

SUPPLEMENTARY FIGURES

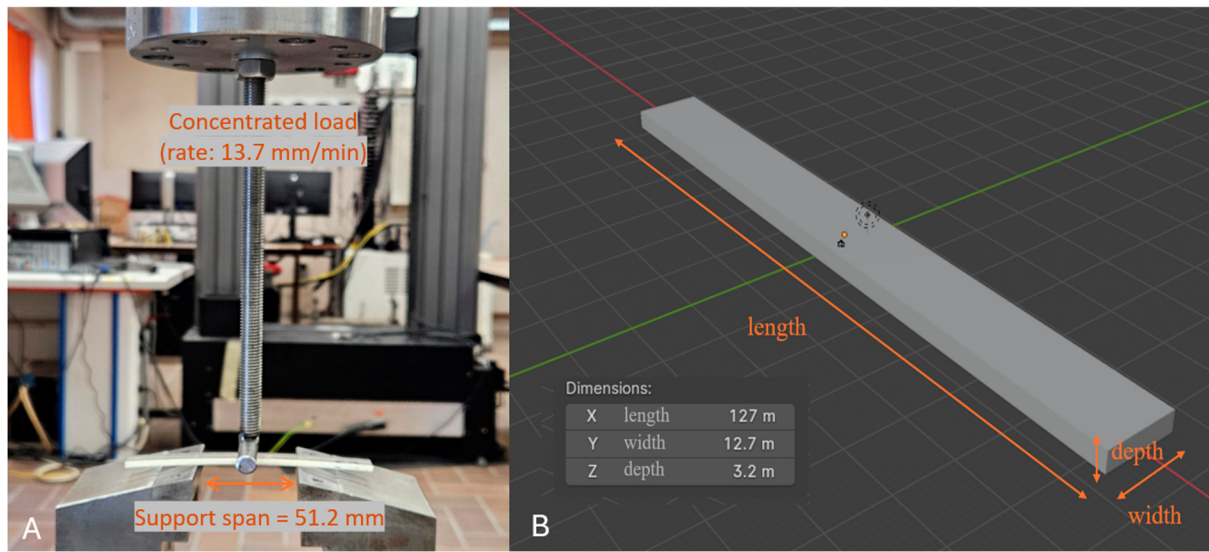


Figure S1. (A) Set-up for bending tests of specimens with 127 mm total length; (B) Design and dimensions of the small sample set in Blender.

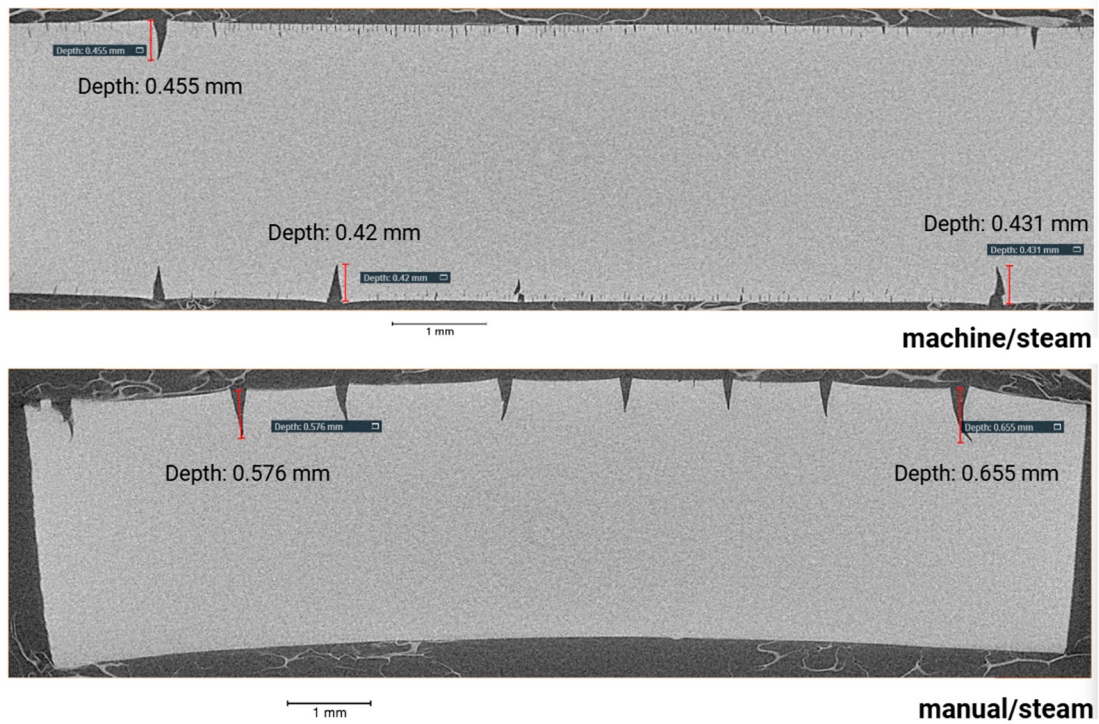


Figure S2. Micro-CT images of Bioflex specimens from the machine/steam (top) and manual/steam group (bottom) that revealed superficial cracking. Machine/steam samples show cracking with depths ranging from 0.420 mm to 0.455 mm. Manual/steam samples exhibit deeper, more extensive longitudinal cracks with depths between 0.576 mm and 0.655 mm. Subtle bulging of the material is visible in the manual/steam group.

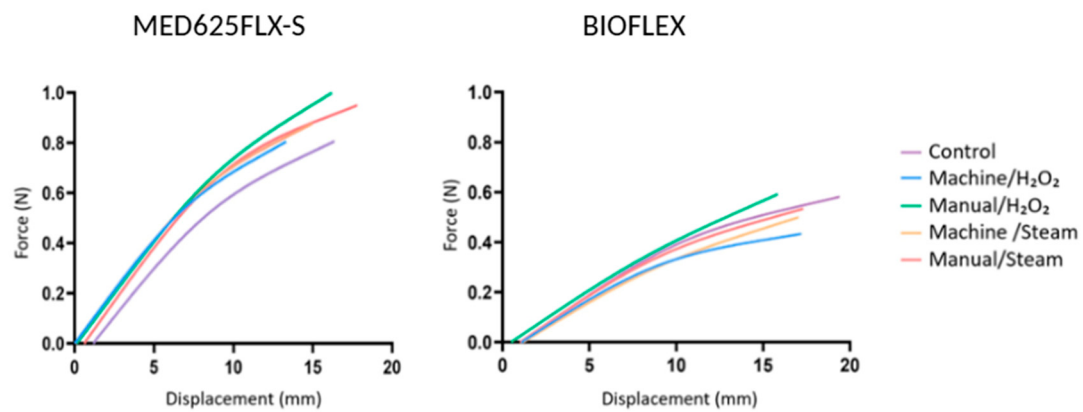


Figure S3. Load-displacement curves from three-point bending tests of MED625FLX-S and Bioflex (small samples).

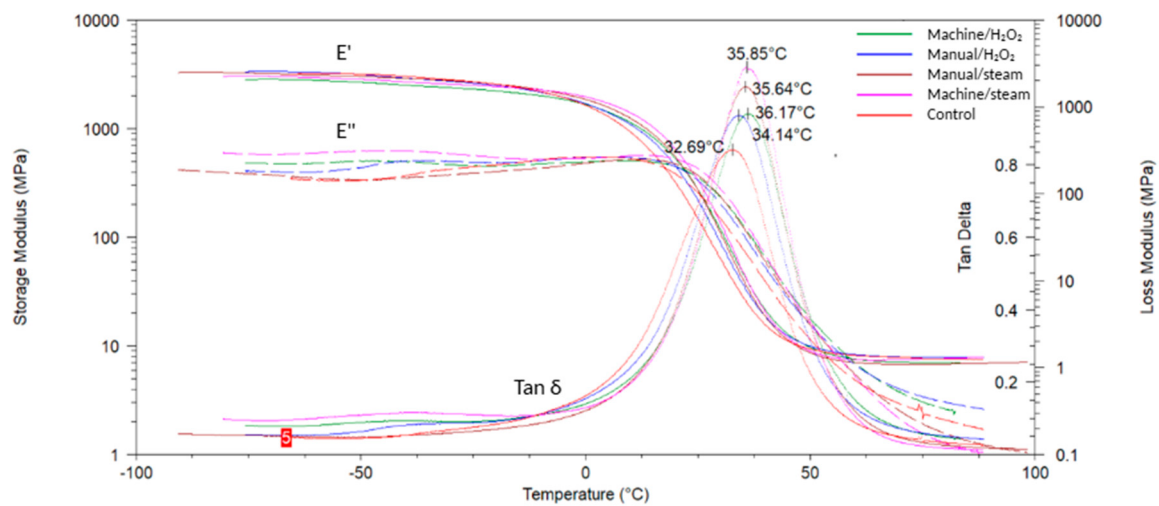


Figure S4. Exemplary dynamic mechanical analysis curves of MED625FLX for one sample per group.

Storage modulus (E' , left Y-axis), loss modulus (E'' , right Y-axis), and loss factor (the ratio of E'' to E') ($\tan \delta$, right Y-axis) are shown. The peak in $\tan \delta$ indicates T_g .

SUPPLEMENTAL TABLES

Table S1. Material properties of the 3D printing resins used in this study.

Trade Name (Company)	Bioflex® A80 MB (3Dresyns)	MED625FLX® (Stratasys)
Chemical Family	NP	NP
Thermal properties:		
Glass Transition Temperature (°C) and Melting Point (°C)	NP	NP
Tensile Strength (MPa)	<15	3-5 (D-412)
Flexural strength (MPa)	<15	NP
Young modulus (MPa)	<90	NP
Elongation at Break (%)	<100	45-55 (D-412)
Compressive Set (%)	N/P	0.5-1.5 (D-395)
Shore Hardness (Scale A)	A75-85	73-77 (D-2240)
Tensile Tear Resistance (kg/cm)	N/P	8-12 (D-624)
Polymerized Density (g/cm ³)	N/P	1.16-1.17 (D-792)
Printer Technology	SLA, DLP & LCD	PolyJet
Support Removal Type	/	WaterJet
IZOD Impact, Notched	N/P	20-30 J/m
HDT heat deflection temperature (°C)	N/P	45-50°C

Bio-compatibility	Approved (EN ISO 10993-1)		Approved (EN ISO 10993-1)	
			Cytotoxicity	EN ISO 10993-5:2009
			Irritation	EN ISO 10993-10:2013
			Delayed-type hypersensitivity	EN ISO 10993-10:2013
			Material mediated pyrogenicity (FDM USP <151>)	EN ISO 10993-11:2009
Biological evaluation	Cytotoxicity	EN ISO 10993-5:2009	Acute systemic toxicity	EN ISO 10993-11:2009
			Chemical characterization	EN ISO 10993-18:2009
			Allowable limits for leachable substances	EN ISO 10993-17:2009
			USP plastic class VI	USP 34 <88>
			Genotoxicity	EN ISO 10993-3:2014
NP: not provided				

Table S2. Results of the three-point bending test and statistical analysis. Significant p_a values are highlighted in bold.

Material	Subgroup	Flexural	ANOVA		Bonferroni-Corrected Post Hoc Test		
		Modulus			(Students-t, If $p < 0.05$)		
		E_f [MPa]	F (x, x)	p	Comparison	t (x)	p_a
MED625FLX-S	Control	30.48 ±	3.889	0.018	machine/H ₂ O ₂ vs	-	0.559
		0.74			manual/H ₂ O ₂	0.613	
	Machine/ H ₂ O ₂	30.81 ±			machine/H ₂ O ₂ vs	-	0.139
		1.13			machine/steam	1.657	
	Manual/H ₂ O ₂	31.21 ±			machine/H ₂ O ₂ vs	-	0.038
		0.81			manual/steam	2.485	
	Machine/steam	31.85 ±			machine/H ₂ O ₂ vs control	0.544	0.604
		0.84					
	Manual/steam	32.56 ±			manual/H ₂ O ₂ vs	-	0.282
		1.10			machine/steam	1.169	
					manual/H ₂ O ₂ vs	-	0.071
					manual/steam	2.125	
					manual/H ₂ O ₂ vs control	1.385	0.213
					machine/steam vs	-	0.289
					manual/steam	1.142	
					machine/steam vs	2.731	0.026
					control		

					manual/steam vs control	3.504	0.009
MED625FLX-L	Control	27.32 ± 3.88	1.837	0.198	-	-	-
	Machine/ H ₂ O ₂	25.27 ± 0.23			-	-	-
	Manual/H ₂ O ₂	23.57 ± 0.16			-	-	-
	Machine/steam	25.33 ± 1.44			-	-	-
	Manual/steam	23.97 ± 0.67			-	-	-
BIOFLEX	Control	18.86 ± 0.68	7.04	0.001	machine/H ₂ O ₂ vs manual/H ₂ O ₂	- 2.765	0.036
	Machine/ H ₂ O ₂	16.85 ± 0.43			machine/H ₂ O ₂ vs machine/steam	- 0.450	0.665
	Manual/H ₂ O ₂	18.19 ± 1.00			machine/H ₂ O ₂ vs manual/steam	- 0.586	0.581
	Machine/steam	16.96 ± 0.41			machine/H ₂ O ₂ vs control	- 5.628	0.001
	Manual/steam	17.13 ± 0.99			manual/H ₂ O ₂ vs machine/steam	2.538	0.049
					manual/H ₂ O ₂ vs manual/steam	1.685	0.131

manual/H ₂ O ₂ vs control	-	0.249
		1.257
machine/steam vs	-	0.746
manual/steam		0.341
machine/steam vs	-	0.001
control		5.372
manual/steam vs control	-	0.014
		3.234
