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| Supplementary Table 1. Printing settings for the industrial and consumer 3-D resin printers. | | |
| Parameters | **Settings and Details** | |
| Printer model | CADworks3D Microfluidics 285D | Phrozen 8K Mighty |
| Slicer name | Utility | Lychee Slicer |
| Slicer version | 6.4.4.t12 | 5.2.201 |
| Layer height (mm) | 0.03 | 0.01 |
| Curing time\* (s) | 0.8 | 6.5 |
| Base curing\*\* (s) | 25 | 50 |
| Gap adjustment (mm) | -0.25 | -- |
| Base layer | 1 | -- |
| Buffer layer | 4 | -- |
| Power (%) | 100 | -- |
| Print delay (s) | 90 | -- |
| Light-off delay (s) | -- | 7 |
| Bottom Light-off delay (s) | -- | 7 |
| Bottom Lift Speed (mm/min) | -- | 60 |
| Lifting Speed (mm/min) | -- | 60 |
| Bottom Retract Speed (mm/min) | -- | 100 |
| Retract Speed (mm/min) | -- | 100 |

\*Exposure time in the Utility software is referred to as curing time in the LycheeSlicer software.

\*\*Base curing in the Utility software is referred to as bottom exposure time in the LycheeSlicer software

**Definitions**

**Layer Height:** The thickness of each layer in the print.

**Curing Time:** The amount of time for UV curing (seconds) per layer.

**Base curing:** Curing time for base layers.

**Gap adjustment:** Adjust the thickness of the first layer.

**Base layer:** Define the number of base layers.

**Buffer layer:** Set the Number of buffer layers.

**Power:** At 100% is the existing brightness of the light engine. Users can adjust the power in response to different resin characters.

**Print delay:** For the first layer, the built plate stays for at least 1 sec. then cure.

**Light-off delay:** a delay applied after the UV light turns off at the end of each layer exposure.

**Bottom Light-off delay:** a delay to the exposure after the build plate retracts to its lowest position.

**Bottom Lift Speed:** the speed at which the build plate lifts after the bottom layers have been exposed and cured.

**Lifting Speed:** the speed at which the build plate lifts during printing.

**Bottom Retract Speed:** After the bottom layers are cured, the build plate retracts slightly before the next layer is exposed.

**Retract Speed:** Similar to bottom retract speed but applies to the retract speed for layers other than the bottom layers.

**Supplementary Table 2.** Cost calculation components for all three methods.

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| **Photolithography-based SSCC Price** | | |
| **Item** | **Unit** | **Cost ($)** |
| Wafer | 1 | 20 |
| Photomask | 1 | 500 |
| SU-8 | 4 mL | 6 |
| SU-8 developer | 25 mL | 2 |
| PDMS | 1 g | 27 |
| **Total** | | **555** |

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| --- | --- | --- | --- |
| **Samples Fabricated with the Industrial 3-D Resin Printer** | | | |
|  | **Resin (1 L) Price (US$)** | **Resin needed for 1 sample (mL)** | **Cost for 1 sample (US$)** |
| IGS (Opaque) | 450 | 0.63 | 0.284 |
| IGS (Clear) | 510 | 0.63 | 0.321 |
| SSCC (Opaque) | 450 | 0.15 | 0.068 |
| SSCC (Clear) | 510 | 0.15 | 0.077 |

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| **Samples Fabricated with the Consumer 3-D Resin Printer** | | | |
|  | **Resin (1 L) Price (US$)** | **Resin needed for 1 sample (mL)** | **Cost for 1 sample (US$)** |
| IGS (Opaque) | 40 | 0.63 | 0.025 |
| IGS (Clear) | 50 | 0.63 | 0.032 |
| SSCC (Opaque) | 40 | 0.15 | 0.006 |
| SSCC (Clear) | 50 | 0.15 | 0.008 |