TECHNICAL DATA SHEET

Catalog number: RGMT017

REGEMAT 3D

Flexdym™

Flexdym™ is a block copolymer belonging to the styrene-ethylene-butylene-styrene family of thermoplastic elastomers, specifically designed for the fabrication of microfluidic devices and flexible scaffolds for biomedical applications. Flexdym™ shares several characteristics with polydimethylsiloxane (PDMS): it is certified biocompatible (ISO 10993 parts 4, 5, 6, 10 & 11) and USP Class VI-compliant, exhibits higher hydrophilic stability, is optically transparent, and behaves as a soft elastomer. Additionally, it is resistant to the absorption of small molecules, such as drugs or growth factors.

Specifications

PARAMETER	SPECIFICATION
Base component	TPU elastomer
Appearance	Black filament
Electrical resistivity	~ 3.5 Ω/cm
Printing temperature	Print head: 245 - 250 °C Bed platform: 50 - 60 °C

Key properties

Biomechanical properties

The elastomeric nature allows deformation even at high tensile strengths without fracturing, making it a suitable candidate for the engineering of tissues exposed to continuous mechanical loads

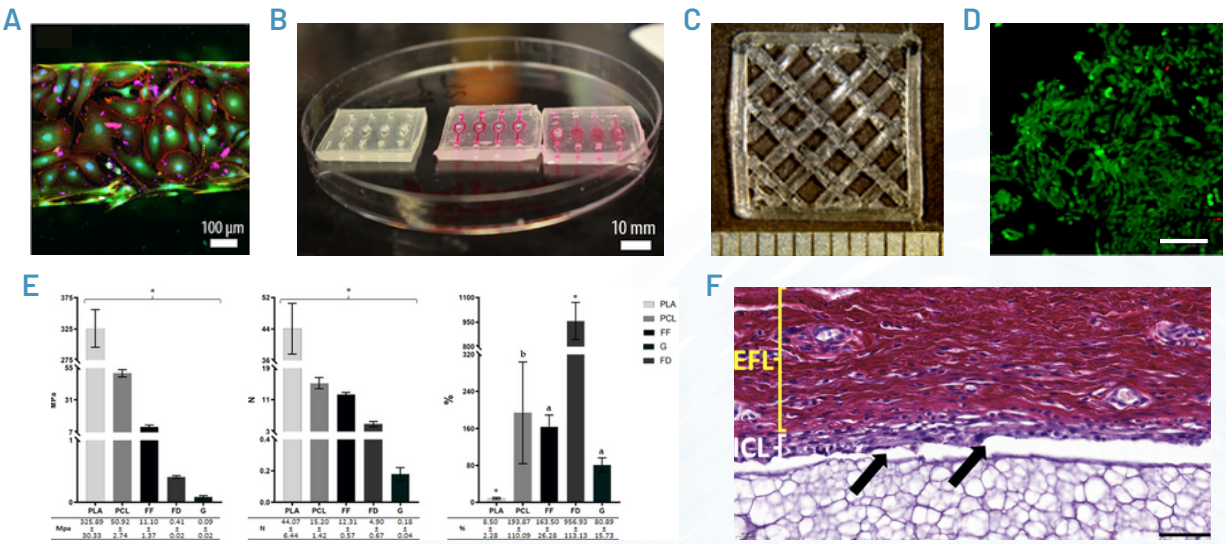
Electroconductive properties

Provides moderate conductivity, enabling electrical stimulation in soft TE applications

Cytocompatibility

Enhanced cell survival and adhesion in a non-cytotoxic environment

Supportive Material



(A) Confocal microscope image of the grown endothelial cell monolayer stained with DAPI for nucleus (blue), GFP for cytoskeleton (green) and Phalloidin iFluor 594 for Actin fibers (red) [1]; **(B)** Open microfluidics to closed cell culture under flow, showing microchannels filled with 1 mM rhodamine B and then closed for perfusion assay [1]; **(C)** Macroscopic images of Flexdym™ 3D-printed scaffolds [2]; **(D)** Live/Dead assay of Flexdym™ scaffolds seeded with SK-N-AS cells after 7 days in culture. Scale bar 100 µm [2]; **(E)** Tensile test results of PLA, PCL, Filaflex, Flexdym™ and GelMA: from left to right, Young's modulus (Mpa), charge at fracture (N), and strain at fracture (%) [2]; **(F)** Picrosirius staining of *in vivo* samples of Flexdym™ showing an external fibrotic layer (EFL) and an inner cellular layer (ICL). The black arrows indicate syncytial formations. Scale bar: 50 µm [2].

References

[1] Salmon *et al.*, *Engineering Reports*, 2021;3:e12361.
[2] Etayo-Escanilla *et al.*, *Polymers*, 2024;16(10), 1426.

Intended use

Research Use Only. Not for use in diagnostic procedures or for administration to humans.

Shelf life

The product remains stable when stored and handled according to the recommended conditions.

Storage conditions

Keep container tightly closed. Store in a dry, well-ventilated area, protected from atmospheric agents.

Recommended storage temperature: Below 40 °C.

Printing protocol

3D printing protocol can be downloaded from our website. Scan the QR code to reach the product webpage.