MSLA Castable Plus – Black
(S-CST1BK)

Check

- Vat and LCD screen are clean
- Shake well (60 sec) before pouring
- Color pigment starts to settle after 24hrs, stir thoroughly with soft scraper before next print
- Resin tray and platform are tightened properly

Printer Setting Examples

Printer	Layer Thickness (μm)	Normal Layer Exposure Time (s)	Bottom Layer Exposure Time (s)	Lifting Distance (mm)	Lifting Speed (mm/min)	Retract Speed (mm/min)
Anycubic Photon M3 Premium	50	8	32	8	1 (mm/s)	2.5 (mm/s)
Anycubic Photon Mono X 6K	50	5	20	8	1 (mm/s)	2.5 (mm/s)
Elegoo Mars 2 Pro	50	8	32	5	60	150
Elegoo Mars 3 Pro	50	9	36	5	60	150
Elegoo Mars 4	50	5	20	5	60	150
Elegoo Saturn 3 Ultra	50	9	36	8	60	150
Phrozen Sonic mini 8K	30	9	36	5	60	150
	50	11	44	5	60	150
Phrozen Sonic mini 8K S	30	9	36	5	60	150
	50	11	44	5	60	150
Phrozen Sonic Mighty 12K	50	16	64	8	60	150
Phrozen Sonic Mighty Revo	50	12	48	8	60	150
HeyGears Reflex	30	PAC10	-	-	-	-

Each printer is unique, light intensity varies from each printer eventhough they are the same model & make. Please adjust exposure time accordingly to best fit printer's light intensity. Download printing details via ApplyLabWork Support page or click link: LCD/LED MSLA Exposure Settings Worksheet. For size calibration, download the stl file.

Washing

Fresh IPA rinse or sonication (95+% concentration) for 2 minutes. Blow dry via compressor air immediately after wash. Set prints in a shaded airy place to fully dry before casting (approx 60 mins). It is normal for model to display grayish coloring after washing, especially with ultrasonic washing, no affect on casting.

Limit IPA contact time to 2 minutes, prolong contact time could cause print deformation.

No Post-Curing required

Storage

Store resin bottle away from direct light in a cool shaded place, 18~28°C.

Avoid storing resin in the vat for more than **2 days** when not in use.

Note: Slight pigment settlement is normal. Gently mix remaining resin in resin vat with soft wiper for color evenness.

Casting

Investment

Castable Plus Black is compatible with most kind of gypsum-bonded investment. For optimal results, please consider investments designed for 3D printed resins. Example: R&R Plasticast, Optima Prestige, Gold Star Resincast or equivalent.

Water/powder ratio of 37/100 ~ 38/100.

Let flask set for at least 2 hours prior to the burnout.

Prints

Allow the prints dry for at least 60 mins before assembling the cast tree.

Consider using 'Sticky Wax' to ensure strong adhesion between models and wax tree.

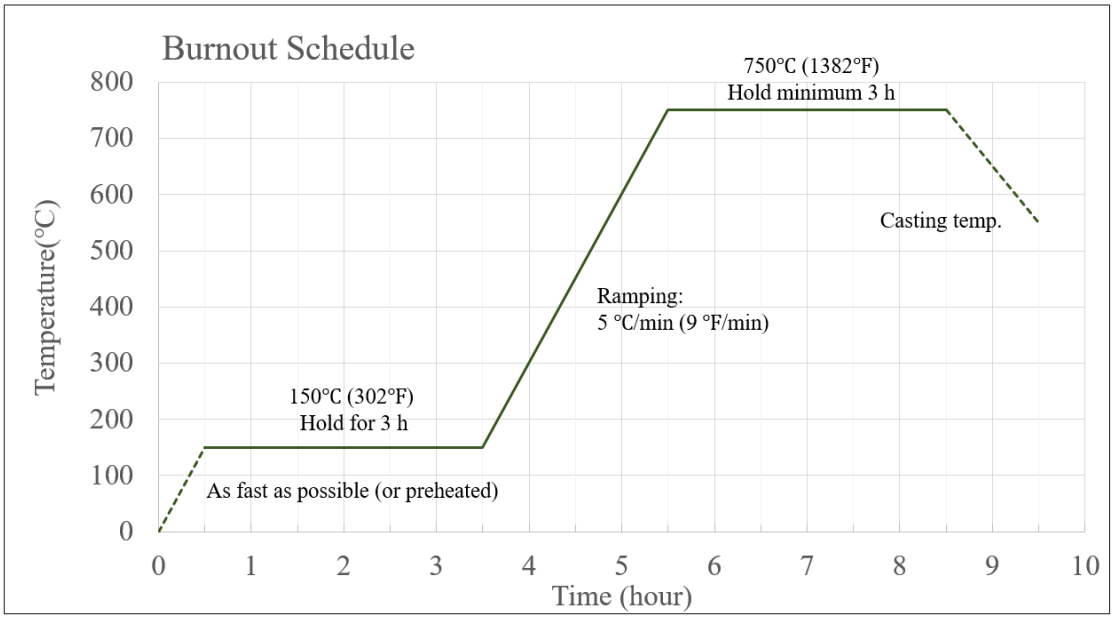
Include sprues with model design when possible to simplify printing support structure and tree building.

Burnout Schedule

Example: Burnout schedule for a 3-3/8"x4" vacuum flask.

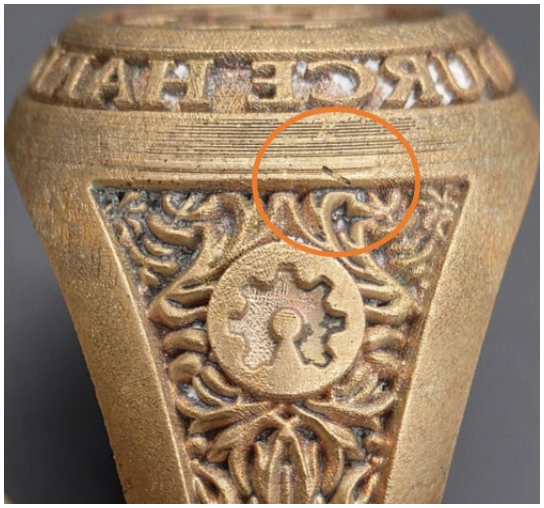
1. Start kiln at room temperature or preheated to 150°C (302°F)
2. Hold 150°C (302°F) for 3 hours
3. Raise temperature to 750°C (1382°F) in 2 hours.
4. Hold 750°C (1382°F) for 3 hours (for large flask, let sit for 1-2 hours longer)
5. Reduce to casting temperature (for example, 430°C (806°F) for sterling silver)
6. Hold Casting Temperature for at least 2 hours

   Note: Do Not Exceed Maximum Temperature (refer to manufacturer instructions)



Casting Tips

Geometric shape/sharp edge hole:



1. Feeding system: make sure the joints are well-rounded and fully heated solder joints
2. Models position: leave adequate space between models
3. Water/powder ratio: decrease water/powder ration to increase investment strength

Rough surface (texture)

1. Accelerate temperature ramp
2. Investment: follow the instructions of manufacturer, correct amount of water/powder ratio, fully mixed, place flask on stable surface for setting, do not disturb for 2 hours

Orange peel: (dense texture, mainly on upper part of model)

1. Temperature: decrease the temperature of metal or flask (check the recommend temperature from supplier and adjust according geometry of model and size of flask)

Incomplete filling:

1. Temperature: Increase the temperature of metal or flask (check the recommend temperature from supplier and adjust according geometry of model and size of flask)
2. Feeding system: increase sprue's diameter or amount

Small porosity / Dark inclusions:

1. Incomplete burnout:
    i. Extend the maximum temperature hold time for 1 ~ 2 hours
    ii. Turn the flask upside down (pouring cone up) during the last hour of maximum temperature
    iii. Open the door couple times during the maximum temperature
    iv. Accelerate temperature ramp

Fin (Flashing):

1. Models position: leave adequate space between models, and between models and flask
2. Water/powder ratio: decrease water/powder ratio to increase investment strength

3. Investment: drying out the investment too long may cause cracking, refer to manufacturer instructions
4. Overheat the flask during burnout: refer to manufacturer instructions for the maximum temperature

Castable Plus Black – Investment Friendliness Test

R&R Ultravest vs. R&R Plasticast

Metal: Brass 1060ºC / Flask 650ºC
Investment water-powder ratio: 38:100
Flask: 3-3/8”x4” vacuum flask
Flask orientation: Keep sprue facing downward throughout the entire burnout process
Casting Machine: Vacuum Casting Machine

R&R Ultravest

R&R Plasticast

R&R Ultravest

R&R Plasticast

R&R Ultravest

R&R Plasticast

R&R Ultravest

R&R Plasticast

R&R Ultravest

R&R Plasticast

R&R Ultravest

R&R Plasticast