

# BLUE CAST X5

## PRODUCT FEATURES

- Custom synthesized oligomer by BlueCast, not available to market, patent is going to be applied.
- Excellent casting of small engravings both positive and negative.
- Fits all jewelry needs from filigree to medals as well dental ones.
- Excellent for stones presetting.
- Curing triggering tuned to maximize antialias smoothing.
- No monomer inside, no smell.
- No aggression on plastic parts (tested on PS, PMMA).
- No post curing needed for casting.
- No shrinkage.
- No primer needed.
- Less spruing needed, oxygen for burnout is released by resin during burnout (less scrap metal, less work on metal).
- Easy welding with wax, forget about pattern lost into investment.
- Can be polished, engraved, drilled (postcure is needed).
- Low viscosity, easier to recover uncured resin from models, easy to wash.
- No preheating required.
- Very little hygroscopic as liquid, no water absorption as printed.
- Atoxic, solvent free, very low phosphine content, very low skin irritant.
- Fast and detailed.
- Hard but elastic, good compression set.
- Cleaner burnout, 0,00% ash residual.
- Solvent free.
- Suitable for fast burnout.
- Full burnout also at lower temperature (750°C).
- No expansion during burnout, sublimation starts at 130°C.



- Burnout will not release aggressive chemicals to investment (80% of burnout is composed by carbon dioxide and water and oxygen that is used to complete combustion).
- Low tension surface (better surface, no need to treat models with spray or dip baths).
- Excellent dimensional stability in time, no need to stock in cold/dark places.
- Available for low power LCD, DLP and laser printers.
- Shelf life 2 years.

## **QUICK START GUIDE FOR FORMLABS 3D PRINTER**

BlueCast Formlabs formula is fully compatible with form1+, form2, DWS, SLA machines, and high power DLP machines like Asiga Pico 2, Moonray, Solus, etc.

Use a new resin tank, or one that has been thoroughly cleaned.

Before use, shake the resin bottle for 60 seconds. If the resin has been sitting in the tank, use the putty knife to ensure it's thoroughly mixed.

Preheat the resin to 40°C (104°F) for best results with printing details.

In PreForm, choose the Gray V3 or Castable v2 setting. Upload the file to the printer (The choice of profile depends also on the functionality and on the year of manufacture of the machine).

On the Form 2, use the Settings menu to choose Open Mode. The wiper and heater will be disabled.

Fill the tank to the maximum fill line, or to the appropriate amount needed.

## **QUICK START GUIDE LCD/DLP FORMULA**

Blue Cast LCD/DLP resin is fully compatible with all LCD printers like Wanaho D7, Micromake 2017 L2, EAST Micromake L2, X-CUBE LCD, Vodainfo Tech. LCD, Xayav Model V, etc ( 405nm \_ min. 30 watt LED power).

Use a resin tank provided with high quality FEP (127 HD, 150 .....

Preheat the resin to 40°C (104°F) for best results with printing details.

Before use, shake the resin container for 60 seconds. If the resin has been sitting



in the tank, use the putty knife to ensure it's thoroughly mixed.

On the LCD printers like Wanaho D7 and Anycubic Photon (30 / 40 watt) start from these settings:

### **0,05 mm z Resolution**

5 bottom layers - exp time 60 seconds

Other layers - from 10 to 14 seconds (depend on geometry)

Z lift - 5mm

Z lift speed -40 mm/min

Antialiasing - Off

### **0,03 mm z Resolution**

5 bottom layers - exp time 60 seconds

Other layers - from 7 to 10 seconds (depend on geometry)

Z lift - 5mm

Z lift speed - 40 mm/min

Antialiasing – Off

## **PRINTING SETTINGS**

### **- Phrozen Shuffle**

BURN IN LAYER

NUMBERS OF LAYERS: 5

LAYER THICKNESS: 50u

CURE TIME: 70 SEC

WAIT BEFORE PRINT: 5 SEC

WAIT AFTER PRINT: 0.5 SEC

LIFT AFTER PRINT: 5 mm

WAIT AFRER LIFT: 0.1 SEC

NORMAL LAYER

LAYER THICKNESS: 50u

CURE TIME: 12 SEC

WAIT BEFORE PRINT: 1.5 SEC

WAIT AFTER PRINT: 0.1 SEC

LIFT AFTER PRINT: 5 mm

WAIT AFRER LIFT: 0.1 SEC

MOTOR SPEED 120 u/SEC

Heigh of slow section 1mm

Speed of slow section 30u/SEC

- **Phrozen Shuffle 2019**

LAYER EIGHT – 0.05 mm  
BOTTOM LAYER COUNT – 5n  
EXPOSURE TIME – 9s  
BOTTOM EXPOSURE TIME – 60s  
LIGHT OFF DELAY – 8s  
BOTTOM LIGHT OFF DELAY – 11s  
BOTTOM LIFT DISTANCE – 5mm  
LIFTING DISTANCE -5mm  
BOTTOM LIFT SPEED – 50 mm/min  
LIFTING SPEED – 80 mm/min  
RETRACT SPEED -100 mm/min

- **Phrozen Shuffle 4K**

BURN IN LAYER  
NUMBERS OF LAYERS: 5  
LAYER THICKNESS: 30u  
CURE TIME: 60 SEC  
WAIT BEFORE PRINT: 5 SEC  
WAIT AFTER PRINT: 0.5 SEC  
LIFT AFTER PRINT: 5 mm  
WAIT AFRER LIFT: 0.1 SEC

NORMAL LAYER  
LAYER THICKNESS: 30u  
CURE TIME: 10 SEC  
WAIT BEFORE PRINT: 1.5 SEC  
WAIT AFTER PRINT: 0.1 SEC  
LIFT AFTER PRINT: 5 mm  
WAIT AFRER LIFT: 0.1 SEC

BOTTOM LAYER MOTOR SPEED 50 u/SEC  
MOTOR SPEED 100 u/SEC

- **Phrozen Sonic – Sonic / Mini**

BURN IN LAYER  
NUMBERS OF LAYERS: 6  
LAYER THICKNESS: 50u  
CURE TIME: 45 SEC  
WAIT BEFORE PRINT: 5 SEC  
WAIT AFTER PRINT: 0.5 SEC  
LIFT AFTER PRINT: 5 mm  
WAIT AFRER LIFT: 0.1 SEC

NORMAL LAYER  
LAYER THICKNESS: 50u  
CURE TIME: 3 SEC  
WAIT BEFORE PRINT: 1.5 SEC  
WAIT AFTER PRINT: 0.1 SEC  
LIFT AFTER PRINT: 5 mm  
WAIT AFRER LIFT: 0.1 SEC

BOTTOM LAYER MOTOR SPEED 50 u/SEC  
MOTOR SPEED 80 u/SEC

- **Phrozen XL**

BURN IN LAYER  
NUMBERS OF LAYERS: 7  
LAYER THICKNESS: 100u  
CURE TIME: 90 SEC

WAIT BEFORE PRINT: 6 SEC  
WAIT AFTER PRINT: 0.5 SEC  
LIFT AFTER PRINT: 7 mm  
WAIT AFRER LIFT: 0.1 SEC

NORMAL LAYER  
LAYER THICKNESS: 50u  
CURE TIME: 10 SEC  
WAIT BEFORE PRINT: 1.5 SEC  
WAIT AFTER PRINT: 0.1 SEC  
LIFT AFTER PRINT: 5 mm  
WAIT AFRER LIFT: 0.1 SEC

MOTOR SPEED 100 u/SEC  
Heigh of slow section 1mm  
Speed of slow section 30u/SEC

- **Phrozen Sonic XL 4k**

LAYER EIGHT – 0.03 mm  
BOTTOM LAYER COUNT – 9n  
EXPOSURE TIME – 4s  
BOTTOM EXPOSURE TIME – 45s  
LIGHT OFF DELAY – 8s  
BOTTOM LIGHT OFF DELAY – 11s  
BOTTOM LIFT DISTANCE – 9mm  
LIFTING DISTANCE -5mm  
BOTTOM LIFT SPEED – 50 mm/min  
LIFTING SPEED – 80 mm/min  
RETRACT SPEED -80 mm/min

- **Phrozen Sonic Mini 4k / Phrozen Sonic 4k**

BURN IN LAYER  
NUMBERS OF LAYERS: 8  
LAYER THICKNESS: 30u  
CURE TIME: 50 SEC  
WAIT BEFORE PRINT: 5 SEC  
WAIT AFTER PRINT: 0.5 SEC  
LIFT AFTER PRINT: 6 mm  
WAIT AFRER LIFT: 0.1 SEC

NORMAL LAYER  
LAYER THICKNESS: 30u  
CURE TIME: 3.9 SEC  
WAIT BEFORE PRINT: 1.5 SEC  
WAIT AFTER PRINT: 0.1 SEC  
LIFT AFTER PRINT: 5 mm  
WAIT AFRER LIFT: 0.1 SEC

BOTTOM LAYER MOTOR SPEED 30 u/SEC  
MOTOR SPEED 80 u/SEC

On Chitubox (light off delay 7 – Bottom light off delay 12)

- **ANYCUBIC PHOTON (start the Chitubox settings using a standard printer profile)**

LAYER EIGHT – 0.05 mm  
BOTTOM LAYER COUNT – 7n  
EXPOSURE TIME – 16s  
BOTTOM EXPOSURE TIME – 110s  
LIGHT OFF DELAY – 8s  
BOTTOM LIGHT OFF DELAY – 11s  
BOTTOM LIFT DISTANCE – 5mm

LIFTING DISTANCE -5mm  
BOTTOM LIFT SPEED – 50 mm/min  
LIFTING SPEED – 50 mm/min  
RETRACT SPEED -100 mm/min

Primer needed

- **ANYCUBIC PHOTON S**

LAYER EIGHT – 0.05 mm  
BOTTOM LAYER COUNT – 7n  
EXPOSURE TIME – 8s  
BOTTOM EXPOSURE TIME – 70s  
LIGHT OFF DELAY – 8s  
BOTTOM LIGHT OFF DELAY – 11s  
BOTTOM LIFT DISTANCE – 5mm  
LIFTING DISTANCE -5mm  
BOTTOM LIFT SPEED – 50 mm/min  
LIFTING SPEED – 80 mm/min  
RETRACT SPEED -100 mm/min

Primer needed

- **ANYCUBIC PHOTON MONO X**

LAYER EIGHT – 0.03 mm  
BOTTOM LAYER COUNT – 10n  
EXPOSURE TIME – 2.2s  
BOTTOM EXPOSURE TIME – 50s  
LIGHT OFF DELAY – 7s  
BOTTOM LIGHT OFF DELAY – 14s  
BOTTOM LIFT DISTANCE – 5mm  
LIFTING DISTANCE -5mm  
BOTTOM LIFT SPEED – 50 mm/min  
LIFTING SPEED – 100 mm/min  
RETRACT SPEED -100 mm/min

Primer suggested

- **ANYCUBIC PHOTON MONO**

LAYER EIGHT – 0.03 mm  
BOTTOM LAYER COUNT – 10n  
EXPOSURE TIME – 2.8s  
BOTTOM EXPOSURE TIME – 60s  
LIGHT OFF DELAY – 7s  
BOTTOM LIGHT OFF DELAY – 14s  
BOTTOM LIFT DISTANCE – 5mm  
LIFTING DISTANCE -5mm  
BOTTOM LIFT SPEED – 50 mm/min  
LIFTING SPEED – 80 mm/min  
RETRACT SPEED - 80 mm/min

Primer suggested

- **ANYCUBIC PHOTON MONO SE**

LAYER EIGHT – 0.03 mm  
BOTTOM LAYER COUNT – 10n  
EXPOSURE TIME – 2.6s  
BOTTOM EXPOSURE TIME – 60s  
LIGHT OFF DELAY – 7s  
BOTTOM LIGHT OFF DELAY – 14s  
BOTTOM LIFT DISTANCE – 5mm  
LIFTING DISTANCE -5mm  
BOTTOM LIFT SPEED – 50 mm/min

LIFTING SPEED – 110 mm/min  
RETRACT SPEED 110 mm/min

Primer suggested

**- ELEGOO MARS**

LAYER EIGHT – 0.05 mm  
BOTTOM LAYER COUNT – 7n  
EXPOSURE TIME – 13-s  
BOTTOM EXPOSURE TIME – 100s  
LIGHT OFF DELAY – 8s  
BOTTOM LIGHT OFF DELAY – 11s  
BOTTOM LIFT DISTANCE – 5mm  
LIFTING DISTANCE -5mm  
BOTTOM LIFT SPEED – 50 mm/min  
LIFTING SPEED – 50 mm/min  
RETRACT SPEED -100 mm/min

Primer needed

**- ELEGOO MARS PRO**

LAYER EIGHT – 0.04 mm  
BOTTOM LAYER COUNT – 7n  
EXPOSURE TIME – 11s  
BOTTOM EXPOSURE TIME – 90s  
LIGHT OFF DELAY – 8s  
BOTTOM LIGHT OFF DELAY – 11s  
BOTTOM LIFT DISTANCE – 5mm  
LIFTING DISTANCE – 5mm  
BOTTOM LIFT SPEED – 50mm/min  
LIFTING SPEED - 50mm/min  
RETRACT SPEED – 100mm/min

**- ELEGOO MARS PRO 2**

LAYER EIGHT – 0.05 mm  
BOTTOM LAYER COUNT – 7n  
EXPOSURE TIME – 3.8s  
BOTTOM EXPOSURE TIME – 60s  
LIGHT OFF DELAY – 8s  
BOTTOM LIGHT OFF DELAY – 10s  
BOTTOM LIFT DISTANCE – 5mm  
LIFTING DISTANCE – 5mm  
BOTTOM LIFT SPEED – 50mm/min  
LIFTING SPEED - 50mm/min  
RETRACT SPEED – 100mm/min

**- SparkMaker FHD**

BURN IN LAYER  
NUMBERS OF LAYERS: 8  
LAYER THICKNESS: 50u  
CURE TIME: 100 SEC  
WAIT BEFORE PRINT: 5 SEC  
WAIT AFTER PRINT: 0.5 SEC  
LIFT AFTER PRINT: 5 mm  
WAIT AFRER LIFT: 0.1 SEC

NORMAL LAYER  
LAYER THICKNESS: 50u  
CURE TIME: 16 SEC  
WAIT BEFORE PRINT: 1.5 SEC  
WAIT AFTER PRINT: 0.1 SEC



LIFT AFTER PRINT: 5 mm  
WAIT AFTER LIFT: 0.1 SEC

MOTOR SPEED 100 u/SEC

#### - **Zortrax Inkspire**

LAYER THICKNESS 50  
LAYER EXPOSURE: 10 SEC  
BOTTOM LAYER EXPOSURE: 50 SEC  
EXPOSURE OFF TIME: 1.5 SEC  
BOTTOM LAYERS: 5  
ADDITIONAL SUPPORTS EXPOSURE: 1 SEC  
Z LIFT DISTANCE 5  
PLATFORM SPEED 90

MOTOR SPEED 90mm/M

Primer is strongly suggested. If you don't have Primercat you can use standard resin as well.

We suggest also to sand your build platform. Sometime they are not perfectly planar. The coating inhibits the sticking of oligomer resins based.

An HD fep it's also a trick to improve the printing quality and platform adhesion.

PLEASE NOTE THE EXPOSURE TIME CAN CHANGE BY 20% IN ACCORDING TO THE MANUFACTURER LED CALIBRATION, TO THE USED FEP AND TO THE PRINTER EFFICIENCY

## **QUICK START GUIDE FOR FORMLABS/SLA PRINTERS**

Before use, warm / shake the resin container.

Prepare files with an adequate base.

For FORMLABS2, it is suggested to use the castable V2 print profile – FORMLABS 3, it is suggested to use the gray V3 or castable wax print profile - DWS DC 400/600.

In order to improve the adhesion: built base sandpapering, resin heating, raft utilization and primer (or original resin as primer) application are recommended.

## **POST-PRINTING CLEANUP**





Clean the prints by pouring 91%/99% denatured alcohol (IPA) or ethyl alcohol 90%/99% over the prints instead of the usual cleaning process of dipping.

Dry and clean the pieces using a can of compressed air for best results.

UV post-curing is not necessary, unless the pieces require hand-finishing.

Invest the pieces as usual and burn out.

Follow the manufacturer's burnout cycle for your chosen investment.

## **FAST BURNOUT**

The ideal temperature for burnout of BlueCast resin is 850°C or 1560°F.

For fast burnout it is necessary to use a investment able to work over 850°C. We recommend the use of high quality investment.

For a fast burnout schedule, let the flask/investment stand for at least 60-90 minutes, preheat the kiln to 850-860°C (1560-1580°F), then insert the cylinder and keep the temperature constant for 60-90 minutes. Reduce the temperature to your casting temperature and hold for 60 minutes before casting as usual.

During initial burnout, turn the flask on its side, then turn with the button facing up for the rest of the cycle to ensure good air flow.

## **IMPORTANT TIPS**

Check resin tank before EVERY print. BlueCast is not liable for any damage caused to the printer by cracking or leakage of the resin tank.

We recommend printing large rings horizontally.

DO NOT store the resin for more than 24 hours in the resin tank. BlueCast is highly hygroscopic and will absorb moisture from the air. It is advisable to filter the resin after each print cycle and store it in its original container for optimal preservation and to prevent alteration of its characteristics.

Do not store the resin in clear containers, as it is highly light-sensitive and will damage the resin.

## **HOW TO FIX PLATFORM ADHESION ISSUE**

- Check Z offset and if necessary let the platform push more on PDMS (-0.2, -0.3)



- Use sand paper (200 400 grain) to abrade alu plate to promote adhesion
- Use corners of table instead central position
- Use bigger base into 3D model
- Use a drop of uv glue well massaged on plate onto printing position (Loca UV glue, Ebay) (pay attention that will be very hard to remove part from plat.
- Try our special primer: Primer Cat

If you have again problem...Please advise us.