

# BURNAWAY™

Investment Casting 3D Printer Resin

## TECHNICAL DATASHEET

INCLUDES CASTING PROCEDURES



Casting by Clear Mind Jewellery

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### PRODUCT DESCRIPTION

For professionals, to enthusiastic hobbyists our BURNWAY™ Castable Resin is a revelation. Specifically formulated for fast clean burnout, this resin provides flawless castings with intricate detail. Whether creating bespoke jewellery, intricate art pieces, or tooling, BURNWAY™ ensures seamless transitions from design to the final product, enabling you to bring your visions to life with precision and ease.

**NAME: BURNWAY™**

**SKU(s): M/CST-4021V**

**Available Colour(s): Violet**



/product-category/resins/industrial/burnaway/

Suitable Models: Jewellery | Components | Machinery Parts | Sculptures | Hardware | Equipment | Custom Tools | Consumer Goods



## BURNAWAY™

Investment Casting Resin



 Casting by Clear Mind Jewellery

The Monocure3D BURNAWAY™ investment casting resin is a wax free castable resin. Our chemists worked alongside the experts from Clear Mind Jewellery in Canada. With its ease of use, versatility, and exceptional detail, it's designed for the seasoned professional, or the enthusiastic hobbyist.

### BURNAWAY PRINTING TIPS

- ✓ For optimal results, always vigorously shake the resin before use. Ensure the printer's VAT film and LCD screen are spotless, and confirm that the build plate is precisely leveled prior to starting your print job.
- ✓ Every printer has its distinct characteristics, and light intensity can differ even among printers of the same make and model. It's crucial to use a calibration model to accurately fine-tune your printer settings with the resin for the best results.
- ✓ Properly stored, Monocure3D BURNAWAY™ has a lifespan of up to 36 months. Always store the resin in its original container in a cool, dark environment, away from direct sunlight. Ensure the bottle is kept above freezing temperatures to maintain its integrity.
- ✓ Clean printed models in ResinAway® to remove excess resin for the best results. Then, use compressed air for drying. Check the models are dry and are post-cured for 10 minutes. Aim to cast models within three days of their initial printing.

# TECHNICAL DATASHEET

### BURNAWAY™ FEATURES



#### FastCAST™ Technology

BurnAway's standout feature is its ease of printing and post-processing. It is compatible with accelerated burnout schedules under 6 hours, a breakthrough in resin technology.



#### Wax-Free, Rapid Printing!

BURNAWAY resin is completely wax-free! No wax means that models can be highly detailed with minimal supports and allow for fast, easy, fuss-free printing. This means less waste, faster turnaround times, and flawless results every time.



#### 'Easy-to-print' Formula

This resin is designed with an 'easy-release' from the FEP film, making it simple to use and dial in on nearly all printers.



#### Low Ash Residue

The easy burn feature of BURNAWAY™ ensures it leaves no residue, streamlining the post-processing phase and allowing for quicker, cleaner, and more efficient casting production.

### MULTI-RING CALIBRATION STL

Using a calibration model efficiently adjusts a 3D resin printer to work seamlessly with our BURNAWAY™ resin. Proper dialling-in ensures the harmonious operation between the printer and resin, yielding models of exceptional precision.



Download STL file and full instructions by scanning the QR code.



</product-category/3d-models/calibration-models/>





## BURNAWAY™

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## WORKFLOW PROCEDURES

When using 3rd party materials, it is essential to remember that most 3D printers are unique and require setting up before first-time use. We recommend that you dial-in new printers and resins using one of our handy calibration models that you can download from here: <https://monocure3d.com.au/product-category/3d-models/calibration-models/>

## PRINTER SETTINGS

The following example settings are with consideration for monochrome LCD MSLA 3D printers employing a 405nm light source. For more information about all our materials and most popular 3D printer models, please refer to the official settings page at: [/monocure3d.com.au/printers/](https://monocure3d.com.au/printers/)

Shake the BURNAWAY™ bottle thoroughly before use and open it in a UV-protected environment. Pour into the printer's vat, allow bubbles to settle, and ensure the temperature is between 18°C and 35°C for optimal printing.

Layer Thickness: 50µm

Base layer Duration: 30(sec)

No. Base Layers: 4

Normal Layer Exposure: 1.6(sec)

# TECHNICAL DATASHEET

## CLEANING MODELS

For the best results, use ResinAway® cleaner or isopropyl alcohol to remove the uncured resin (Metholated Spirits or Ethyl Alcohol are not recommended). Follow the guidelines for the best finish on 3D models.

**STEP 1.** Pre-Wash with ResinAway® use a soft brush to remove excess: 5mins

**STEP 2.** Ultrasonic cleaner with ResinAway®: 10mins

**STEP 3.** Dry models: Use compressed air or lint-free cloth.

## POST-CURING

**BURNAWAY™ resin requires post-curing to reach its optimal mechanical properties.**

**STEP 4.** UV Light Source: 405nm LED Ultraviolet light.

**STEP 5.** Minimum Post-Curing Duration (40-50w): 10mins

**STEP 6.** Remove the excess ResinAway® by blowing with compressed air (no heat).

**STEP 7.** Place the model in the curing unit for a minimum of 10 minutes to enhance the material's strength, which is important for the casting process.

## STORAGE

To ensure the performance and longevity of Monocure3D BURNAWAY™ resin, store the bottle in a cool (10-30°C), dark environment, tightly sealed in the original container, away from excess heat, direct sunlight, and moisture, while also taking care to prevent the resins from freezing.



## BURNAWAY™

Investment Casting Resin



Casting by Clear Mind Jewellery

### CASTING PROCEDURES

Monocure3D BURNAWAY™ is compatible with gypsum bonded investments designed for casting 3D Printed resins such as R&R Plasticast, Certus Optima Prestige and Gold Star ResinCast. It is recommended to always use a good quality gypsum bonded investment designed for 3D Printed models to ensure you get the most consistent results.

### BURNOUT SCHEDULE | OPTION 1

**1. Suitable for novice casting studios, and/or large resin prints.** Follow the Investment mixing instructions and burnout schedule of your investment manufacturer as closely as possible. Make sure the kiln is programmed and functioning properly. Check the thermocouple periodically to ensure it is reporting accurate temperatures correctly.

**Example: Burnout cycle for a 4"x6" vacuum flask using R&R Plasticast mixed at 40:100 ratio.** Please refer to the R&R Plasticast Product Sheet for further instruction found here: [R&R Plasticast Instructions](#)

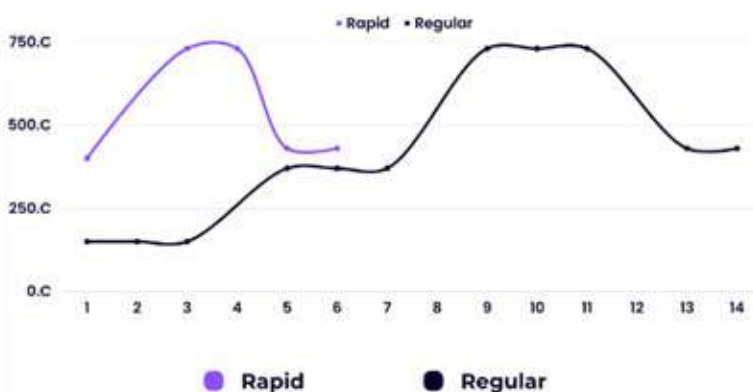
1. Start kiln at room temperature or preheat to 150°C (300°F)
2. Hold 150°C (300°F) for 3 hours
3. Raise temperature to 370°C (700°F) over 2 hours.
4. Hold 370°C (700°F) for 2 hours
5. Raise temperature to 730°C (1350°F) over 2 hours
6. Hold 730°C (1350°F) for 2 hours
7. Lower kiln to casting temperature of metal (In this graph, 430°C or 800°F for sterling silver)
8. Hold Casting Temperature for 2 hours
9. Note: Do Not Exceed Maximum Temperature

If experiencing casting issues on larger models extend peak burnout temperature by one hour, Do Not Exceed Maximum manufacturer recommended temperature.

## TECHNICAL DATASHEET



### Burnout Schedules



### Post Cast

Allow Flask to cool for between 5-10 minutes or until the button is no longer glowing (under dim lighting). Your metal type will determine when you should quench.

Due to the thicker investment mixture a power washing unit may be recommended.



## BURNAWAY™

Investment Casting Resin



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### CASTING PROCEDURES (CONTINUED)

Monocure3D BURNAWAY™ is compatible with gypsum bonded investments designed for casting 3D Printed resins such as R&R Plasticast, Certus Optima Prestige and Gold Star ResinCast. It is recommended to always use a good quality gypsum bonded investment designed for 3D Printed models to ensure you get the most consistent results.

### BURNOUT SCHEDULE | OPTION 2

Option 2: Suitable for experienced casting studios, and jewelry sized items.

Done using R&R Plasticast at a thicker 36:100 or 38:100 investment mixing ratio.

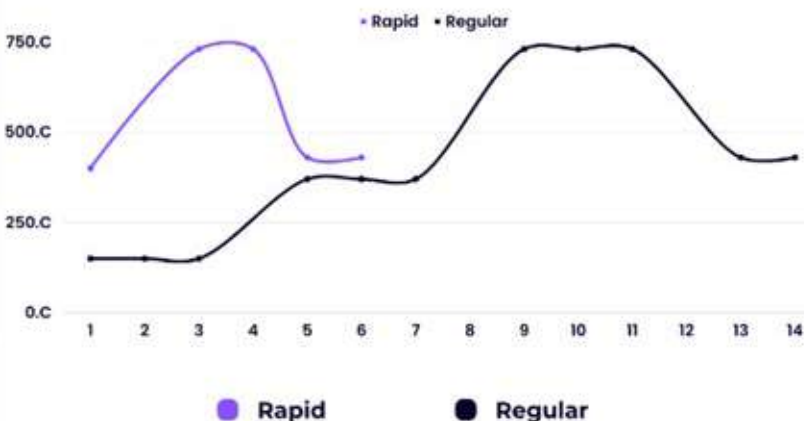
1. Pre-heat kiln to 730°C (1300°F).
2. Once at 730°C place flasks into the kiln. (Putting cold flasks into a hot kiln will drop the temperature, possibly to 400°C, 750°F)
3. Allow the kiln to ramp back up to no higher than 730°C over 3 hours. (Faster is possible with smaller flasks)
4. Hold for an additional 1 hour at 730°C (if 730°C is reached faster than 3 hours, hold at 730°C for the difference in length of time to allow for a total 4 hour burn.)
5. Drop to casting temperature over 1hr
6. Hold at casting temperature for 1 hr. (Example: 430-480°C, 800-900°F for sterling silver)

Note: You can put the flask into the kiln cold and heat the kiln interior and flask together (instead of step 1 & 2). This is achievable on most kilns in the 3hr time span.

## TECHNICAL DATASHEET



### Burnout Schedules



### Post Cast

Allow Flask to cool for between 5-10 minutes or until the button is no longer glowing (under dim lighting). Your metal type will determine when you should quench.

Due to the thicker investment mixture a power washing unit may be recommended. Post process your casting as normal.



Special Thanks: Clear Mind Jewellery

Monocure3D would like to thank the team at Clear Mind Jewellery Limited for their essential role in testing and perfecting our BURNAWAY™ resin, ensuring its exceptional performance.






## BURNAWAY™

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### BURNAWAY™ LIQUID PROPERTIES

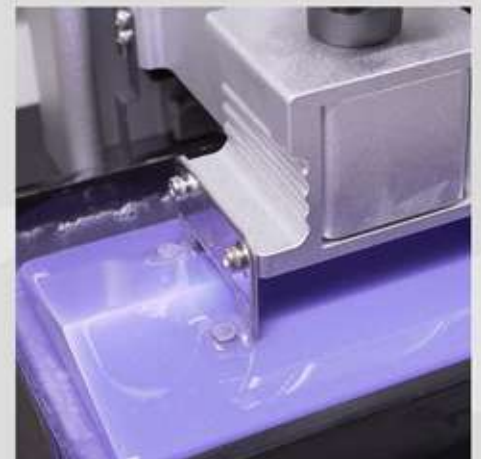
SKUs	M/CST-4021V	Optimal Printing Temp(°C)	25°
Colour(s)	Violet	Wash Up	RESINAWAY® or IPA
Viscosity (CPS)	200-300 @ 25°C (BrookfieldRVT)	Optimal Cleaning Method	Ultrasonic Cleaner
Odour	Negligible Characteristics	General Storage	Dark, Cool & Dry Place
Shelf Life (months)	36	Optimal Storage Temps (°C)	10 - 30°
Active Solids (%)	100	Storage Ventilation	Avoid fume build up
Liquid Density (g/cm³)	1.1	Safety Measures	Follow SDS information
UV Cure (nm)	365 to 410	Download SDS (Safety Data Sheet)	<a href="http://monocure3d.com.au/material-safety-data-sheets/">monocure3d.com.au/material-safety-data-sheets/</a>
Cure Speed (Seconds)	1-2		

### BURNAWAY™ COMPATIBLE PRINTER BRANDS



[monocure3d.com.au/printers](http://monocure3d.com.au/printers)

Asiga PhotoCentric (405nm)  
Anycubic Prusa  
Phrozen Raise3D  
Creality Uniz  
Elegoo Wanhao  
Epax Uniformation  
Nexa3D Zortrax  
Peopoly Not Listed (contact us)



# TECHNICAL DATASHEET





#### Glossary of Terms for Technical Datasheet (TDS)

1. **Viscosity:** A measure of a fluid's resistance to flow. Lower viscosity indicates a thinner consistency, while higher viscosity denotes a thicker substance.
2. **DLP (Digital Light Processing):** A type of 3D printing technology that uses a digital light projector to cure photopolymer resin.
3. **MSLA (Masked Stereolithography):** A variant of SLA (Stereolithography) that uses an LCD screen to mask and project light, curing resin layer by layer.
4. **Post-Processing:** Secondary operations performed on a printed object after it has been printed, such as washing, curing, and finishing.
5. **Burnout Schedule:** A specific sequence of temperature changes in a kiln, used to remove wax or resin from a mold before metal casting.
6. **Ash-Free Burn:** A characteristic of casting resins that leave no ash or residue when burnt out, resulting in cleaner casts.
7. **Safety Data Sheet (SDS):** A document that provides information on the properties, use, storage, and handling of chemicals.
8. **Flashing:** Excess thin material at the parting line of a mold or along the edges of a casting, resulting from the escape of material between two surfaces.
9. **Investment Casting:** A manufacturing process that uses a wax or resin model surrounded by a ceramic material to form a mold, which is then burnt out to leave a cavity for metal casting.
10. **Porosity:** The presence of tiny holes or voids within a cast metal, often caused by gas or shrinkage during the casting process.
11. **Spruing:** The process of attaching channels to a wax or resin model to guide the flow of molten metal into the mold during casting.
12. **Photopolymer:** A type of polymer that changes its properties when exposed to light, typically used in resin for 3D printing.
13. **Curing:** The process of hardening a resin or adhesive through the application of heat, light, or chemical agents.
14. **Parting Line:** The line on a mold or a casting where the two halves of the mold meet and may cause a seam.

## Technical Data Sheet Disclaimer

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