

# PRODUCT DATA SHEET

**FIBERCOLL-FLEX-N®**  
**BIOINK**

## Product Description

FiberColl-Flex-N® is a bioink of extraordinary **native collagen fibers** for the printing of highly biocompatible scaffolds with **embedded cells**.

The unique bioink of strong, **complex collagen fibers** is easily neutralized immediately before printing and ensures robust print products without the need for crosslinking. The shear thinning behavior of the bioink provides excellent printing characteristics, resulting in an **immediately self-supporting** scaffold with reliable shape fidelity.

**Stiffness** of the printed product can be **easily regulated** by the variation of the collagen concentration. Additionally, FiberColl-Flex-N® allows **printing at ambient temperatures up to 37°C**.

FiberColl-Flex-N® is offered sterile in a syringe containing 3 ml.

To ensure best results please follow our User Guide.

© Viscofan BioEngineering | REVISION DATE: 05-07-2023



The FiberColl-Flex-N® enables easy bioprinting at physiological conditions

## PRODUCT SPECIFICATIONS

| Parameter                 | FiberColl-Flex-N® Bioink                            |
|---------------------------|---|
| Main component            | collagen type I fibers                              |
| Collagen fiber dimensions | Average length 200 – 800 µm, diameter 20 µm         |
| Collagen concentration    | 5 wt%   |
| Source                    | bovine dermis                                       |
| Appearance                | Viscous suspension                                  |
| Elastic modulus of bioink | 200 – 1000 Pa, depending on collagen concentration* |
| Biocompatibility          | ✓ (culture of fibroblasts)                          |
| Sterilization             | ✓   |
| Sterility testing         | No growth (Aerobic bacteria, moulds, yeasts)        |
| pH                        | 3, to be neutralized before printing                |

## APPLICATIONS

Any bioprinting application, especially with cells printed along with the ink:

- Cell culture in scaffolds with customized shape and stiffness
- Complex tissue models
- Tumor models
- Substitutes for animal models
- Tissue engineering & regenerative medicine
- Cell based assays (e.g. drug metabolism)

## BENEFITS

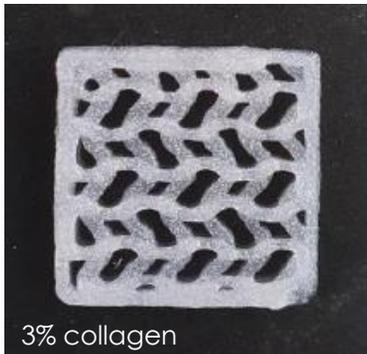
- ✓ Pure, fibrillary collagen type I represents an excellent *in vivo* like scaffold for embedded cells
- ✓ Self-supporting 3D structure with high shape fidelity
- ✓ High mechanical fiber strength abets the need for artificial modification (i.e. methacrylation + UV curing)
- ✓ Allows immediate handling of printed product
- ✓ Easy stiffness regulation through collagen concentration variation, high print resolution
- ✓ Easy print protocol at physiological conditions (pH & temperature)
- ✓ No cooling devices for printer required, no time pressure at preparation and printing
- ✓ Proven *in vitro* biocompatibility

**Viscofan**  
BIOENGINEERING

## PRODUCT FEATURES

### High shape fidelity & immediate handling

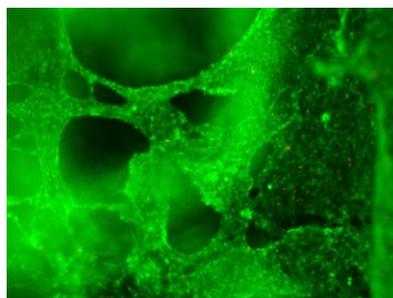
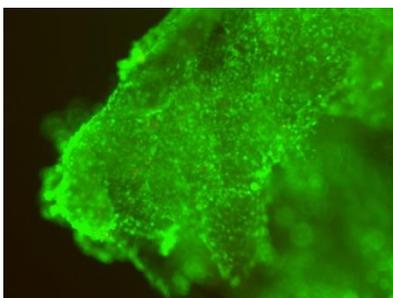
The shear thinning behavior of the Fibercoll-Flex-N® bioink provides excellent bioprinting characteristics even at physiological conditions promoting cell survival and leading to scaffolds with good mechanical and shape-maintaining properties that can be immediately used.



*Images:* Directly after printing the fibrous collagen scaffold (left) is submerged in culture medium (right) and can be immediately handled.

### Native collagen type I promotes performance of embedded cells

Fibercoll-Flex-N® bioprints are excellent scaffolds for cells printed along with the bioink, featuring high biocompatibility and promoting cell survival and growth.



*Images:* L929 mouse fibroblasts growing in Fibercoll-Flex-N® bioprints and labeled with calcein/ethidium homodimer on day 5 in a live/dead assay (live cells in green, dead cells in red). Left: 3% collagen, right: 2% collagen.

### Intended use

The Fibercoll-Flex-N® bioink is intended for research use only. It is neither intended for human nor animal diagnostic, therapeutic use nor any other clinical uses.

### Quality

Produced under ISO 9001 quality management system.

### Storage

Storage temperature 2 – 8 °C, do not freeze.

### Shelf life

Minimum 12 months.

### Corresponding documents

- User Guide  
Fibercoll-Flex-N® bioprinting protocol

### Technical support & ordering information

contact@bio.viscofan.com  
☎ +49 06201 86-358

### Disclaimer

All data and recommendations correspond to the present state of our knowledge; they are published without engagement. We reserve the right to make alterations and additions in line with technical developments without prior notice. The customer is obliged to check whether our products meet her/his technical requirements.

Please contact us for questions or support.