RI RESIONE F39

RESIONE F39 Flexible 3D Printer Resin User Manual

Model: F39

1. Introduction

This manual provides essential instructions for the safe and effective use of RESIONE F39 Flexible 3D Printer Resin. F39 is a 405nm UV-curing photopolymer designed for DLP, LCD, and MSLA 3D printers, offering high flexibility and durability for various applications. It is characterized by excellent tear strength, high elongation at break, and a rubber-like softness. **Note:** This resin is recommended for users with prior 3D printing experience. For detailed print settings, refer to the official RESIONE website or product documentation.

2. Safety Information

Always prioritize safety when handling 3D printer resins. Adhere to the following guidelines:

- Wear appropriate personal protective equipment (PPE), including gloves and eye protection, to prevent skin and eye contact.
- Work in a well-ventilated area to minimize exposure to resin fumes. Strong fumes may be present.
- Avoid direct contact with uncured resin. In case of contact, wash thoroughly with soap and water.
- Keep resin away from children and pets.
- Store resin in a cool, dark place, away from direct sunlight and heat sources.
- Dispose of uncured resin and contaminated materials according to local regulations.
- F39 resin complies with RoHS 2.0 and SVHC (REACH) regulations, indicating it does not contain more than 200 chemical hazardous substances listed in these regulations.

3. Setup for Printing

Proper preparation is crucial for successful prints with RESIONE F39 resin.

1. **Environment Preparation:** Ensure your printing environment is clean and well-ventilated. The recommended printing temperature is 25-32°C, with an optimum range of 28-32°C. If the ambient temperature is below 25°C,

preheat the resin liquid before printing to reduce viscosity and improve print success rates.

2. **Printer Calibration:** Ensure your 3D printer's build plate is extremely level, especially for the initial layers, as F39 resin is opaque.
3. **Resin Handling:** Shake the resin bottle well before use to ensure proper mixing of components. Pour the desired amount of resin into the printer's resin vat.
4. **Support Structure Design:** Flexible prints are prone to deformation during printing. Use thicker and denser supports compared to standard resins to ensure stability and prevent print failures.

Image: RESIONE F39 Flexible 3D Printer Resin bottle and a demonstration of its flexibility.

4. Operating Instructions

Follow these guidelines for optimal printing performance with RESIONE F39 resin:

- **Exposure Settings:** F39 resin is thick and opaque, requiring specific exposure settings. If using RESIONE's recommended settings and experiencing failures, consider increasing the normal exposure time. Monochrome

screen printers may experience light decay over time, necessitating longer exposure.

- **Print Speed:** Due to its high viscosity, F39 resin requires slower print speeds, especially for parts with large flat surfaces.
    - **Lift Speed:** For the first few millimeters, a lift speed of around 10mm/sec is recommended. For subsequent layers, 70mm/sec may be used.
    - **Retract Speed:** Similarly, for the last few millimeters of the downward movement, a speed of 10mm/sec is suggested. For the rest of the movement, 50mm/sec.
    - **Wait Time:** Add an extra second of wait time after the build plate reaches its lowest point before the LCD lights up, especially for large surfaces.
- **Layer Thickness:** For 0.05mm layers, prints generally come out fine. For 0.1mm layers, an exposure time of 8 seconds per layer and 50 seconds for base layers may be necessary. Adjust settings based on your specific printer and desired print quality.

Image: Demonstration of the high flexibility of a 3D printed object using F39 resin.

Image: A flexible lattice structure printed with F39 resin, demonstrating its soft and pliable nature.

5. Post-Processing

After printing, proper cleaning and curing are essential for the final properties of your F39 resin prints.

1. **Cleaning:** Clean prints thoroughly with Isopropyl Alcohol (IPA) to remove any uncured resin. Note that F39 resin is thick and may require more IPA for effective cleaning.
2. **Drying:** Allow prints to dry completely after cleaning.
3. **Post-Curing:** Post-curing significantly enhances the strength and durability of F39 prints.
    - For prints with a thickness exceeding 3mm, both the front and back sides require curing for more than 30 minutes each when using a 40W UV curing box.
    - Fully post-cured prints will be stronger, have a dry surface, and be less prone to scratches.

6. Maintenance and Storage

Proper maintenance and storage ensure the longevity and quality of your RESIONE F39 resin.

- **Resin Storage:** Store unused resin in its original opaque bottle, tightly sealed, in a cool, dark place away from direct sunlight and UV light sources.
- **Temperature Effects:** The flexibility of F39 prints can be affected by temperature. Prints are very soft above 20°C but become harder as the temperature drops. At 5°C, prints will be very hard and impact resistant.
- **Mixing with Other Resins:** F39 resin can be mixed with tough resins (e.g., K/M58/M68/G217) as a toughening agent to make printed parts more durable and less brittle over time.

7. Troubleshooting Common Issues

This section addresses common problems encountered when printing with RESIONE F39 Flexible Resin.

Problem	Possible Cause	Solution
Prints not adhering to build plate	Build plate not level, insufficient base exposure time, low ambient temperature.	Ensure build plate is perfectly level. Increase base layer exposure time. Preheat resin if ambient temperature is below 25°C.
Prints detaching from supports or failing mid-print	Insufficient or thin supports, excessive lift speed, low exposure time.	Use thicker and denser supports. Reduce lift speed, especially for initial layers. Increase normal exposure time.
Prints are too soft or lose flexibility	Low ambient temperature during printing or post-curing.	Ensure printing environment is within 25-32°C. Note that prints become harder at lower temperatures.
Prints remain sticky after cleaning and curing	Incomplete cleaning, insufficient post-curing.	Clean prints more thoroughly with IPA. Ensure adequate post-curing time, especially for thicker parts (30+ minutes per side for >3mm thickness).
Strong fumes during printing	Normal characteristic of the resin.	Ensure adequate ventilation in your printing area. Consider relocating the printer to a better-ventilated space if fumes are problematic.

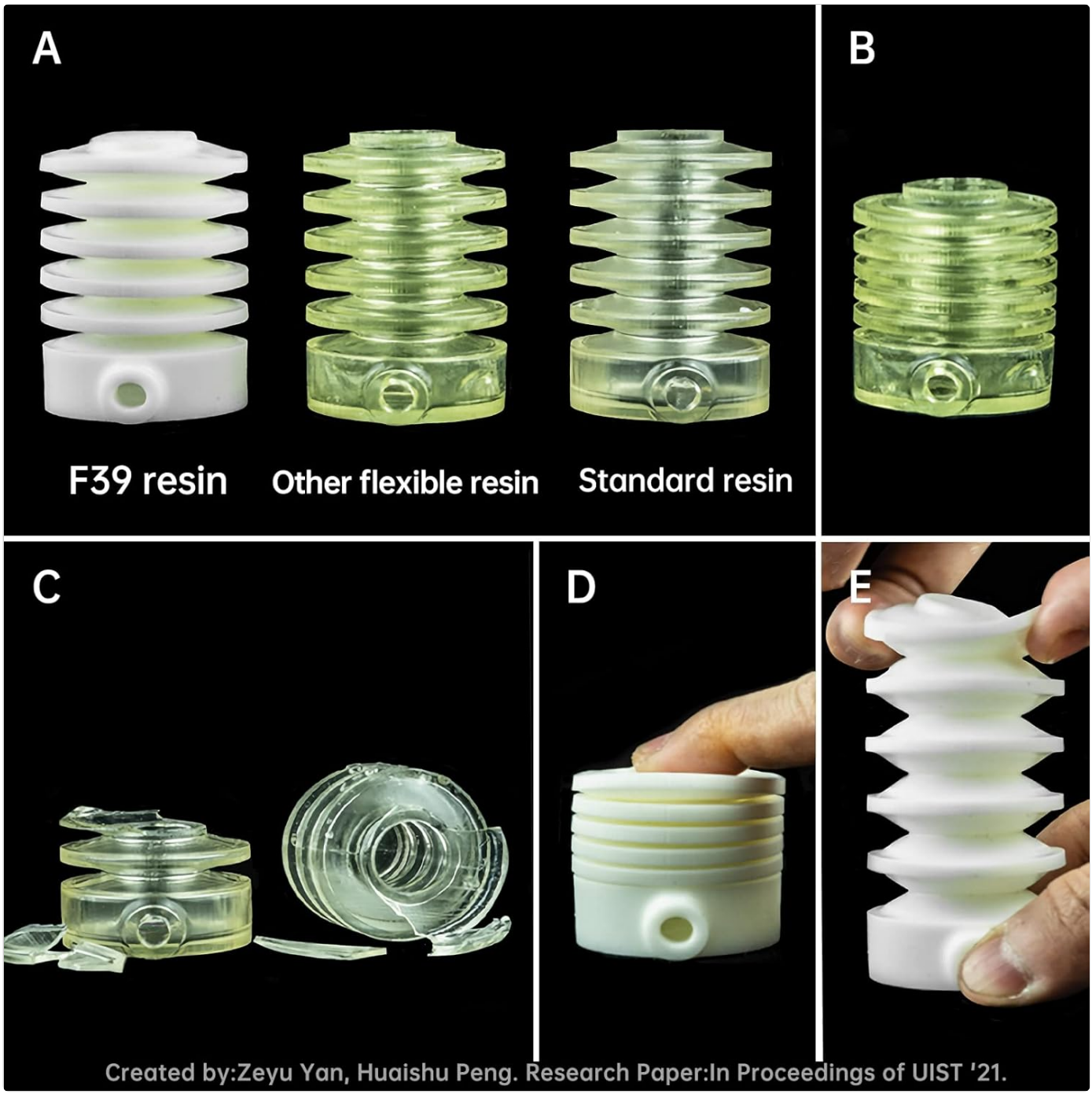


Image: Comparison of F39 resin with other flexible and standard resins, highlighting F39's tear resistance and durability.

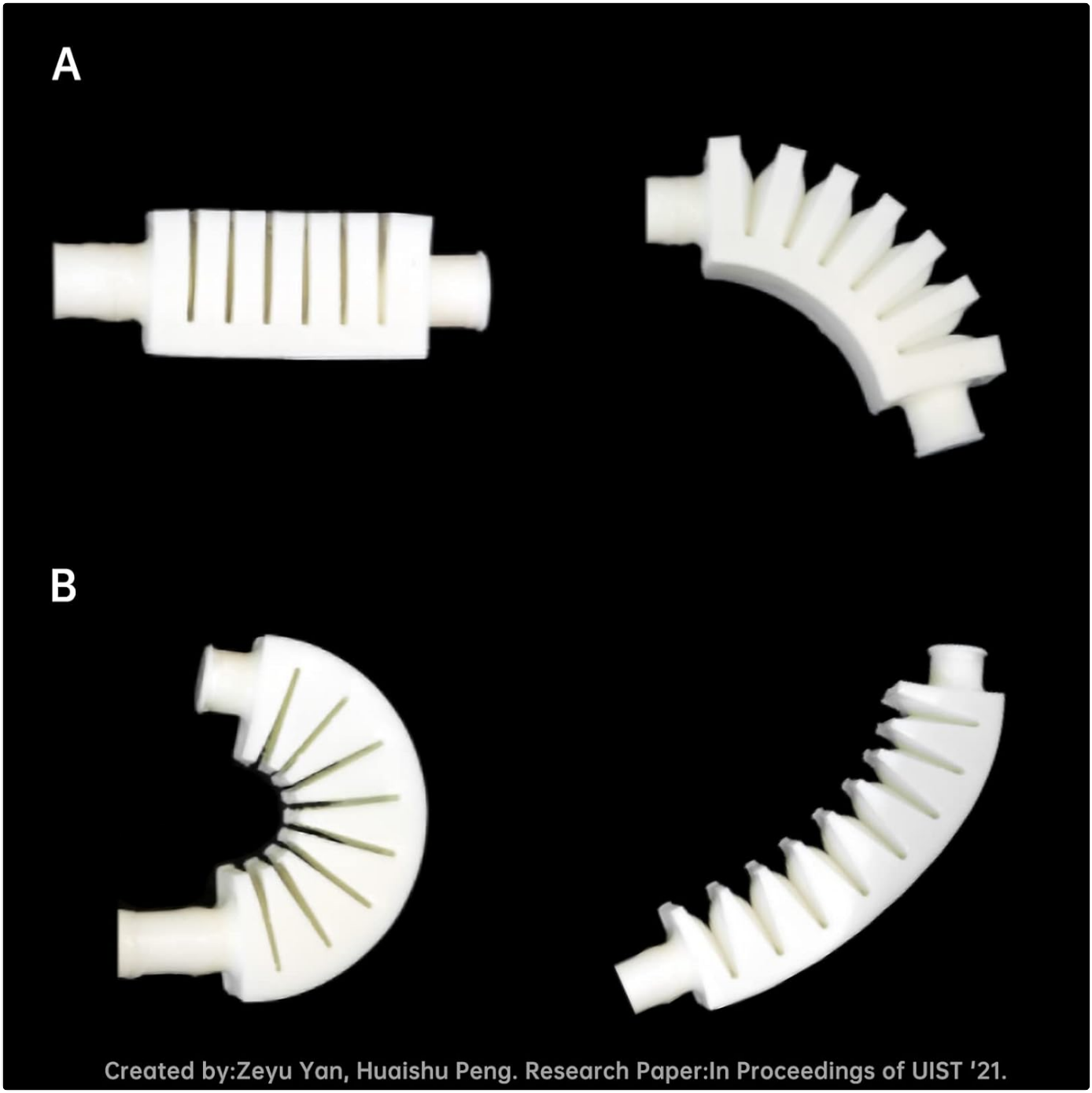


Image: Examples of flexible prints made with F39 resin, showcasing high elongation and bendability.

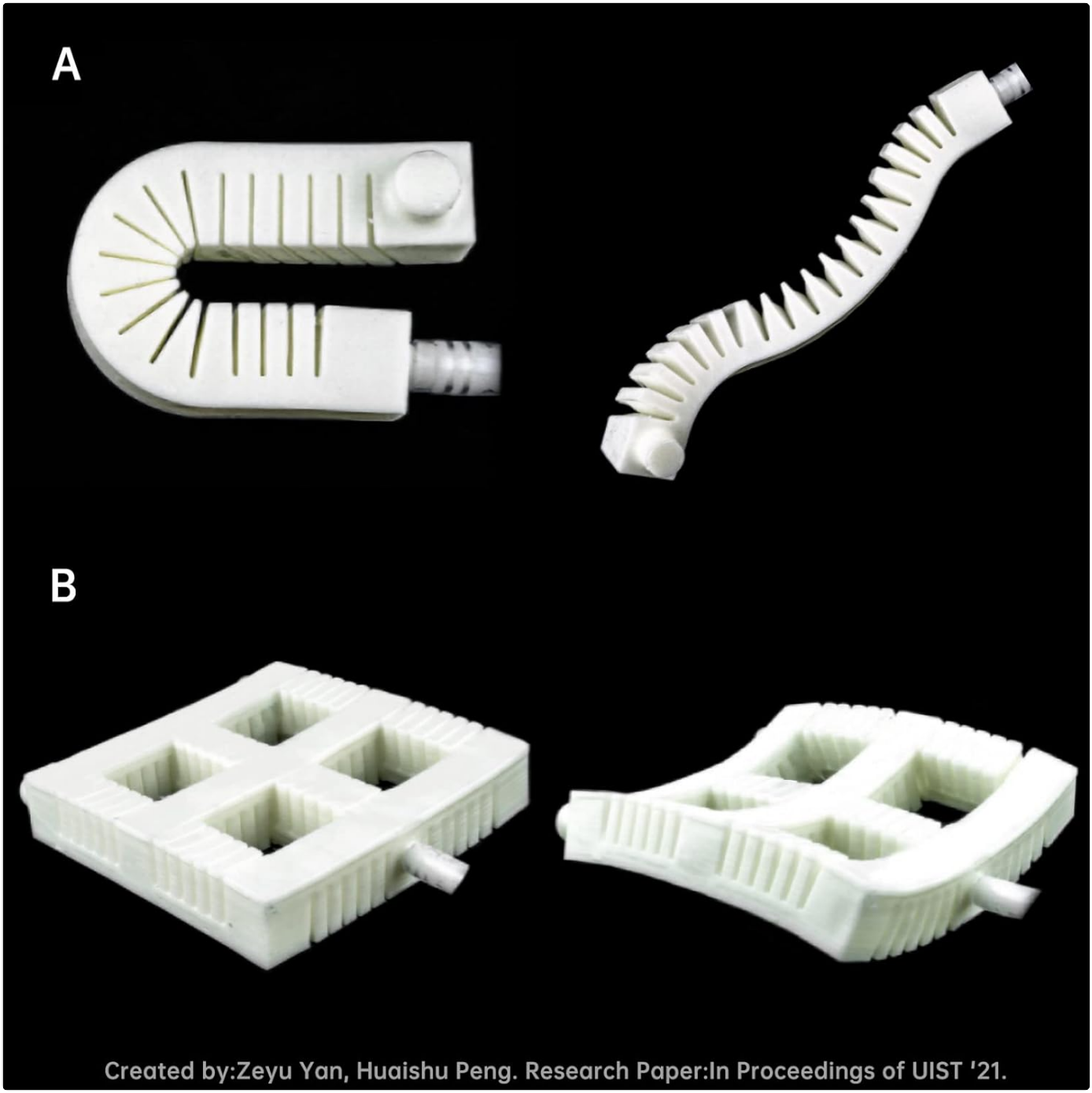


Image: Further examples of flexible designs printed with F39 resin.

8. Product Specifications

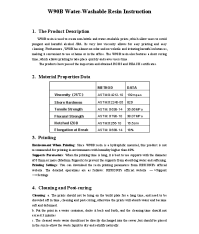
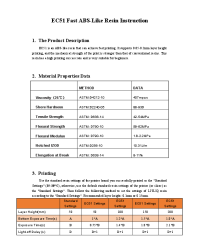
Attribute	Detail
Brand	RI RESIONE
Model Number	F39
Material	UV-Curing Photopolymer Resin
Color	Transparent (Note: Product images show white resin)
Item Weight	1 Kilogram
Tear Strength	47.2 KN/m

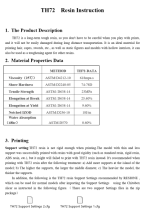
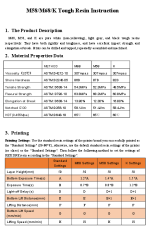
Attribute	Detail
Elongation at Break	255%
Shore Hardness	60-75A
UV Wavelength	405nm
Compatibility	DLP, LCD, MSLA 3D Printers (including monochrome screens, 4K/6K/8K screens)
Compliance	RoHS 2.0, SVHC (REACH)

9. Warranty and Support

For technical assistance, specific print settings, or any product-related inquiries, please contact RESIONE customer support through their official website or the platform where the product was purchased.
While specific warranty details are not provided in this manual, RESIONE is committed to product quality. Please retain your proof of purchase for any support claims.

Related Documents - F39

	RESIONE F Series Flexible Resin: Instruction Manual & Properties Comprehensive guide to RESIONE's F Series Flexible Resins (F39, F39T, F80, F69), covering product descriptions, material properties, printing settings, cleaning, post-curing, and usage tips for optimal 3D printing results.
	RESIONE W90B Water-Washable Resin: Instruction Manual and Usage Guide Comprehensive guide for RESIONE W90B water-washable resin, detailing its properties, optimal printing settings, safe cleaning procedures, post-curing recommendations, and storage tips for high-quality 3D prints.
	EC51 Fast ABS-Like Resin: Properties, Settings, and Usage Guide Comprehensive guide to LITLIQ EC51 Fast ABS-Like Resin, detailing material properties, optimal printing settings for various layer heights, and essential cleaning and post-curing procedures for high-quality 3D prints.

	[RESIONE TH72 Resin: Instructions for Use and Properties] Comprehensive guide to RESIONE TH72 3D printer resin, detailing its properties, printing support settings, cleaning, and post-curing procedures for optimal results.
	[Smart Watch User Manual: Instructions for Use, Features, and Setup] Comprehensive user manual for the Smart Watch, detailing operating instructions, functional descriptions, app download, device pairing, and troubleshooting. Includes FCC compliance information.
	[RESIONE M58/M68/K Tough Resin Instruction Manual] Comprehensive instruction manual for RESIONE M58, M68, and K tough 3D printing resins, detailing product descriptions, material properties, printing settings, cleaning and post-curing procedures, applications, and storage guidelines.