

【Phrozen Resin User Guide】

**Standard-Flexible Resin: BJD Soft,
Light Blush Ivory**

Outline

Before printing an object, it is important to first understand the limits of the materials and how it can be successfully printed under various conditions. With this in mind, Phrozen provides the following design recommendations to help improve print success rates and produce models that better match your intended results.

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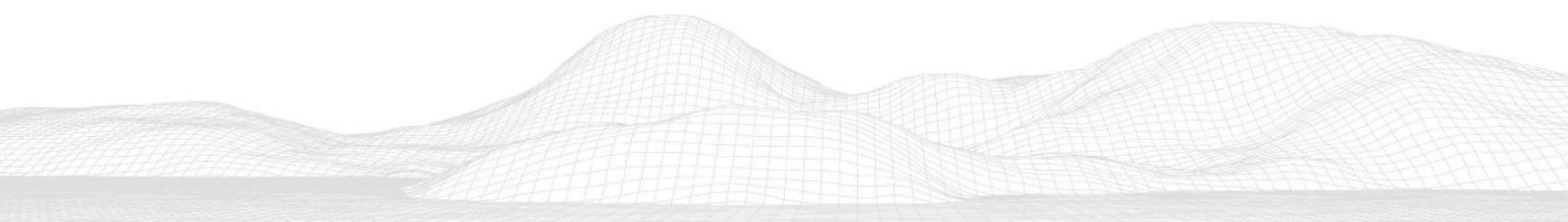
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Section 1

TDS

General Properties	Norm	Typical values
Appearance	-	Light Blush Ivory
Viscosity, 30	BROOKFIELD Viscometer (LV)	110-150 cps
Density (liquid resin)	ASTM D4052-18a	1.1 g/cm ³
Tensile Properties	Norm	Typical values
		UV post-cured
Tensile Modulus	ASTM D412	2.4 MPa
Elongation at Break	ASTM D412	106.2 %
Tear Strength	ASTM D624	12.6 kN/m
Resilience testing	Norm	Typical values
		UV post-cured
Rebound Resilience	ASTM D7121	1-2 %
Hardness	Norm	Typical values
		UV post-cured
Shore A	ASTM D2240	45 – 50 A
Water Absorption	Norm	Typical values
		UV post-cured
Short Term (24hr)	ASTM D570	1.47 %

** All test specimens were printed using the Phrozen Sonic Mini 8K and post-cured using the Phrozen Wash & Cure Kit.*

• Specimens were printed unless stated otherwise. The information in this TDS, including product recommendations, is based on our current knowledge and experience.

ce. Descriptions, drawings, photographs, data, proportions, weights, etc. may change without notice and do not establish the product's contractual quality.

Request the relevant MSDS from your supplier or contact Phrozen Tech Co., Ltd at sales@phrozen3d.com

Section 2

Printing

Printing Parameters

Printer	Sonic mini / Sonic mini 4K
Layer Height	100 μ m
Exposure Time	16 $\pm$ 1
Bottom Exposure Time	32.5 $\pm$ 2.5
Light-off Delay	24 $\pm$ 1
Lift Distance	10 mm
Lifting Speed	60 mm/min

Printer	Sonic Mini 8K
Layer Height	100 μ m
Exposure Time	15 $\pm$ 1.5
Bottom Exposure Time	27.5 $\pm$ 2.5
Rest Time After Retract	15 $\pm$ 1
Lift Distance	10 mm
Lifting Speed	60 mm/min

Printer	Sonic Mini 8K S
Layer Height	100 μ m
Exposure Time	13 $\pm$ 1
Bottom Exposure Time	27.5 $\pm$ 2.5
Rest Time After Retract	15 $\pm$ 1
Lift Distance	10 mm
Lifting Speed	60 mm/min

Printer	Sonic Mighty 4K
Layer Height	100 μ m
Exposure Time	15 $\pm$ 2
Bottom Exposure Time	27.5 $\pm$ 2.5
Light-off Delay	25 $\pm$ 1
Lift Distance	10 mm
Lifting Speed	60 mm/min

Printer	Sonic Mighty 8K
Layer Height	100 μ m
Exposure Time	13 $\pm$ 1
Bottom Exposure Time	27.5 $\pm$ 2.5
Rest Time After Retract	15 $\pm$ 1
Lift Distance	10 mm
Lifting Speed	60 mm/min

Printer	Sonic Mighty 12K
Layer Height	100 μ m
Exposure Time	13 $\pm$ 1
Bottom Exposure Time	37.5 $\pm$ 2.5
Rest Time After Retract	15 $\pm$ 1
Lift Distance	10 mm
Lifting Speed	60 mm/min

Printer	Sonic Mighty Revo 14K
Layer Height	100 μ m
Exposure Time	13 $\pm$ 1
Bottom Exposure Time	37.5 $\pm$ 2.5
Rest Time After Retract	15 $\pm$ 1
Lift Distance	10 mm
Lifting Speed	60 mm/min

Printer	Sonic Mighty Revo 16K
Layer Height	100 μ m
Exposure Time	11 $\pm$ 1
Bottom Exposure Time	47.5 $\pm$ 2.5
Rest Time After Retract	15 $\pm$ 1
Lift Distance	10 mm
Lifting Speed	60 mm/min

Printer	Sonic Mega 8K*
Layer Height	100 μ m
Exposure Time	15 $\pm$ 1
Bottom Exposure Time	57.5 $\pm$ 2.5
Rest Time After Retract	15 $\pm$ 1
Lift Distance	10 mm
Lifting Speed	60 mm/min

Printer	Sonic Mega 8K S*
Layer Height	100 μ m
Exposure Time	11 $\pm$ 2
Bottom Exposure Time	40 $\pm$ 2.5
Rest Time After Retract	15 $\pm$ 1
Lift Distance	10 mm
Lifting Speed	60 mm/min

Printer	Sonic Mega 8K V2*
Layer Height	100 μ m
Exposure Time	13 $\pm$ 2
Bottom Exposure Time	47.5 $\pm$ 2.5
Rest Time After Retract	15 $\pm$ 1
Lift Distance	10 mm
Lifting Speed	60 mm/min

- ♦ Sonic Mega 8K / Mega 8K S / Mega 8K V2 has a higher peeling force. Therefore, a longer exposure time is necessary to increase the success rate.
- ♦ Be sure to cover the hood when printing to maintain the best printing condition of the resin.
- ♦ Increasing rest time can slow down resin accumulation, leading to improved resolution.

Cleaning

1. After removing the printed object from the build plate, use the Phrozen Wash and Cure Kit for post-processing.
2. Use the Phrozen Wash station filled with 95% ethanol and wash the model for 45-60 seconds to remove uncured resin from the surface. Do not soak models in solvent for more than 60 seconds as it may damage model surfaces.
3. Make sure to clean the inner parts of the hollow objects completely.
4. After washing, let the model sit for at least 30 minutes, or gently dry it with compressed air.
5. Make sure the model is completely dry before post-curing. Alternatively, you may gently use a compressed air gun to dry the printed object. Once the object is dry, you can proceed with post-curing.

*When printing flat on the build plate, remove the printed objects carefully to avoid deformation on the objects.

Post-Curing

1. Use Phrozen post-curing equipment, such as the Phrozen Wash & Cure Kit or Phrozen Cure Mega S, or another post-curing device with the same wavelength to cure printed objects.
2. Soak the models in glycerin and post-cure for 30 minutes. Once completed, remove from the glycerin as soon as possible, rinse the models with water. Leave models in a cool, well-ventilated place without exposure to light to dry.

Section 3

Suggestions for Printing

Before Use

Before use, be sure to shake the resin bottle thoroughly to ensure the colorant is evenly distributed.

Print Settings

1. The recommended layer height is 100 μm .
2. Set the model wall thickness to at least 1.5 mm.
3. It is recommended to slow down the lifting and return speed, and increase the rest time. The return speed should be adjusted according to the type of model, with a recommended setting of 120–150 mm/min.
4. Adjust the rest time according to the size and level of detail of the model. For thin, elongated features such as hair strands, a rest time of about 15 seconds is recommended. This allows the model to return to the correct position after being displaced by resin resistance during lift and retract movement. For less detailed parts such as torsos, the rest time can be reduced to about 5 seconds.



Rest Time 15 sec



Rest Time 10 sec



Rest Time 5 sec

5. Use support tips of 1.0 mm / 1.2 mm or larger where appropriate.
6. It's recommended to print models directly on the build plate to minimize deformation.
7. Please note that if the gap between supports or model features are too narrow, resin may cure inside the gaps.

Post Processing:

1. Soaking in glycerin can help soft materials cure more completely and reduce surface tackiness after post-curing.
2. After cleaning or curing, the object should be promptly cleaned thoroughly. Please avoid soaking the models in alcohol, glycerin, and water for a prolonged period (>60 minutes) to avoid absorption of liquid that may cause expansion and deformation.
3. Please make sure that there is space between the models when soaked in glycerin to prevent models from sticking together.
4. Thermal post-curing can help improve the material's mechanical properties, especially tensile strength and tear strength, but it may also reduce elongation. Refer to the TDS data at the beginning of this document and choose the appropriate post-curing method based on the model's intended application.