**Specification of** **Little Odor** **Water-Washable Standard (Rigid) Resin**

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

①**Background**

Ordinary resin can be cleaned with solvents such as alcohol and isopropanol, which is costly and inconvenient.

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
* Easy cleaning

④**Application and Target Audience**

Enthusiast, school, design office.

⑤**Technical Specification**

* Specification: 0.5KG/1KG.
* Color: Black, white, gray, transparent, 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.
* [Hydrophilia](C:/Users/Lizzy/AppData/Local/youdao/dict/Application/8.9.5.0/resultui/html/index.html#/javascript:;): easily to be doughy.

**⑦Relevant Parameters of Recommended Machine Types**

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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Reference of water washable 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 |

**Basic Parameters**

|  |  |  |  |
| --- | --- | --- | --- |
| Parameters of Little Odor Water-Washable Standard (Rigid) Resin | | | |
| Viscosity | 100-350MPa•s（temperature 25℃） | Absorption Wave Band | 385nm-410nma |
| Density | 1.05-1.25g/cm3（temperature 25℃） | Maximal Force（KGF） | 139.52±10% |
| Tensile Strength（MPA） | 32.89±10% | Deformation of the Maximum Force Point（mm） | 8.457±10% |
| Yield Point Elongation(%) | 6.631±10% | Elongation at Break（%） | 14.967±10% |
| * Ultimate Bending Strenght   (MPa) | 34.748±10% | Bending elastic modulus (MPa) | 618.521±10% |
| Shore Hardness | 85-88D | Impact Strength（kj/m2） | 7.8045±10% |

Table 1

## ⑧FAQ

1.Q: Does the wastewater generated after resin washing can be directly discharged into the sewer?

A: Not recommended, because the test results showed that the water solution indexes after washing resin were lower than Shenzhen (China) wastewater discharge standard. However, we recommend you cure the resin in the aqueous solution and filtering out the residue before discharging.

2.Q: The surface of the print is whitening after the secondary curing, why？

A: The surface of resin is not cleaned thoroughly.

3.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.

4.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.

5.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.

6.Q: Transparent resin is yellowing. Why?

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

7.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.

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

A: That is normal. The resin formula contains color 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 color paste still precipitates after stirring, it indicates that the resin can no longer be used.

9.Q: The thinner part of the model is soft and collapsed. Why?

A: The resin absorbs too much water, which can be improved by drying it quickly after cleaning.