



# HYDROTECH INX<sup>®</sup> X100

“High resolution robust hydrogel material!”

HYDROTECH INX<sup>®</sup> X100 is a synthetic resin for the generation of hydrogel microstructures via multi-photon lithography (MPL) technology.

HYDROTECH INX<sup>®</sup> X100 is suitable for the fabrication of 3D complex architectures for tissue engineering applications. It is biologically inert however, it can be coated with HYDROTECH INX<sup>®</sup> COAT solution to allow cell adhesion and proliferation.



## SUPERIOR SHAPE FIDELITY

The HYDROTECH INX<sup>®</sup> X100 ready-to-use formulations can be processed via a MPL-based printer after a short pre-heating process. The resin can be processed at high scanning speeds (up to 600 mm/s, at least) which is favorable for shorter fabrication times.

Figure 1 shows HYDROTECH INX<sup>®</sup> X100 structures that were printed via MPL technology. Complex and open geometries can easily be printed via HYDROTECH INX<sup>®</sup> X100 thanks to its mechanical robustness. The scaffolds reveal no structural distortion when incubated in an aqueous medium thanks to its limited water uptake.

## BENEFITS

- ✓ Biocompatibility Biocompatible with no toxic effect on living cells, according to ISO 10993-5
- ✓ Stability Forms a biostable hydrogel that sustain 3D cellular structures. Suitable for long term applications.
- ✓ Processability Easy processing into open and complex architectures with minimal deformation.
- ✓ Mechanical integrity Very robust hydrogel suitable for stiff tissue engineering applications.
- ✓ Easy to handle Provided as ready-to-print formulation in amber vials.
- ✓ Reproducibility Production under strict quality control to provide a material that delivers every time.



HYDROTECH **INX**<sup>®</sup> X100

“High resolution robust hydrogel material!”

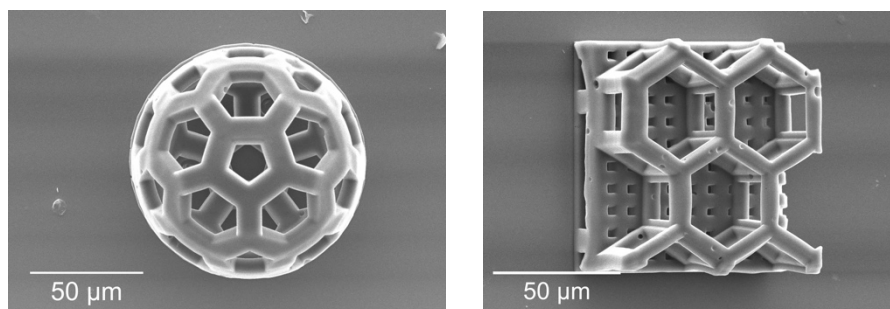


Figure 1: Scanning electron microscope images of the structures printed using HYDROTECH INX<sup>®</sup> X100 via multi-photon lithography

## PROPERTIES & PROCESSING

HYDROTECH INX<sup>®</sup> X100 is a viscous liquid at room temperature. It provides an easy and fast processing given its wide processing window. Stable structures can be printed with HYDROTECH INX<sup>®</sup> X100 using laser powers in the range 20-100 mW and scanning speeds up to at least 600 mm/s.

Thanks to the low water absorption capacity of HYDROTECH INX<sup>®</sup> X100 (60-70% over its dry weight), the printed structures do not undergo structural deformation after being hydrated in aqueous media. In the fully hydrated state, HYDROTECH INX<sup>®</sup> X100 exhibits a higher stiffness (30-40 MPa) compared to conventional hydrogels based on diacrylated PEGs (PEGDA), making these hydrogels excellent candidates for applications requiring strength and high accuracy.

HYDROTECH INX<sup>®</sup> X100 is biologically inert however, it can be coated with HYDROTECH INX<sup>®</sup> COAT solution to allow cell adhesion and proliferation (Figure 2).

Physical Properties	HYDROTECH INX <sup>®</sup> X100 Properties
Appearance	Yellow - orange liquid
Viscosity (Pa.s)	0.5 - 5
Young's Modulus (MPa)	30 - 40



# HYDROTECH INX<sup>®</sup> X100

“High resolution robust hydrogel material!”

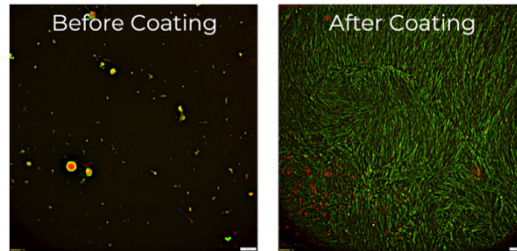


Figure 2: Improved cell adhesion & proliferation on HYDROTECH INX<sup>®</sup> X100 hydrogels after application of HYDROTECH INX<sup>®</sup> COAT solution

## BENEFITS OF THE HYDROTECH INX<sup>®</sup> X100 PRODUCT FAMILY

	Organic-Inorganic Hybrids	Conventional hydrogel inks	HYDROTECH INX <sup>®</sup> X100
Strength	✓	✗	✓
Flexibility	✗	✓	✓
Hydrogel	✗	✓	✓
Biocompatibility	✗	✓	✓
High resolution	✓	✗	✓
High reactivity	✓	✗	✓

## 3D PRINTER COMPATIBILITY

Our resins have been used repeatedly and successfully with the following printers:

- ✓ Upnano NanoOne
- ✓ Upnano NanoOneBio
- ✓ Nanoscribe Photonic Professional GT2

If you would like to discuss your printer's compatibility with our resins, please contact us at [info@bioinx.com](mailto:info@bioinx.com)