

# BIORES MICRO PRECISION



For highly detailed, microscale parts with thin walls and features.



With biocompatible material and no z-bleed, parts have crisp detail, excellent readability, biocompatibility, and smooth surface finish. Features as small as 100  $\mu\text{m}$ . BioRes - Micro Precision is ISO 10993 certified.

## KEY FEATURES

- High-detail
- Dimensional accuracy
- No Z-bleed
- Microscale Parts
- ISO 10993 Biocompatible



# BIORES-MICRO PRECISION

B9R-BIO-MICRO

	METRIC	IMPERIAL	METHOD
<b>TENSILE PROPERTIES</b>			
Tensile Strength	44.6 MPa	6.47 ksi	ASTM D638-14
Tensile Modulus	2110 MPa	306.03 ksi	ASTM D638-14
Elongation	8.6%	8.6%	ASTM D638-14
<b>FLEXURAL PROPERTIES</b>			
Flexural Strength	63.4 MPa	9.2 ksi	ISO 178 (2010)
Flexural Modulus	1.89 GPa	274.12 ksi	ISO 178 (2010)
<b>IMPACT PROPERTIES</b>			
IZOD Impact Strength	20.7 J/m	0.39 ft-lbf/in	ASTM D256-10
<b>TEMPERATURE PROPERTIES</b>			
Heat Deflection Temp @ 1.80 MPa	39 °C	102.2 °F	ISO 75-1, ISO 75-2 (2013)
Heat Deflection Temp @ 0.45 MPa	45 °C	113 °F	ISO 75-1, ISO 75-2 (2013)
Thermal Expansion	185 µm/m-°C	102.78 µin/in-°F	ASTM E831-14
<b>SHORE "D" HARDNESS</b>			
	87	87	ASTM D2240-15
<b>VISCOSITY</b>			
	600 CPS @ 25 °C	600 CPS @ 77 °F	
<b>SPECIFIC GRAVITY</b>			
	1.06	1.06	
<b>DENSITY</b>			
	1.08-1.14 g/mL	9-9.5 Lbs/Gallon	

## BIORES-MICRO PRECISION B9R-BIO-MICRO

**BIORES-MICRO PRECISION** is a monomer based on acrylic esters which may be suitable for a range of 3D printed medical applications. The product has been tested according to ISO 10993-5 and 10993-10 guidelines for prolonged skin contact applications up to 30 days.

### Instructions for Use

**PPE:** Use nitrile gloves, protective jacket and protective lenses.

**Resin Preparation:** Prior to printing, shake the bottle of resin for 10 seconds of make sure the liquid is uniform.

**3D Printing:** Pour liquid resin into the resin vat of your B9Creations 3D printer. Choose your material layer thickness. Print.

### Cleaning:

Note: The clean unit should be a designated ultra clean unit with fresh isopropyl alcohol (IPA) and all tools (spatulas tweezers and anything used to handle the print) should be precleaned with fresh IPA.

Sample is printed and prior to curing, cleaned in fresh IPA. The details are described below.

### Precure Cleaning

1. Scrape off excess resin from the build table with a clean rubber spatula (print remains on the build table)
2. Clean the printed samples on the build table in the B9Clean unit, using a dedicated "ultra clean" unit for the bio-resin with fresh IPA for the standard clean cycle (10 minutes)
3. Remove samples from build table, place in mesh basket and repeat clean cycle
4. Remove samples from clean unit
5. Place samples in small container and detail clean with fresh IPA in a squirt bottle, swirl samples in container as needed to remove any uncured resin
6. Carefully pat dry and place on clean paper towel then allow to completely dry

### Curing:

1. Submerge the sample in distilled water and cure it in a UV post-curing unit for 20 minutes, flipping the unit over halfway through the curing cycle
2. Carefully pat dry the water off with a clean paper towel
3. Place the part in a new clean paper towel and let air dry

### Biocompatibility Testing

Resin printed and processed as outlined in this document has been tested in accordance with ISO 10993-5:2009, Biological evaluation of medical devices - Part 5: Tests for in vitro cytotoxicity, and ISO 10993-10:2010, Biological evaluation of medical devices - Part 10: Tests for irritation and skin sensitization (GPMT). Biores-Micro Precision passed the requirements for biocompatibility according to the above tests. If tested according to the procedures above the material does not contain leachable substances that may cause cytotoxicity. B9Creations makes no representation and is not responsible for the results of any biocompatibility tests other than those specified above.

### DISCLAIMER

Biocompatibility results may vary if protocols are used other than those outlined in this document Do not use Biores-Micro Precision in medical applications involving implantation in the human body or contact with body fluids or tissues. B9CREATIONS LLC. MAKES NO REPRESENTATION, WARRANTY OR IMPLIED WARRANTY CONCERNING THE SUITABILITY OF THESE MATERIALS FOR USE IN THE IMPLANTATION IN THE HUMAN BODY OR IN CONTACT WITH BODY FLUIDS OR TISSUES. IT IS THE SOLE RESPONSIBILITY OF THE MANUFACTURER OF THE END-USE-PRODUCT TO DETERMINE THE BIOCOMPATIBILITY OF ALL PRINTED PARTS FOR THEIR RESPECTIVE USES.

Please see the product SDS for further regulatory and safety information.