

Microlight3D releases new range of resins for 3D microprinting

Eight new resins widen scope for mechanical meta-materials and life sciences researchers to 3D print, at micro scale, complex objects with novel properties

Grenoble, France, June 14, 2022 – Microlight3D, a specialty manufacturer of high-resolution micro-scale 2D & 3D printing systems for industrial and scientific applications, today announces the launch of eight new resins with diverse properties for mechanical meta-materials and life sciences applications. The range of flexible, rigid and biocompatible resins creates opportunities for developers to explore 3D microprinting using different materials and reproduce miniscule objects, 100x's smaller than a strand of hair, in complex designs.

Microlight3D developed the eight resins, on top of the two it already markets, for use with its microFAB-3D, an ultra-high resolution 3D-printing system, based on [two-photon polymerization](#). This direct laser writing technology is used to create a solid 3D-printed structure from photoactivable materials.

“We are pleased to offer an extended range of resins that will enable our users, who have an amazing appetite to try new things, to fully exploit our 3D microprinting systems,” said Philippe Paliard, head of the 3D printing laboratory at Microlight3D. “As many conventional 3D printing resins do not automatically work with two-photon polymerization (direct laser writing) methods, our latest selection of new resins fills this gap.”

The resins for microFAB-3D are easily used and removed. It takes a single drop onto a substrate (glass coverslip) to run a micron-sized 3D print job, and a 10-minute solvent bath to remove the unused resin. To use another material simply requires putting a drop of that resin onto a different glass coverslip to create a new project. Or, using the previously rinsed coverslip, create a multi-material structure, which is possible due the alignment feature in Microlight3D's machine software.

Resins with Diverse Properties

Mechanical meta-materials

Microlight3D offers two rigid resins: **Rigid-A** and **Rigid-E**, as well as a flexible resin called **Flex-A** for the mechanical metamaterials sector. This includes 4D printing and micromechanics applications, such as micro-grippers, screws and micro-architected materials to obtain unique combinations of material properties.

Mechanical metamaterials researchers can also opt for **OrmoRed**, a resin used with an infrared laser. This means that through microFAB-3D, which has the unique ability to combine two lasers with different wavelengths, researchers can use different

materials within the same system; enhancing the OrmoRed resin with metallic or magnetic nanoparticles to create, for example, innovative micro-robots.

Cell culture and medical devices

Microlight3D developed **OrmoBio** and **Green-A-Bio** as biocompatible resins, while **Green-Gel** and **UV-Gel** are two biocompatible and ductile hydrogels. **Green-Gel** and **UV-Gel** enable ultra-high-resolution printing and have a rigidity that can be tailored according to users' needs. This ability to modulate the rigidity of hydrogels is very important for researchers in cell culture, as cell interaction changes depending on the rigidity of the material surrounding them.

“In addition to the ten proprietary resins we are now offering, our system remains compatible with the commercially available polymer materials widely used in micro-optics. It is compatible with the UV resins used in microfluidics, cell culture and micro-optics provided by market suppliers. The system works with several resins certified for the production of medical devices developed by a major 3D printing firm for producing highly complex, implantable microneedle or microstent arrays,” Paliard added.

About Microlight3D

Microlight3D is a manufacturer of high-resolution micro-scale 2D & 3D printing systems. The company enables scientists and industrial researchers with new design needs to produce the most demanding precision micro parts in any geometric or organic shape, with a flawless finish. By combining 2D & 3D microprinting techniques, Microlight3D offers customers more flexibility in creating larger complex parts. It aims to provide faster and more complex micro-fabrication systems for tomorrow's applications. Microlight3D's equipment is designed for application in micro-optics, microfluidics, micro-robotics, meta-materials, cell biology and microelectronics. Microlight3D was founded in 2016, following 15 years' research and development of its 3D microprinting technology at Grenoble Alpes University (UGA). The company is located in Grenoble, France.

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