seconds

Lift speed 70 mm/s

Lift height 8–12 mm



(Refer to printer settings database)

Post-Processing Steps

1. Wash in ResinAway® or IPA immediately after printing
2. Ultrasonic clean in ResinAway® for 5–10 minutes
3. Dry with compressed air or air-dry naturally
4. UV cure for at least 1 hour (recommend)
5. Heat Cure at 60°C for 1 hour (recommend)
6. NB: Ensure mould it completely dry before casting

7. Health & Safety Information

- Always wear heat-resistant gloves, face shield, and protective clothing.
- Never pour molten metal into uncured or damp moulds.
- Work in a well-ventilated, heat-safe area away from flammable materials.
- Refer to the ThermaCAST User Guide for full safety and casting procedures.
- Not for intended for intraoral or direct food contact use.
- Use in a ventilated area. Avoid skin & eye contact.
- If contact occurs, wash thoroughly with soap and water.
- Refer to SDS (Safety Data Sheet) for complete handling guidelines www.monocure3d.com.au

8. Storage & Handling

- Storage Temperature: 10–30°C (Avoid direct sunlight)
- Shelf Life: 36 months
- Handling: Use recommend red PPE eg. gloves & safety goggles when handling liquid resin
- Disposal: Follow local hazardous waste disposal regulations.

9. Ordering Information

- Available Sizes: 1L & 5L UV-safe bottles
- Where to Buy: Available through [Monocure3D resellers](#)
- For technical support or bulk orders, contact:

support@monocure3d.com.au | www.monocure3d.com.au