Electronic Supplementary Information for

Three dimensional ink-jet printing of biomaterials using ionic liquids and co-solvents

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Sample Preparation - Sample Number 1

Volume of $[C_4C_1Im][OAc]$ = 8 mL
Density of $[C_4C_1Im][OAc]$ = 1.055 g/cm^3
Mass of $[C_4C_1Im][OAc]$ = 8.4400 g

Mass of cellulose was taken as 2% of the mass of $[C_4C_1Im][OAc]$, i.e. 0.1688 g

Sample Preparation - Sample Number 5

Volume of $[C_4C_1Im][OAc]$ = 6 mL
Density of $[C_4C_1Im][OAc]$ = 1.055 g/cm^3
Mass of $[C_4C_1Im][OAc]$ = 6.3300 g

Mass of cellulose was taken as 2% of the mass of $[C_4C_1Im][OAc]$, i.e. 0.1266 g

Mass of DMSO was taken as 50% of the mass of $[C_4C_1Im][OAc]$, i.e. 3.17 g

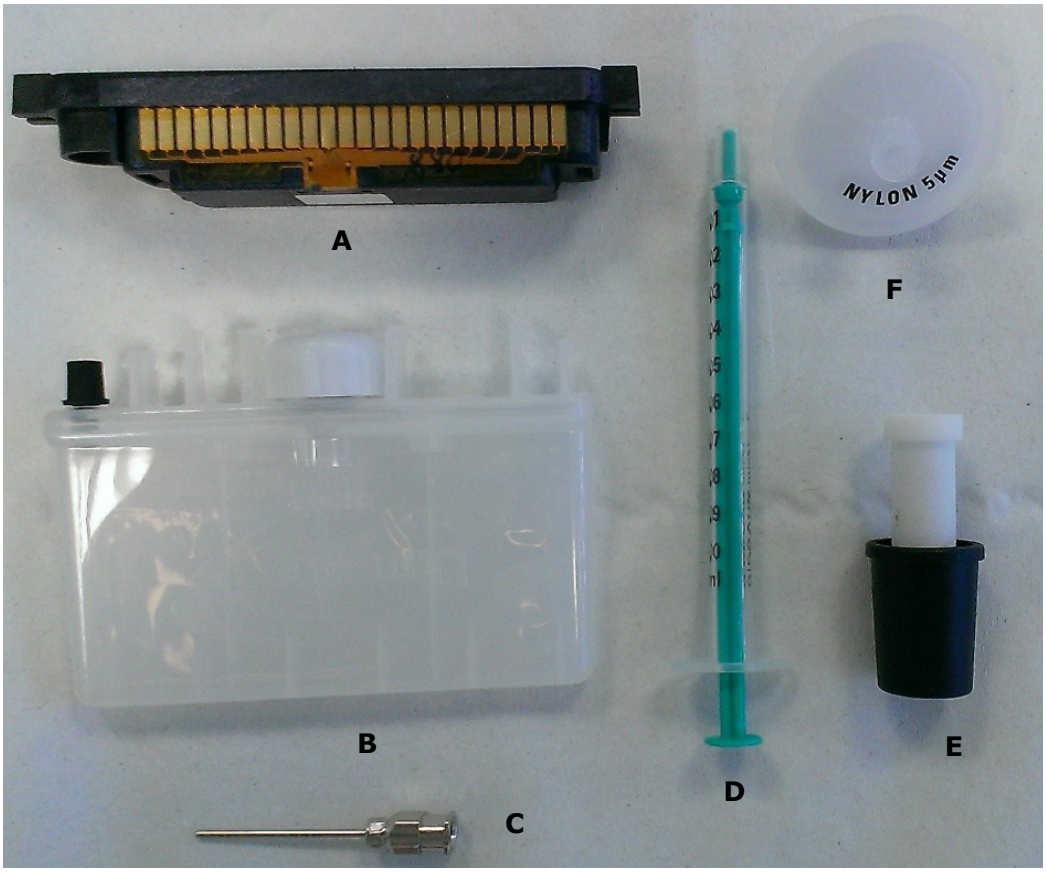


Figure S1. Apparatus used to fill the DIMATIX materials print cartridge. A) jetting module B) fluid module C) fill needle D) 1 mL syringe E) cleaning pad and F) syringe filter

Density Calculation - Sample Number 1

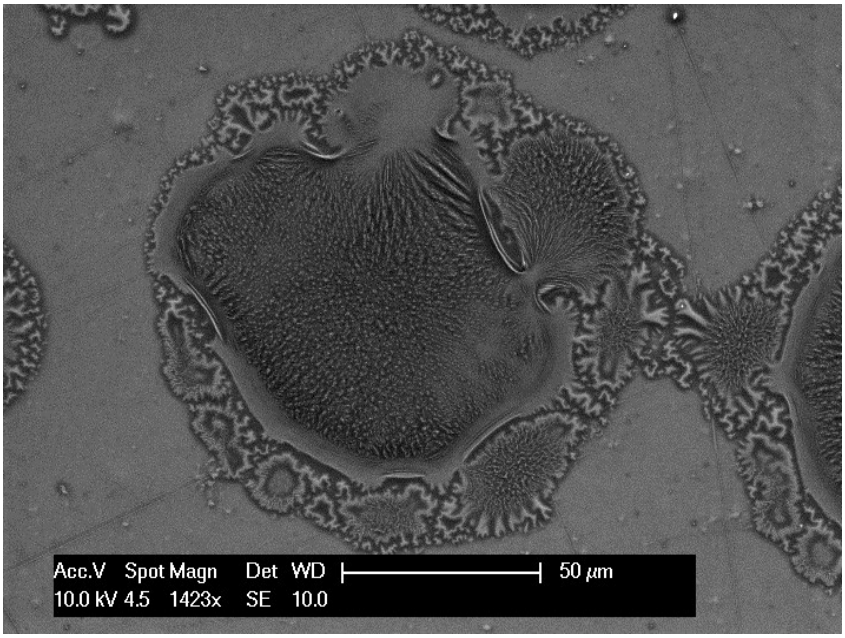
Mass Cellulose	= 0.1688 g
Mass of $[C_4C_1Im][OAc]$	= 8.4400 g
Total sample mass	= 8.6088 g
Density of Cellulose	=0.6 g/cm^3
Volume of Cellulose	=0.28133 cm^3
Density of $[C_4C_1Im][OAc]$	= 1.055 g/cm^3
Volume of $[C_4C_1Im][OAc]$	= 8 cm^3
Total sample volume	= 8.28122 cm^3
Sample density	= 1.04 g/cm^3

Density Calculation - Sample Number 5

Mass Cellulose	= 0.1266 g
Mass of $[C_4C_1Im][OAc]$	= 6.33 g
Mass of DMSO	= 3.17 g
Total sample mass	= 10.8876 g
Density of Cellulose	=0.6 g/cm^3
Volume of Cellulose	=0.211 cm^3
Density of $[C_4C_1Im][OAc]$	= 1.055 g/cm^3
Volume of $[C_4C_1Im][OAc]$	= 6 cm^3
Density of DMSO	= 1.1 g/cm^3
Volume of DMSO	= 6 cm^3
Total sample volume	= 9.0883cm^3
Sample density	= 1.06 g/cm^3

Scanning Electron Microscope (SEM) Images

A



B

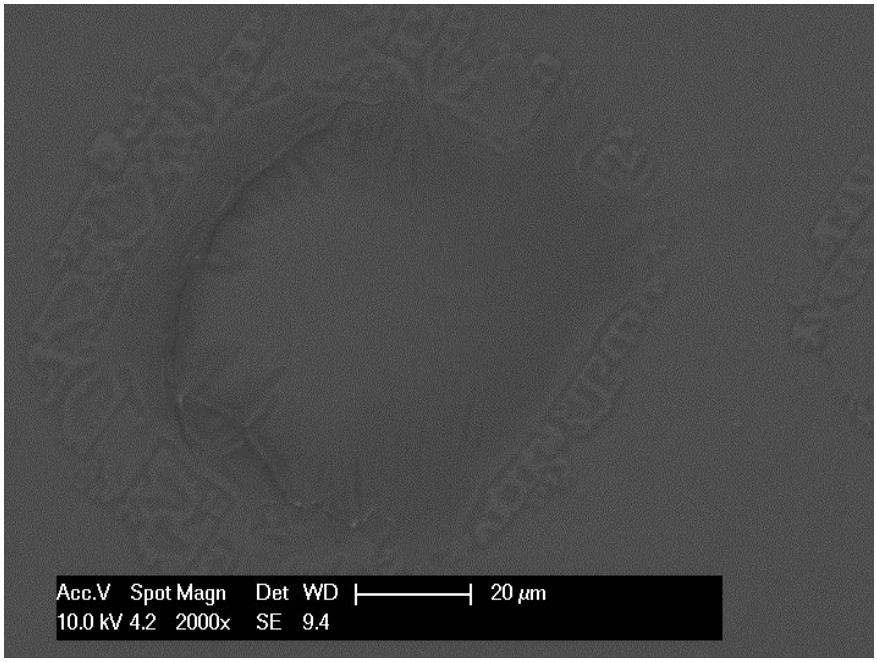


Figure S2. SEM images obtained from Philips XL30 scanning electron microscope A) sample 6 printed on PET and dried overnight at room temperature, B) sample 7 printed on PET and dried overnight at room temperature

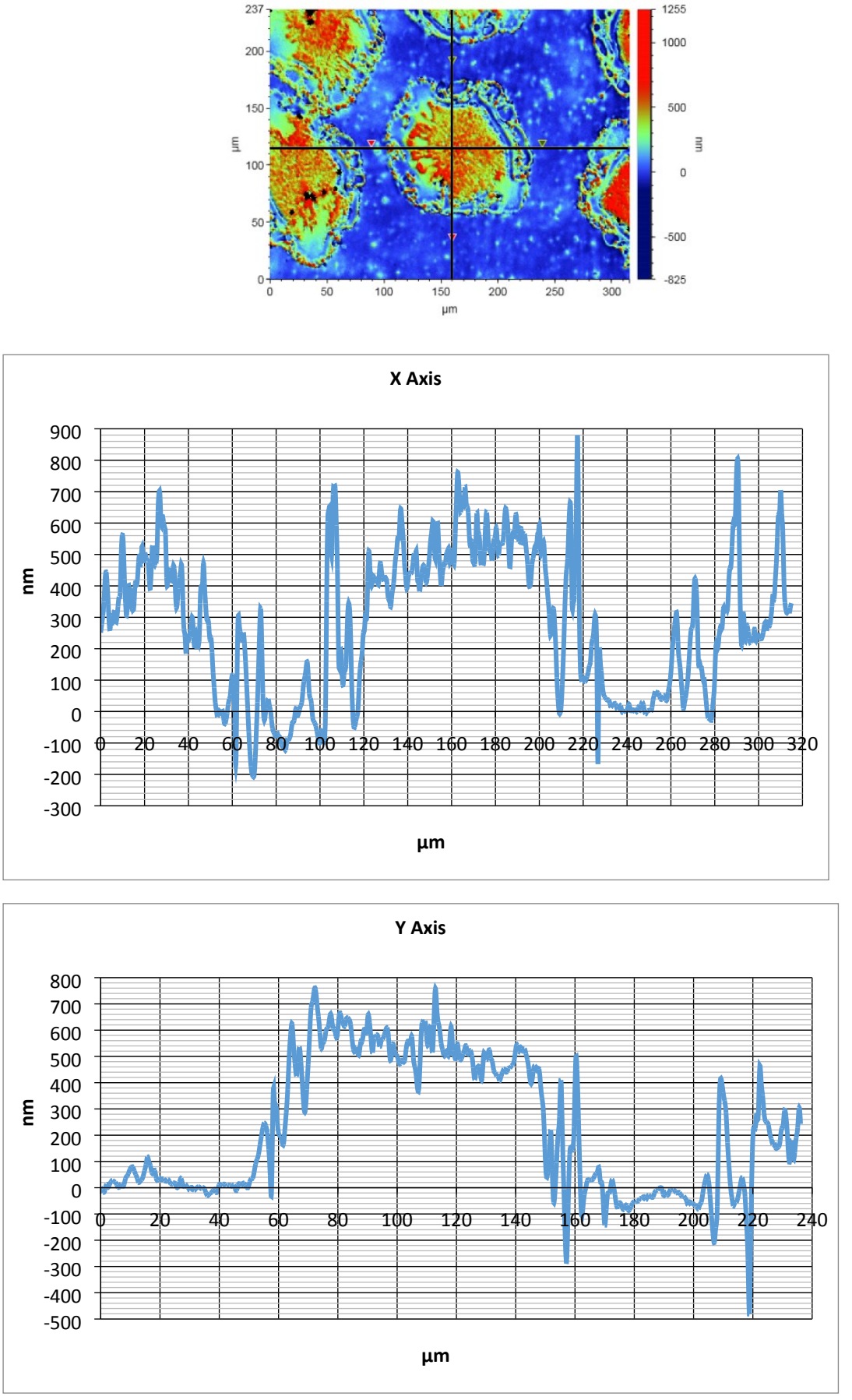
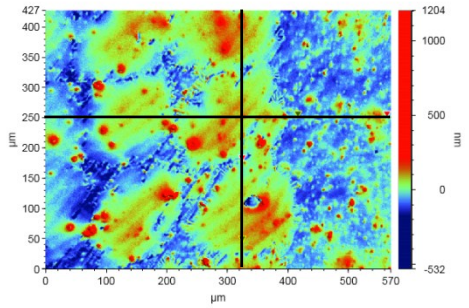
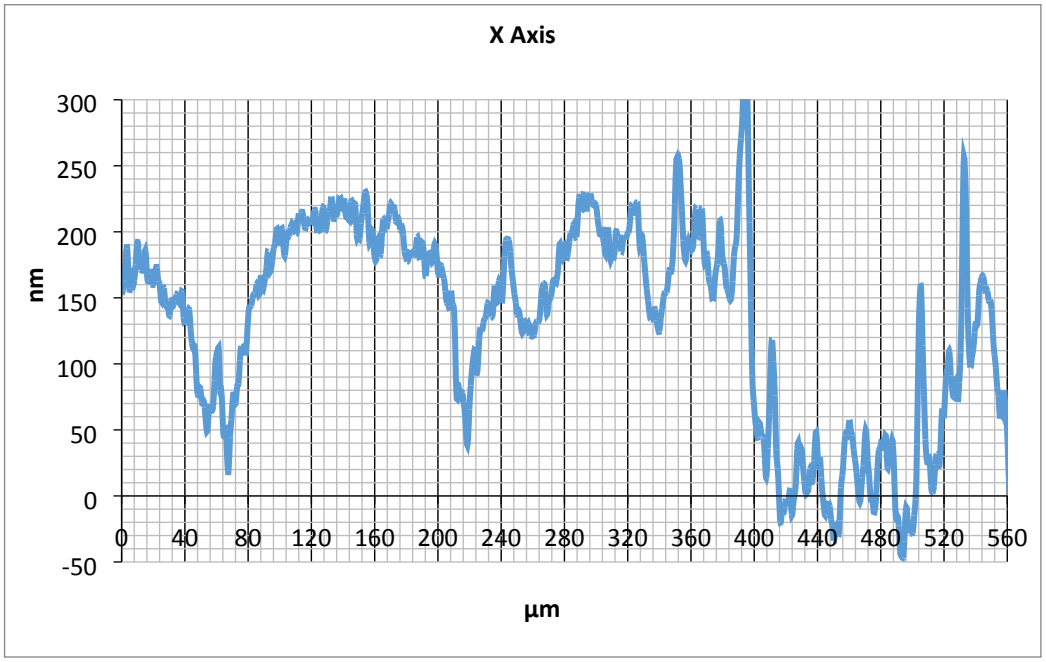


Figure S3. WLI images and data obtained from Brunker Contour CT white light interferometry for sample 6 printed on PET and dried overnight at room temperature





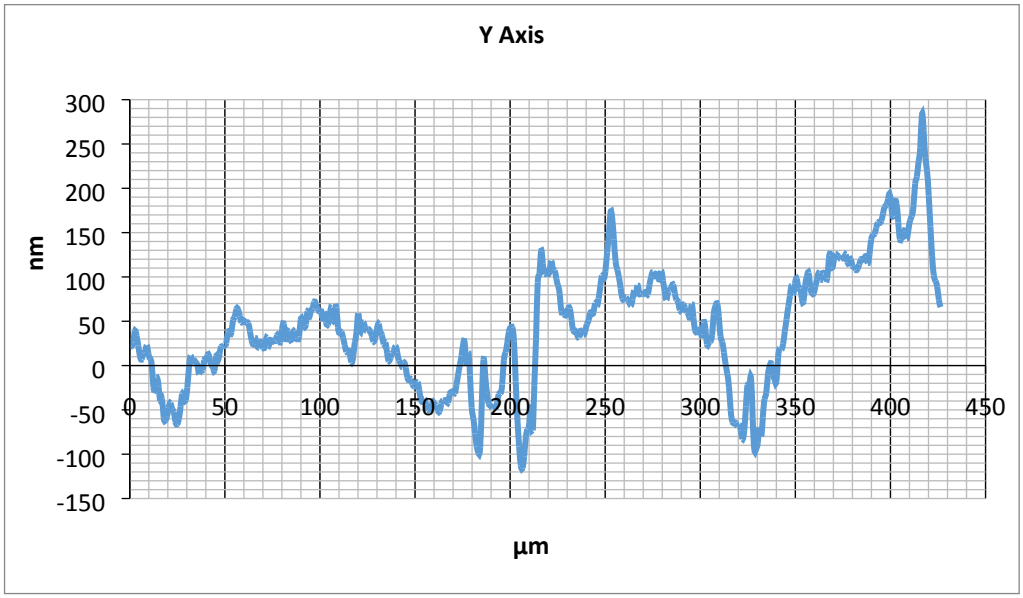
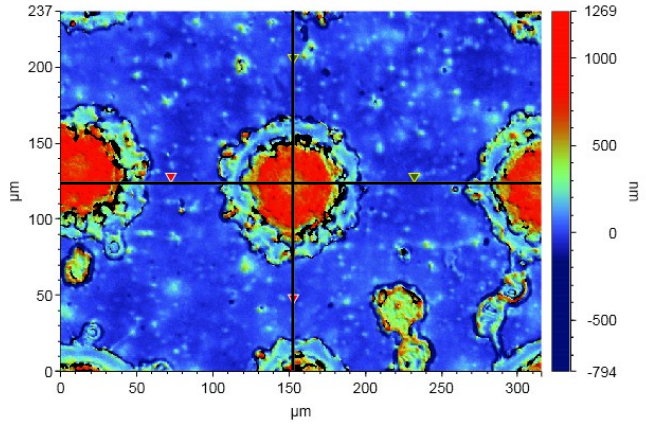
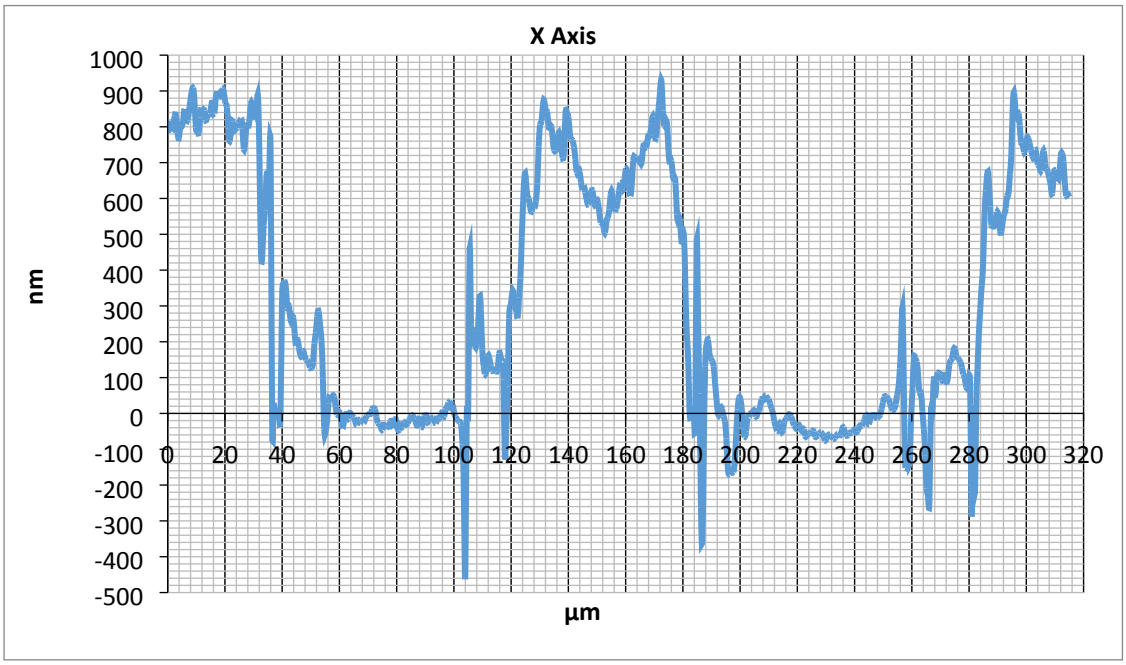


Figure S4. WLI images and data obtained from Brunker Contour CT white light interferometry for sample 7 printed on PET and dried overnight at room temperature





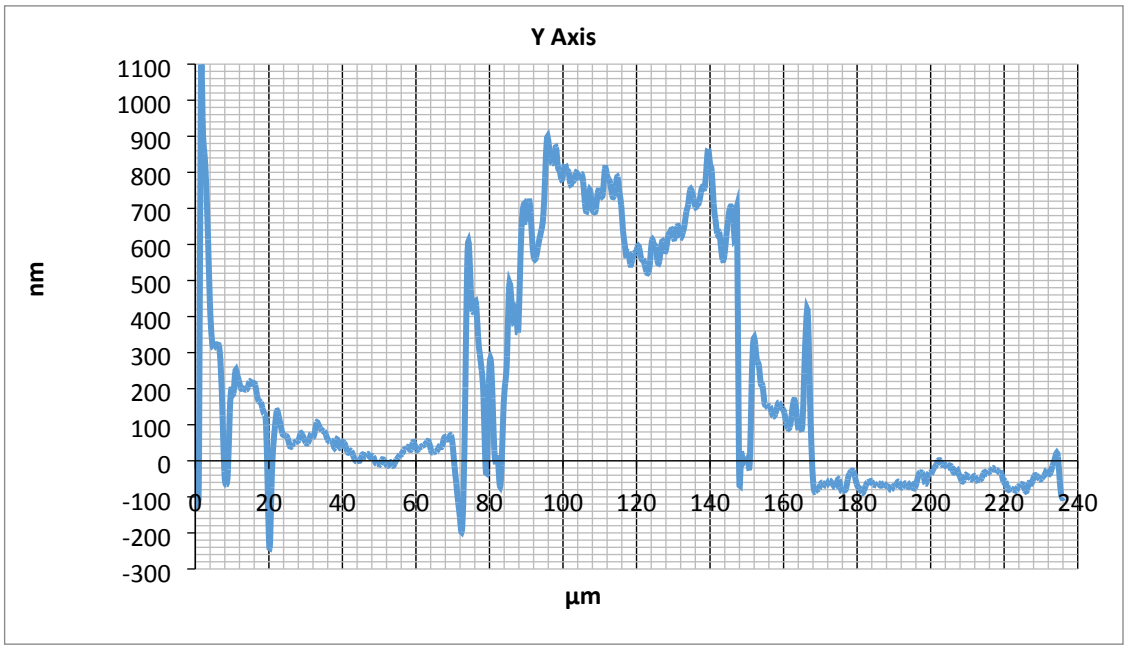


Figure S5. WLI data obtained from Brunker Contour CT white light interferometry for sample 6 printed on PET and dried overnight at 50°C

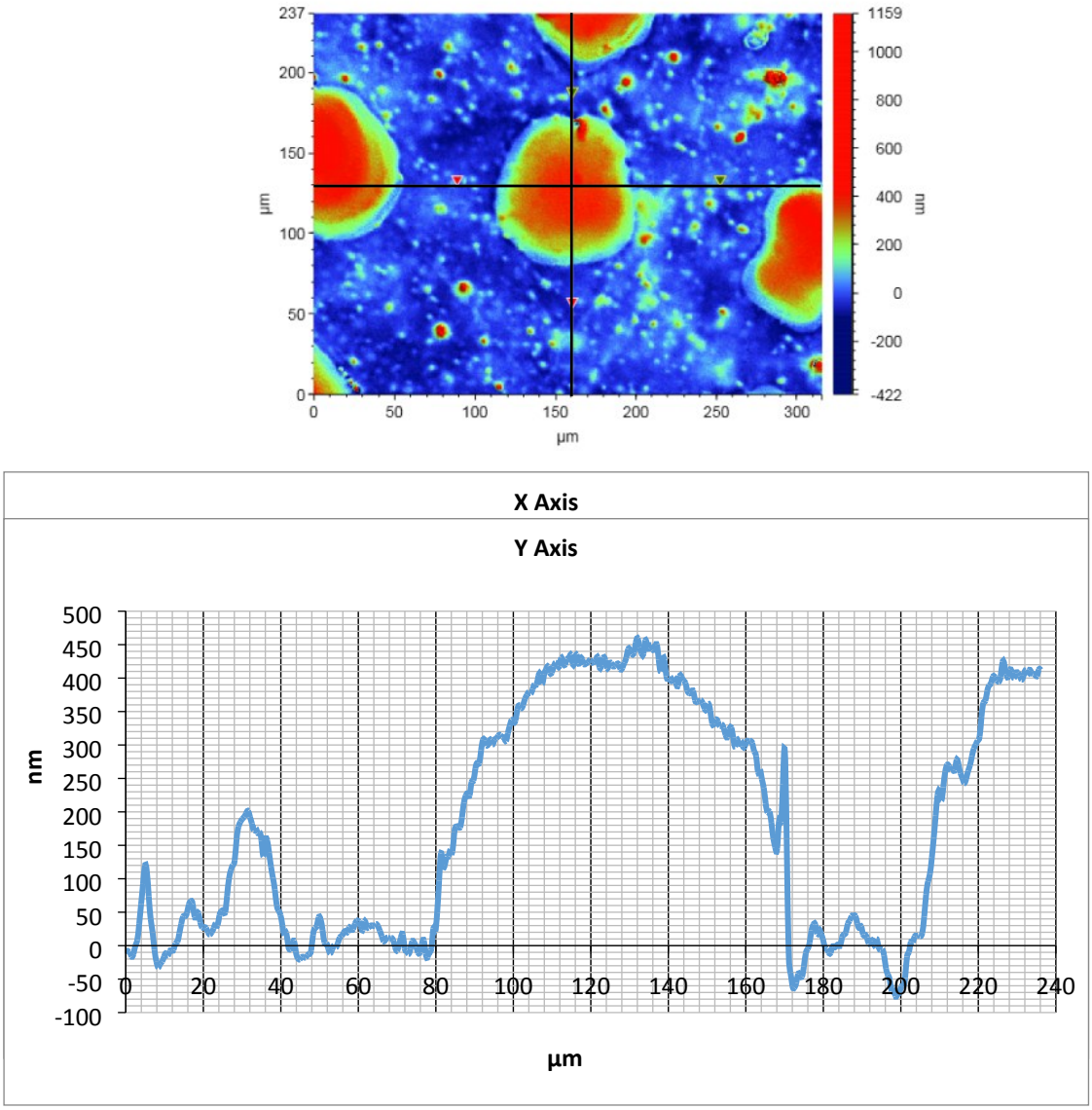


Figure S6. WLI data obtained from Brunker Contour CT white light interferometry for sample 7 printed and dried overnight at 50°C