

Supporting Information

Modifying Bacterial Cellulose Dispersions with Deep Eutectic Solvent and Pectin to Tune the Properties of Open-Celled Foams

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Supplementary Tables

Table S1: SAXS model fitting parameters.

Sample	scale	Bkg (cm^{-1})	I_G (cm^{-1})	I_L (cm^{-1})	R_g (\AA)	D	ξ (\AA)
DES BC	80.55	0.02	320.76	10.75	3278.7	3.24	219.88
BC	6.68	-0.03	7.50	53393	255.38	2.49	4717.3
20% Pectin	65.09	0.01	247.1	14.16	2607.4	3.13	258.34
40% Pectin	8.37	0.02	202.45	81.19	2149.8	3.19	241.97
60% Pectin	4.40	0.02	152.03	123.21	1760.8	3.18	256.1
80% Pectin	3.85	0.01	175.07	95.81	1955.8	3.10	290.53
100% Pectin	2.86	0.01	2.23	654.9	402.34	2.46	2576.2

Table S2: Power law fitting parameters of SAXS data

Pectin %	Power	Scale	R^2
0.0	2.01	0.003	0.99
20.0	2.055	0.002	0.99
40.0	2.05	0.002	0.99
60.0	2.04	0.001	0.99
80.0	2.00	0.001	0.98
100.0	2.87	0.000	1.00

Supplementary Figures

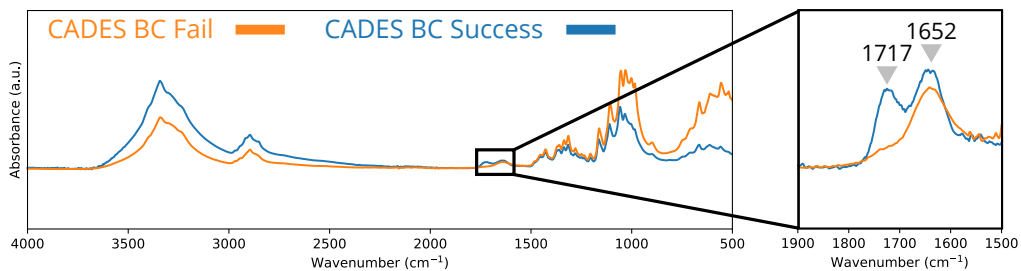


Figure S1: **FTIR of failed CADES treatment** FTIR spectra of two different batches of CADES-BC treated under the same conditions.

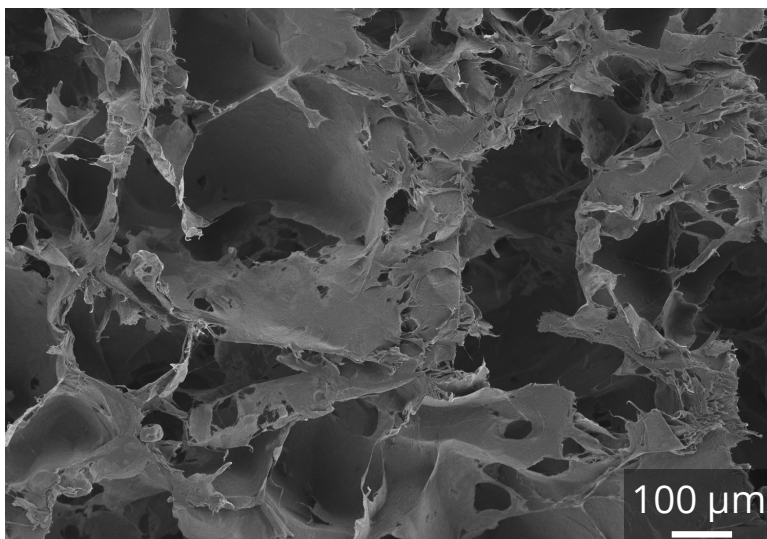


Figure S2: **BC Foam Cell** SEM image of CADES-BC foam at 100x.

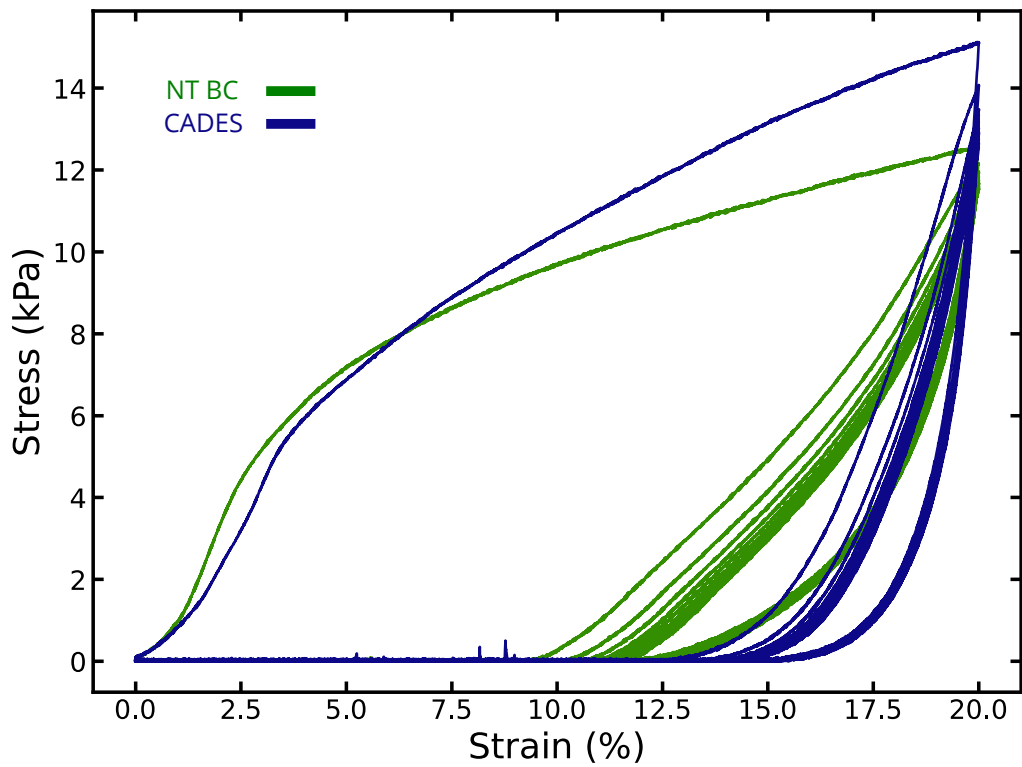


Figure S3: **Cyclic tests of NT vs CADES BC** Representative stress strain curves for NT and CADES BC samples under cyclic loading.

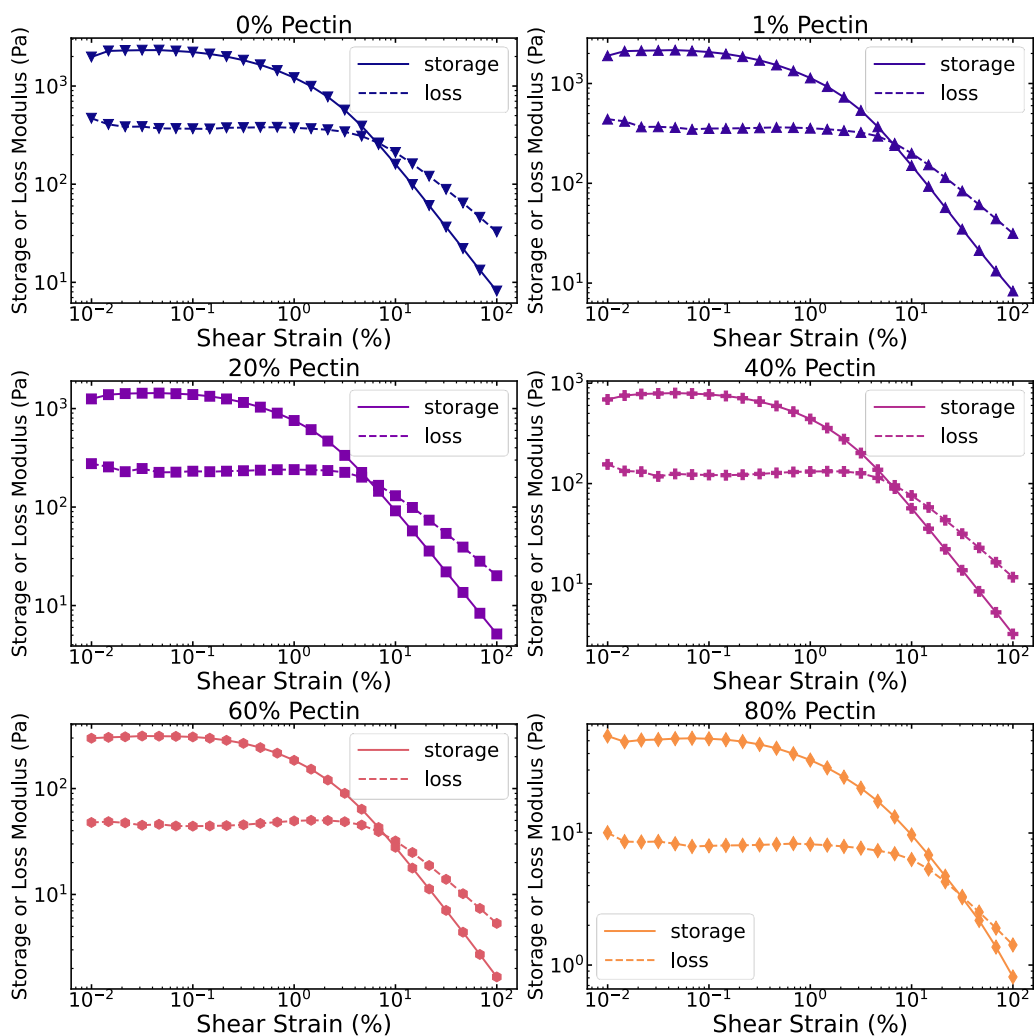


Figure S4: **Amplitude Sweeps of CADES-BC/Pectin Colloids.** Storage and loss modulus curves from the amplitude sweep tests on the CADES-BC/pectin colloids.

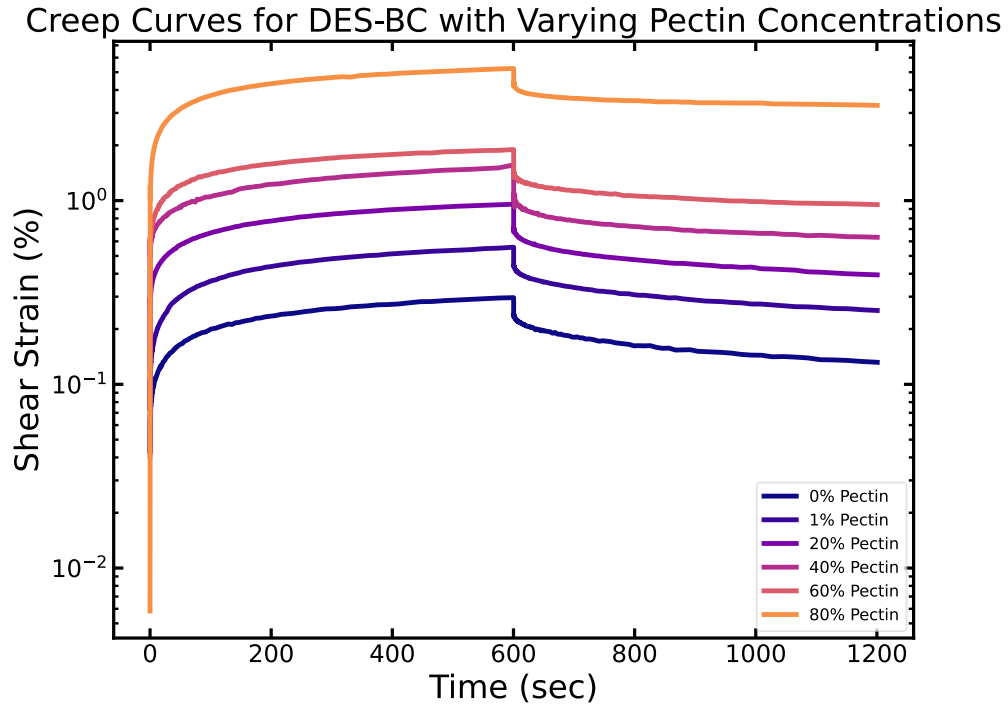


Figure S5: **Creep tests of CADES BC/Pectin Composites** Representative curves for CADES BC samples under rheological creep testing.

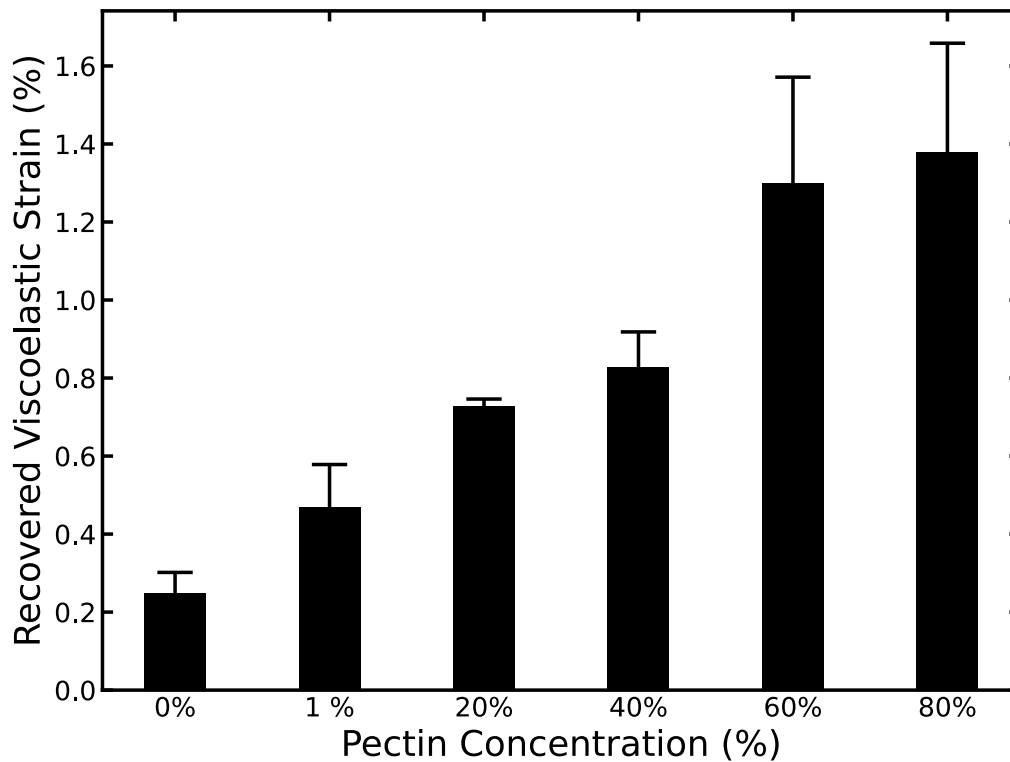


Figure S6: **Recovered Viscoelastic Strain.** Viscoelastic strain recovered during creep-recovery tests of CADES-BC/Pectin colloids.

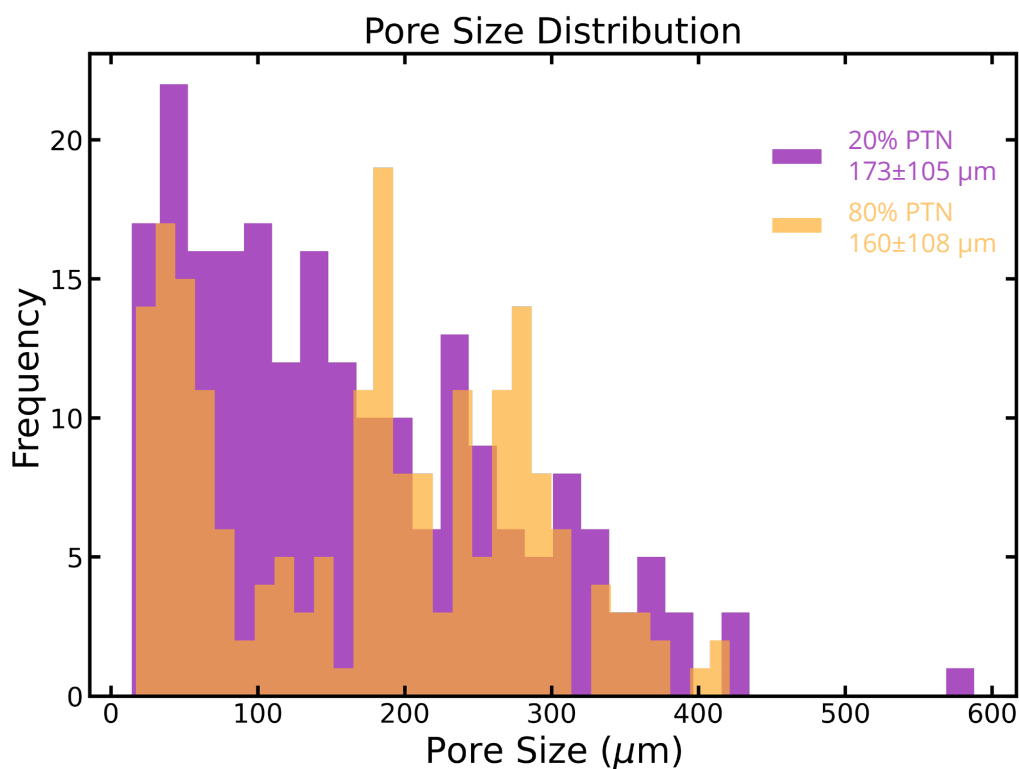


Figure S7: **Pore size distributions for CADES-PTN Composites** Histograms of the pore size distributions of CADES-PTN composites at 20%/80% and 80%/20% concentrations.

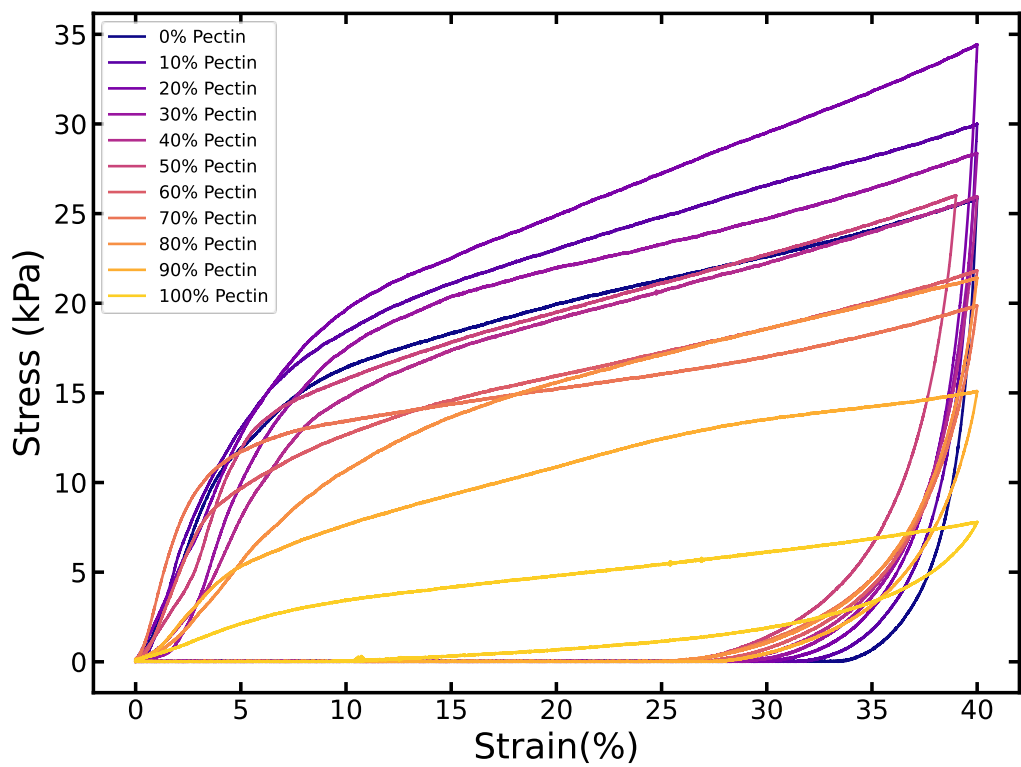


Figure S8: **Pectin sweep stress-strain curves** Representative stress-strain curves of CADES BC/pectin composites.

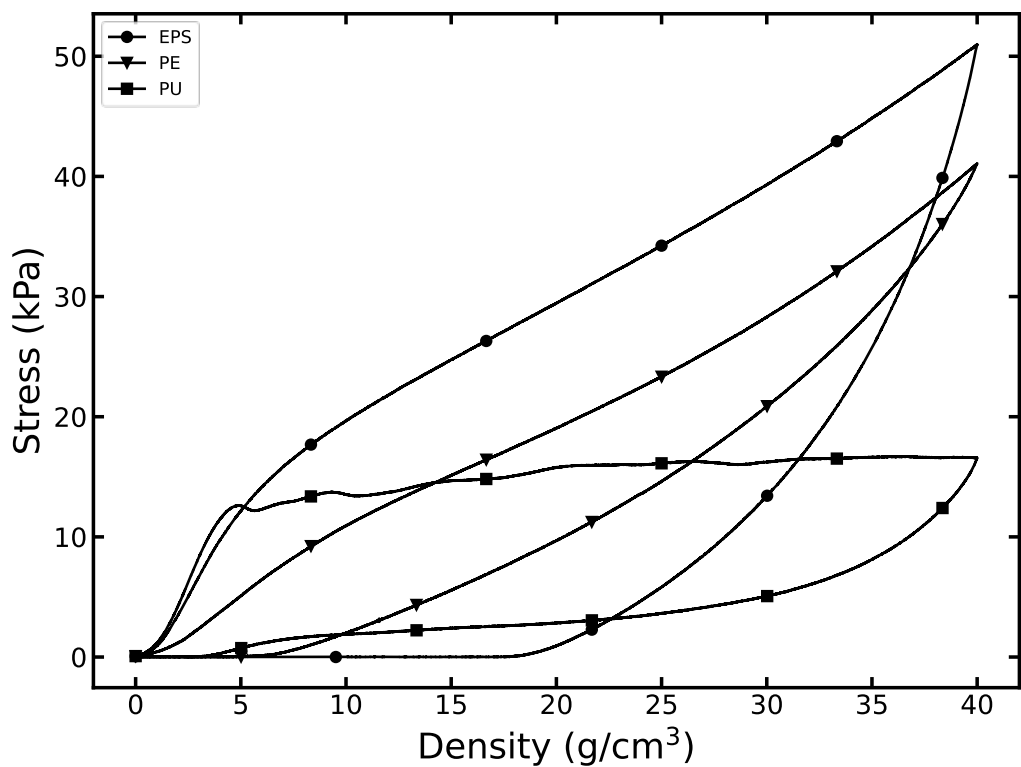


Figure S9: **Commercial polymer stress-strain curves** Representative stress-strain curves of expanded polystyrene, polyethylene, and polyurethane foams.

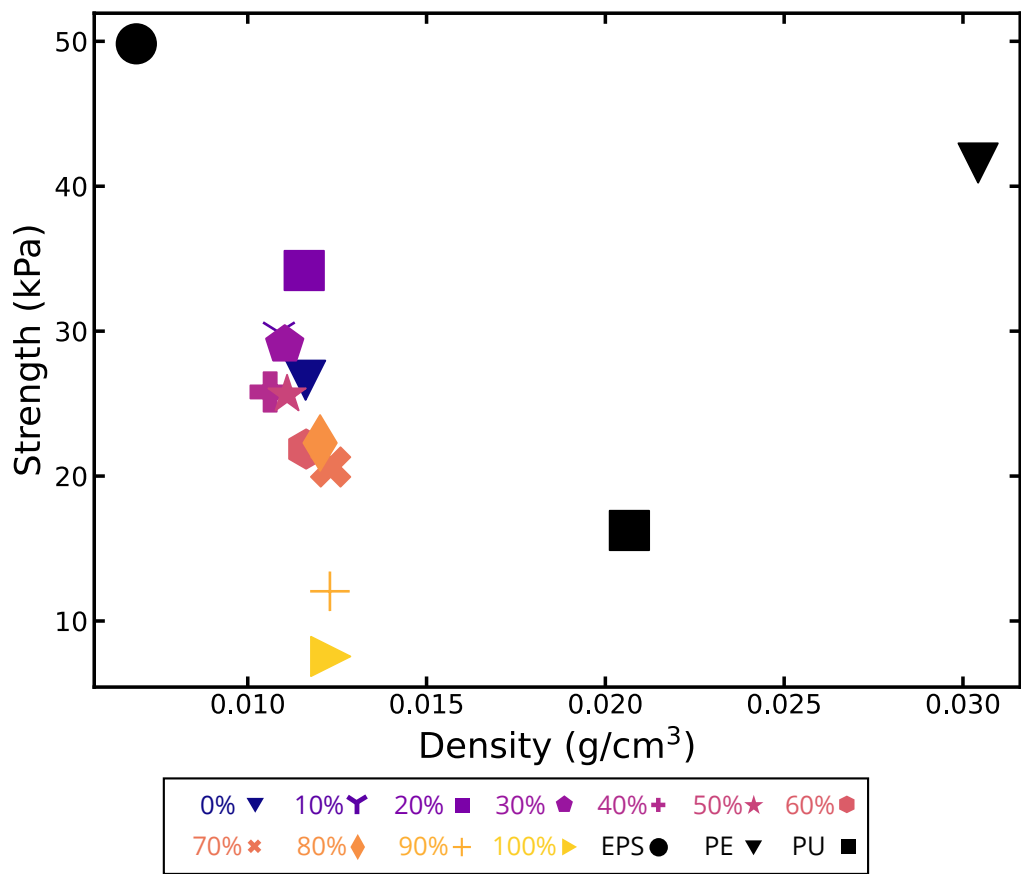


Figure S10: **Strength at 40% strain vs density** A comparison of the compressive strength at 40% strain vs density of the BC/pectin foams and the synthetic polymer foams.

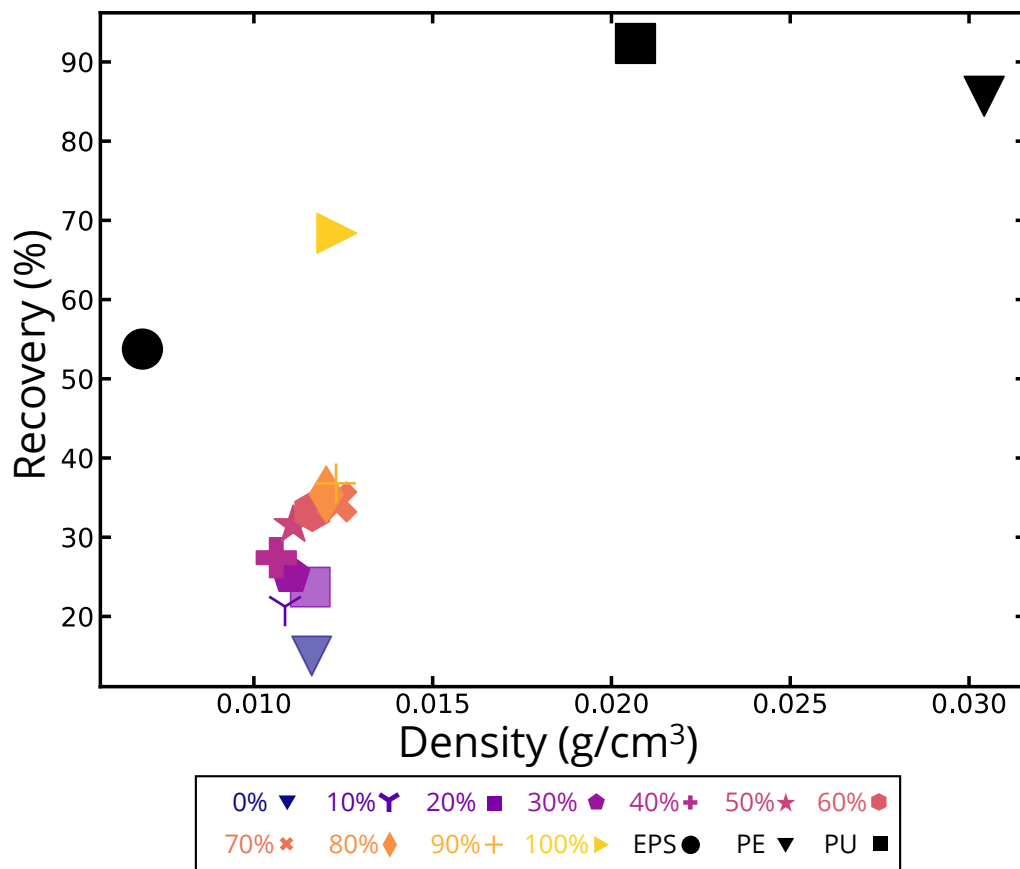


Figure S11: **Recovery vs density** A comparison of the recovery vs density of the BC/pectin foams and the synthetic polymer foams.