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Supporting information

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Bimodal silicone interpenetrating networks sequentially built as electroactive dielectric elastomers

C. Tugui, G. Stiubianu, M. Iacob, C. Ursu, A. Bele, S. Vlad and M. Cazacu

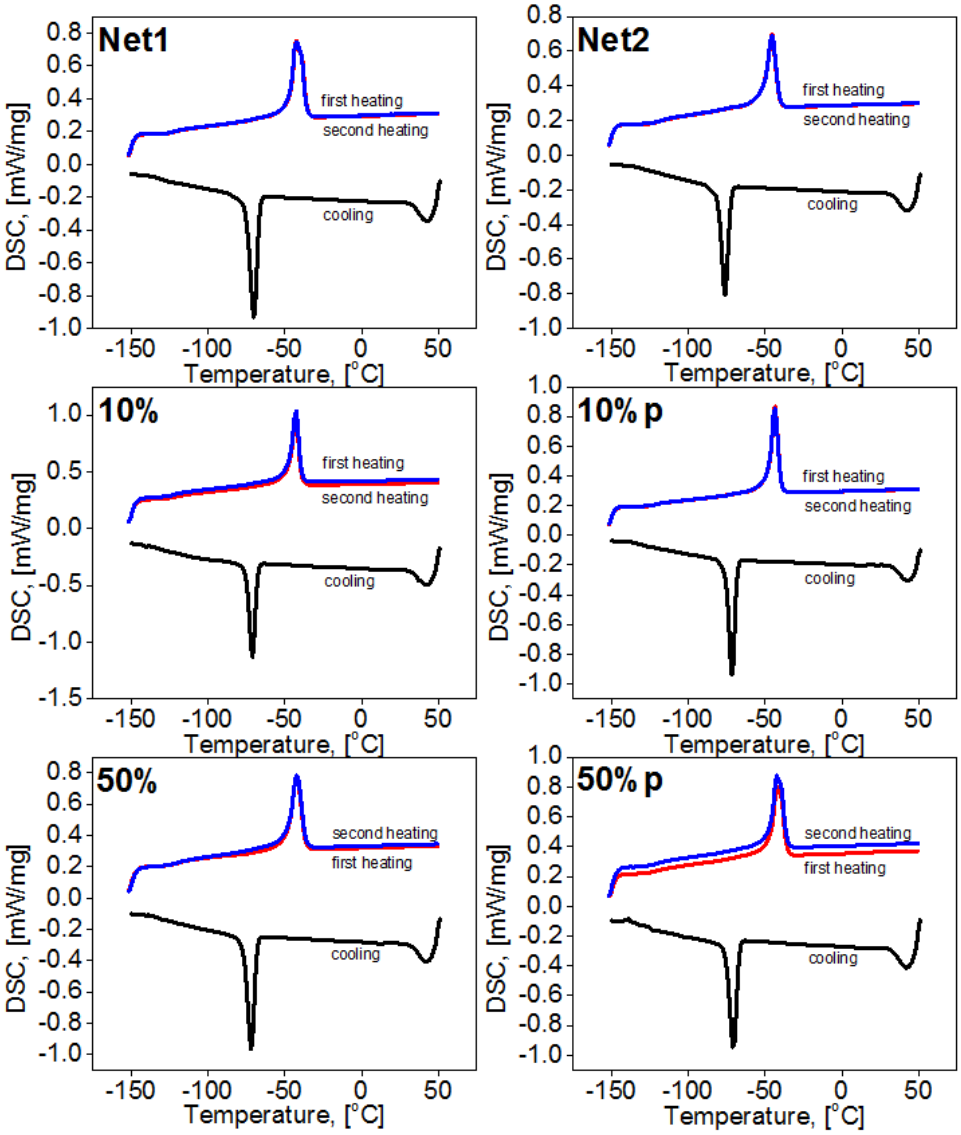


Figure S1. DSC traces for some of the prepared IPNs

Table S1. The main parameters of DSC curves

Sample	Tg_{h1} [°C]	Tg_{h2} [°C]	Tm_{h1} [°C]	Tm_{h1} [°C]	Tm_{h2} [°C]	Tm_{h2} [°C]	T_c [°C]	Area h1 [J/g]	Area h2 [J/g]	Area c [J/g]
Net1	-121.9	-122.2	-42.3	-39.1	-42.1	-39.7	-70.0	23.9	23.6	-26.7
Net2	-119.9	-120.4	-45,4		-45.5		-76.1	19.0	19.3	-21.0
IPN-10	-121.7	-121.9	-42.7		-42.7		-71.1	23.5	23.9	-23.9
IPN-10p	-121.4	-122.6	-43.7		-43.8		-71.4	21.3	21.4	-22.9
IPN-50	-121.2	-121.1	-42.2		-42.1		-71.8	23.5	23.1	-24.2
IPN-50p	-119.8	-119.6	-42.6	-40.3	-42.5	-40.0	-70.6	23.8	24.7	-25.0

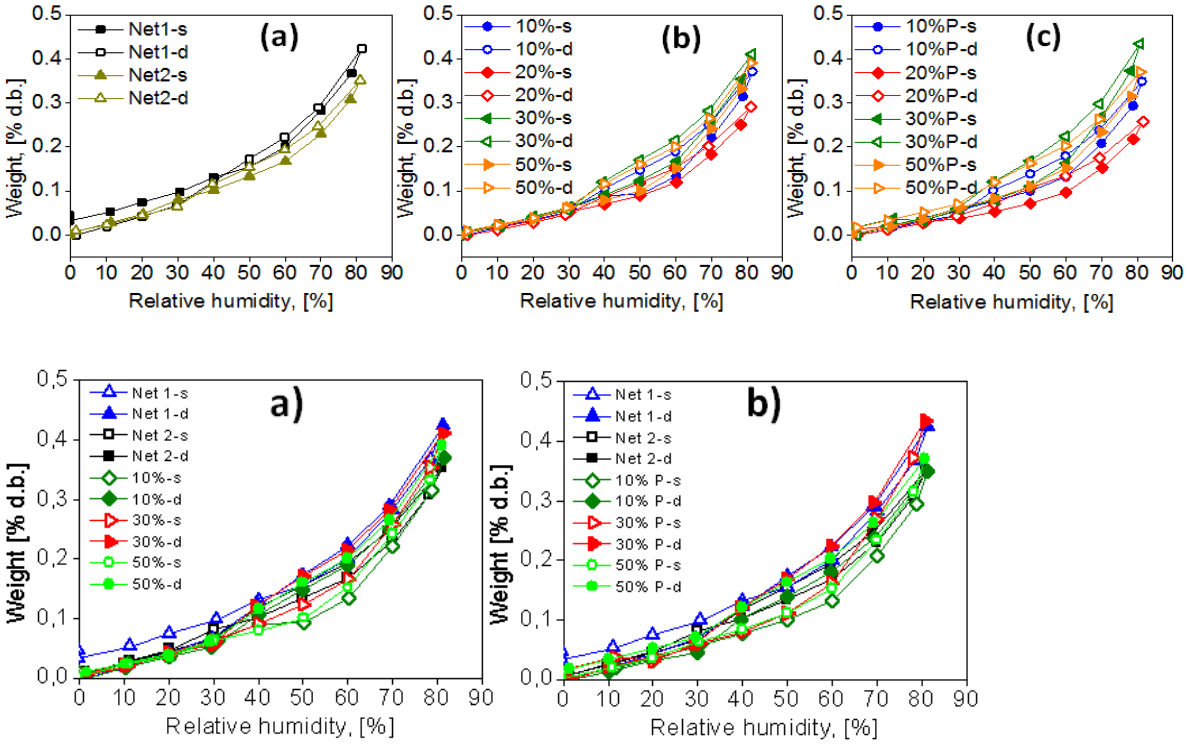
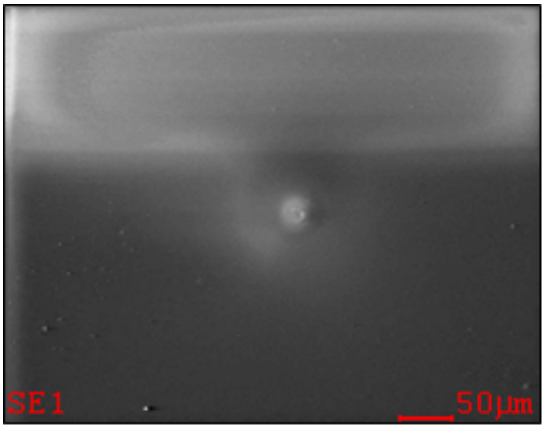
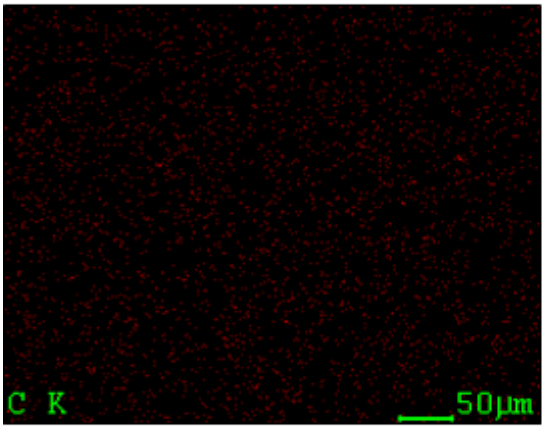
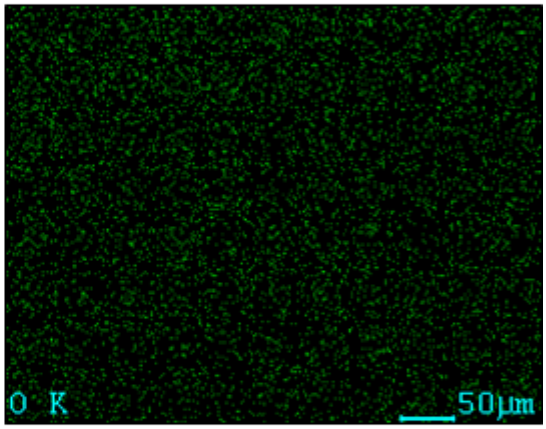


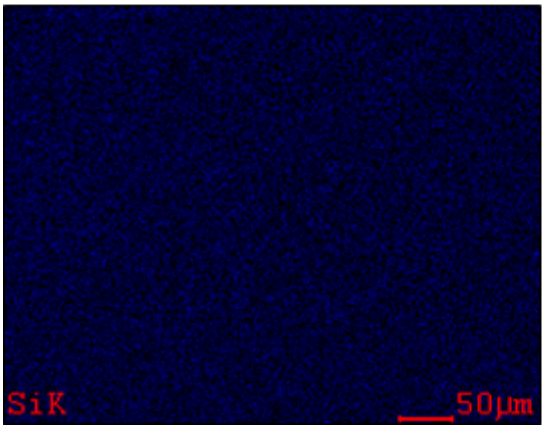
Figure S2. Sorption-desorption isotherms registered in dynamic regime at room temperature for IPNs as compared with references Net1 and Net1.



Element	Wt%	At%
CK	34.44	50.38
OK	20.02	21.98
SiK	43.97	27.50
PtL	01.58	00.14
Matrix	Correction	ZAF







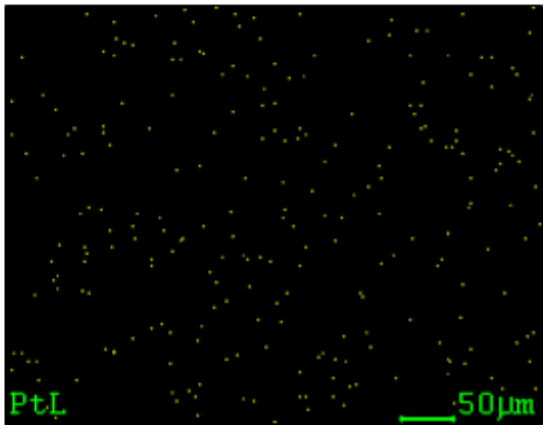


Figure S3. Elemental composition and mapping determined by Energy-dispersive X-ray spectroscopy (EDX) (EDX system available on Scanning Electron Microscope type Quanta 200).

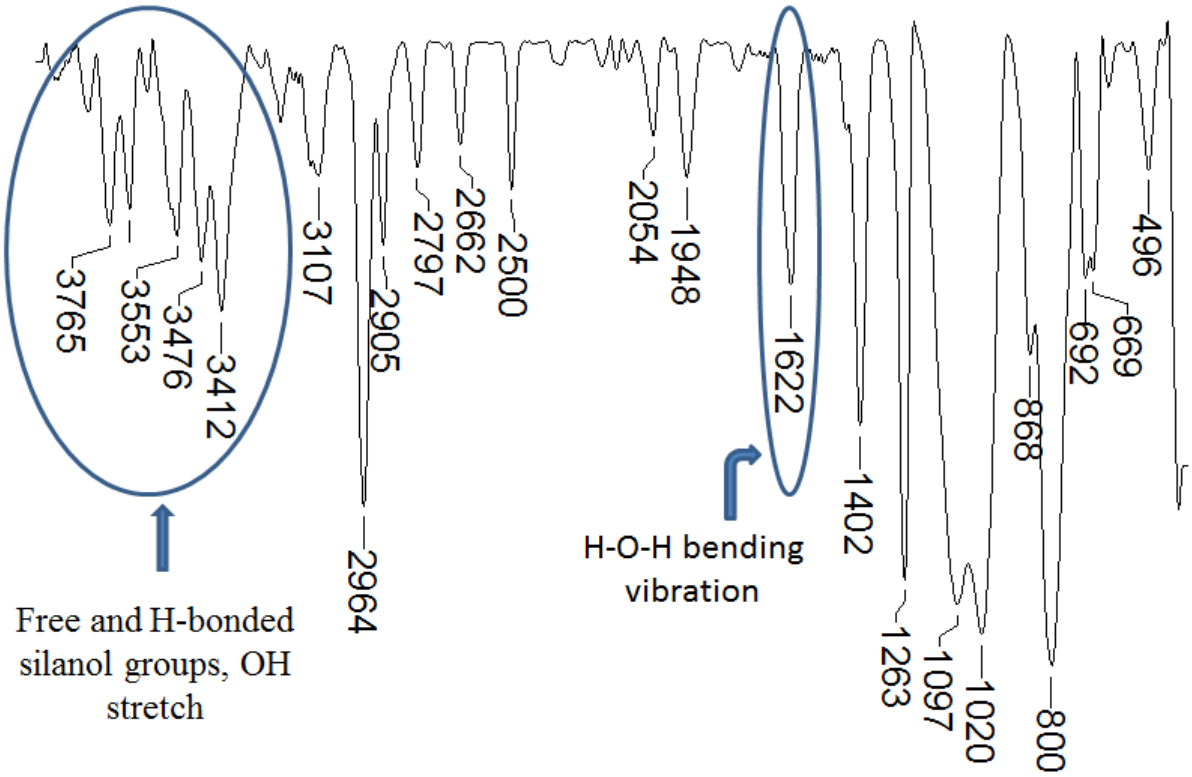


Figure S4. FTIR spectrum of Net2 revealing presence of polar OH groups[1-3] (recorded with a Bruker Vertex 70 FTIR spectrometer in transmission mode on crushed sample by grinding in liquid nitrogen and incorporated into KBr pellets).

Table S2. The ratio between the dielectric loss and dielectric constant, tan δ (tanδ=ε``/ε`)

Sample	**ε''/ ε' at 1 Hz**	**ε''/ ε' ·10^{-3} at 10^4 Hz**
Net1	0.19	0.64
Net2	2.58	0.30
IPN-10	0.45	0.66
IPN-10p	0.69	0.50
IPN-20	1.14	1.30
IPN-20p	1.56	1.11
IPN-30	1.03	0.57
IPN-30p	1.31	0.75
IPN-50	5.84	1.00
IPN-50p	1.50	0.30

References

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2 2 Bhaskar J. Saikia, G. Parthasarathy, N. C. Sarmah, *Fourier Transform Infrared Spectroscopic Characterization of Dergaon H5 Chondrite: Evidence of Aliphatic Organic Compound,* Nature and Science, 2009, **7**(5).

3 John Coates, *Interpretation of Infrared Spectra, A Practical Approach in Encyclopedia of Analytical Chemistry,* John Wiley & Sons Ltd, Chichester, 2000, 10815–10837.