**Specification of ABS-Like Resin**

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

①**Background**

Rigid resins are too brittle, and the market needs an application-oriented resin that can be used to print practical prints with better toughness, hardness and strength.

②**Main Ingredients**

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

③**Features**

1. High-Speed Solidification
2. High Precision
3. Outstanding Toughness
4. Color paste hardly separates from resin.
5. High Hardness
6. High Compatibility
7. Low Shrinkage

**④Application and Target Audience**

Figures, workpiece, architectural model, jewelry model, articles of daily use, artwork,etc.

**⑤Technical Specification**

* Specification: 0.5KG
* Color: Black, white, gray, clear, red orange, transparent blue.
* The exposure time of the bottom layers: 50-100s (chromatic color display), 25-40s (monochrome display)
* The Exposure Time: 4-8s (chromatic color display), 3-4s (monochrome display)
* The number of bottom layers: 4-10 layers
* Density: 1.05-1.25g/cm3 (densitometer (25℃))
* Lifting Height: 5-10mm
* Lifting Speed: 100-200mm/min

**Basic Parameters**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| ABS-Like Resin | | | | |
| Parameter | Unit | GK-10D 2MIN clear | GK-20D 2MIN white | GK-60D 2MIN grey |
| Maximal Force | (kgf)±10% | 181.72 | 149.96 | 137.68 |
| Tensile Strength | (MPa)±10% | 42.838 | 35.351 | 32.456 |
| Yield Point Elongation | (%)±10% | 6.106 | 6.679 | 6.031 |
| Elongation at Break | (%)±10% | 22.819 | 44.892 | 41.103 |
| Tensile Modulus | (MPa)±10% | 531.51 | 413.043 | 400.588 |
| Flexural Stress | (MPa)±10% | 45.969 | 33.662 | 30.405 |
| Flexural Modulus | (MPa)±10% | 1007.944 | 719.229 | 682.588 |
| Impact strength | （j/m）±10% | 126.2 | 217.4 | 195.36 |
| Viscosity | MPa•s | 27.8°C 266.5 | 27.6°C 337.5 | 26°C 251.0 |
| Hardness | Shore D | 80-83 | 80-83 | 80-83 |
| Specific Gravity | g/cm³ | 1.05—1.25 | 1.05—1.25 | 1.05—1.25 |
| Applicable Wavelength | nm | 395-405 | 395-405 | 395-405 |

**Printing Recommend Setting**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Recommend Setting of ABS-Like Resin (25℃)** | | | | | | | |
| Type | Layer Thickness （mm） | Exposure  Time  （s） | Exposure  Time of  Bottom  Layer  （s） | The Number of Bottom Layer | Lifting Distance （mm） | Lifting Speed （mm/min) | Type |
| AnyCubic Photon | 0.05 | 8 | 100 | 5 | 5 | 100 | Chromatic Color Display |
| AnyCubic Photon-S | 0.05 | 8 | 100 | 5 | 5 | 100 |
| Longer 3D Orange10 | 0.05 | 10 | 100 | 6 | 5 | 150 |
| Longer 3D Orange30 | 0.05 | 10 | 100 | 6 | 5 | 150 |
| CREALITY LD-002R | 0.05 | 8 | 80 | 10 | 5 | 100 |
| Nova3D Bene4 | 0.05 | 5 | 50 | 5 | 5 | 150 |
| Nova3D Elfin2 | 0.05 | 10 | 100 | 6 | 5 | 150 |
| ELEGOO MARS | 0.05 | 15 | 80 | 5 | 5 | 100 |
| ELEGOO MARS PRO | 0.05 | 7 | 60 | 5 | 5 | 100 |
| Voxelab Polaris | 0.05 | 10 | 90 | 6 | 5 | 100 |
| Note | 1.The exposure time of red orange resin should be 3s larger than the recommended exposure time shown above. The exposure time of the resin bottom layer should be 30s larger than the corresponding recommended parameters shown above.  2.When the environment temperature is less than 20℃, the exposure time and the exposure time of bottom layer should be larger than the respective recommended parameters. The lower the temperature is, the longer the exposure time can be.  3.When we use clear resin to print objects, we need to reduce the exposure time and adjust the angle of placement in case of the curing of additional parts. | | | | | |
| Voxelab Proxima | 0.05 | 3 | 30 | 6 | 5 | 100 | Monochrome Display |
| Phrozen Transform | 0.05 | 10 | 80 | 20 | 8 | 100 |
| Phrozen Sonic Mini | 0.05 | 2.5 | 25 | 6 | 5 | 100 |
| CREALITY LD-002H | 0.05 | 3 | 25 | 7 | 5 | 100 |
| AnyCubic Photon Mono SE | 0.05 | 2.5 | 40 | 6 | 6 | 200 |
| AnyCubic Photon Mono | 0.05 | 3 | 40 | 6 | 6 | 200 |
| AnyCubic Photon Mono X | 0.05 | 4.5 | 45 | 6 | 8 | 200 |
| ELEGOO SATURN | 0.05 | 3 | 30 | 5 | 7 | 100 |
| ELEGOO MARS 2 | 0.05 | 3 | 35 | 5 | 5 | 100 |
| ELEGOO MARS 2 PRO | 0.05 | 3 | 25 | 5 | 5 | 100 |
| Nova3D Elfin2 Mono SE | 0.05 | 3 | 30 | 6 | 5 | 150 |
| Note | 1.The exposure time of red orange resin should be 1.5s larger than the recommended exposure time shown above. The exposure time of the resin bottom layer should be 15s larger than the corresponding recommended parameters shown above.  2.When the environment temperature is less than 20℃, the exposure time and the exposure time of bottom layer should be larger than the respective recommended parameters. The lower the temperature is, the longer the exposure time can be.  3.When we use clear resin to print objects, we need to reduce the exposure time and adjust the angle of placement in case of the curing of additional parts. | | | | | |

**FAQ**

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: 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.

3.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.

4.Q: Clear 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.

5.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.

6.Q: Why my red orange resin failed to be a print?

A: The exposure time of red orange resin should be 3s larger than the recommended exposure time shown in the table. The exposure time of the resin bottom layer should be 30s larger than the corresponding recommended parameters shown in the table.

7.Q: I failed to print and the curing effect was bad, but I printed according to the recommended parameter table. Why?

A: When the environment temperature is less than 20℃, the exposure time and the exposure time of bottom layer should be larger than the respective recommended parameters. The lower the temperature is, the longer the exposure time can be.

8.Q: Why my clear resin print has some additional and unnecessary parts? How can I tackle them?

A: When we use clear resin to print objects, we need to reduce the exposure time and adjust the angle of placement in case of the curing of additional parts.

9.Q: How long does the secondary curing take?

A: It depends on the energy density in the curing box. For example, LED secondary curing box with 200mw/cm2 energy density and 405 [wave](C:/Users/Lizzy/AppData/Local/youdao/dict/Application/8.9.5.0/resultui/html/index.html#/javascript:;) [band](C:/Users/Lizzy/AppData/Local/youdao/dict/Application/8.9.5.0/resultui/html/index.html#/javascript:;) needs rotary curing for 2 minutes (rotating the print to solidify different surfaces). For the curing boxes in market, they need 20-30 minutes curing time due to their low energy density.