**Specification of** **Little Odor Standard (Rigid) Resin**

**Writer： Proofreader： Translator: Reviewers：**

①**Background**

To meet the demand of high printing accuracy in 3D printing industry, Little Odor Standard (Rigid) Resin is designed for 3D printing enthusiasts and education industry.

②**Main Ingredients**

Photoinitiator, [mill](C:/Users/Lizzy/AppData/Local/youdao/dict/Application/8.9.5.0/resultui/html/index.html#/javascript:;) [base](C:/Users/Lizzy/AppData/Local/youdao/dict/Application/8.9.5.0/resultui/html/index.html#/javascript:;), [monocase](C:/Users/Lizzy/AppData/Local/youdao/dict/Application/8.9.5.0/resultui/html/index.html#/javascript:;), epoxy acrylate.

③**Features**

* High precision
* Little odor
* Smooth surface
* High molding rate
* High hardness
* Fast curing
* Low consistency

④**Application and Target Audience**

Enthusiast, school, design office

⑤**Technical Specification**

* Specification: 0.5KG/1KG.
* Color: Black, white, gray, clear, skin tone, magenta, cyan, yellow.
* The exposure time of the bottom layers: 40-120s.
* The number of bottom layers: 4-10 layers
* The exposure time: 4-10s
* Density: 1.05-1.25g/cm3 (densitometer（25℃）)
* Lifting height: 5mm
* Lifting speed: 100-300mm/min

**⑥Shortcomings**

The resin is brittle after curing.

**⑦Relevant Parameters of Recommended Machine Types**

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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Reference of standard resin printing parameters** | | | | | | | | |
| Printer Type | Brand | Model | Layer Height  (mm) | Exposure Time  (s) | Bottom Exposure  Time  (s) | Number  Of Bottom Layers | Lifting Distance  (mm) | Lifting Speed  (mm/min) |
| Color Screen | Elegoo | Mars | 0.05 | 7-10 | 80-100 | 6-10 | 5 | 100-200 |
| Mars Pro | 0.05 | 4-8 | 60-100 | 4-8 | 5 | 100-200 |
| Longer | Orange 10 | 0.05 | 8-12 | 80-120 | 8-10 | 5 | 100-200 |
| Orange 30 | 0.05 | 7-10 | 80-100 | 6-10 | 5 | 100-200 |
| Anycubic | Photon S | 0.05 | 8-10 | 80-100 | 6-10 | 5 | 100-200 |
| Photon Zero | 0.05 | 10-14 | 80-120 | 8-12 | 5 | 100-200 |
| Photon | 0.05 | 8-10 | 80-100 | 6-10 | 5 | 100-200 |
| Creality | LD002R | 0.05 | 4-6 | 60-100 | 4-8 | 5 | 100-200 |
| Nova3D | Elfin2 | 0.05 | 8-10 | 80-100 | 6-10 | 5 | 100-200 |
| Bene 4 | 0.05 | 4-6 | 60-100 | 4-8 | 5 | 100-200 |
| QIDI TECH | Shadow 5.5 S | 0.05 | 4-6 | 80-120 | 4-8 | 5 | 100-200 |
| others | others | 0.05 | 4-12 | 60-120 | 4-10 | 5 | 100-200 |
|  |  |  |  |  |  |  |  |  |
| Monochrome screen | Anycubic | Photon Mono X | 0.05 | 3-4 | 30-40 | 8-10 | 8-10 | 100-200 |
| Photon Mono | 0.05 | 2-3 | 25-30 | 4-8 | 5 | 100-200 |
| Phrozen | Transform | 0.05 | 3-4 | 30-40 | 8-10 | 8-10 | 100-200 |
| Sonic mini | 0.05 | 2-3 | 25-30 | 4-8 | 5 | 100-200 |
| Elegoo | Mars 2 Pro | 0.05 | 2-3 | 25-30 | 4-8 | 5 | 100-200 |
| Creality | LD-002H | 0.05 | 2-3 | 25-30 | 4-8 | 5 | 100-200 |
| Nova3D | Elfin2 mono SE | 0.05 | 2.5-3 | 25-30 | 4-8 | 5 | 100-200 |
| others | others | 0.05 | 2-3 | 25-30 | 4-8 | 5 | 100-200 |

**⑧Basic Parameters**

|  |  |  |  |
| --- | --- | --- | --- |
| Parameters of Little Odor Standard (Rigid) Resin | | | |
| Flexural Modulus | 1.882-2.385MPa | Tensile Strength | 36-52MPa |
| [Breaking](C:/Users/Lizzy/AppData/Local/youdao/dict/Application/8.9.5.0/resultui/html/index.html#/javascript:;) [Strength](C:/Users/Lizzy/AppData/Local/youdao/dict/Application/8.9.5.0/resultui/html/index.html#/javascript:;) | 59-70MPa | Tensile Modulus | 1.779—2.385 MPa |
| Distortion Temperature | 65℃ | Elongation at Break | 4-10％ |
| Thermal Expansion | 95 \* E-6 | Shore Hardness | 85-88 D |
| Volume Shrinkage | 3.72％-4.24％ | GTT(glass-transition temperature) | 100℃ |
| * Linear Shrinkage | 1.05-1.35％ | Density | 1.05—1.25 g / cm3 |
| Notch Impact Strength | 44-49j / m | Viscosity | 100-450MPa·s |

Table 1

## ⑨FAQ

1.Q: The surface of the print is whitening after the secondary curing. Why?

A: It’s caused by the surface of resin is not being cleaned thoroughly.

2.Q: How do you deal with the white spots left by the model surface support?

A: Remove white spots by applying a little skin-care product to the print surface.

3.Q: The model is cracked, why?

A:①the model is hollow inside, and it is not cleaned completely. There is residual resin or a mixture of resin and alcohol, and the inner and outer shrinkage of the model is inconsistent.

②Expansion Cracking: the inside is hollow, and the air-drying is not complete after cleaning. So there is residual water and the resin absorbs water, expands and cracks.

4.Q: The bottom plate is warped during printing. Why?

A: The curing time of the bottom layer is not enough, resulting in insufficient adhesion between the model and the printing platform.

5.Q: Clear resin is yellowing.

A: It is normal for rigid transparent resin to slightly yellow, which can be reduced by reducing the exposure time or post-curing time.

6.Q: Prints are easy to break, why?

A: Rigid resin is relatively brittle and cannot be used as a functional resin. The printed model is generally only used for viewing. For practical resins, ABS-like resins with higher hardness, strength and toughness are recommended.

7.Q: If the resin is not used for a long time, delamination will occur. Why?

A: That is normal. The resin formula contains colour paste, which will precipitate and separate after standing for some time. After you stir the resin with a glass rod, the resin can return to a normal state. If the colour paste still precipitates after stirring, it indicates that the resin can no longer be used.