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Mechano-electric coupling in PVDF/spin crossover nano-composites

Mario Piedrahita-Bello,[a] Baptiste Martin,[b] Lionel Salmon,*[a] Gábor Molnár,[a] Philippe Demont[b] and Azzedine Bousseksou*[a]

[a]LCC, CNRS & University of Toulouse (UPS, INPT), 205 route de Narbonne, 31077 Toulouse, France. E-mail: azzedine.bousseksou@lcc-toulouse.fr

[b] CIRIMAT, CNRS & University of Toulouse (UPS, INPT), 118 Route de Narbonne, 31062 Toulouse. E-mail: philippe.demont@univ-tlse3.fr

Table S1: Elemental analyses of SCO complexes

SCO sample	%C (found)	%C (calc)	%H (found)	%H (calc)	%N (found)	%N (calc)	%B (found)	%B (calc)	%Fe (found)	%Fe (calc)
1	19.3	19.5	1.99	2.81	35.6	34.9	3.1	3.07	15.7	15.2
2	18.8	18.6	2.16	2.91	33.4	33.6	3.23	3.21	14.8	14.4
3	18.2	18.3	1.6	2.84	31.8	32.6	3.45	3.42	14.1	14.2
4	20.3	20.6	2.08	3.13	32.9	34.1	2.71	2.85	15.2	14.8
5	24.3	24.2	3.91	4.4	41.7	42.3				

Figure S1: SEM images of the composite **1a** cross-section.

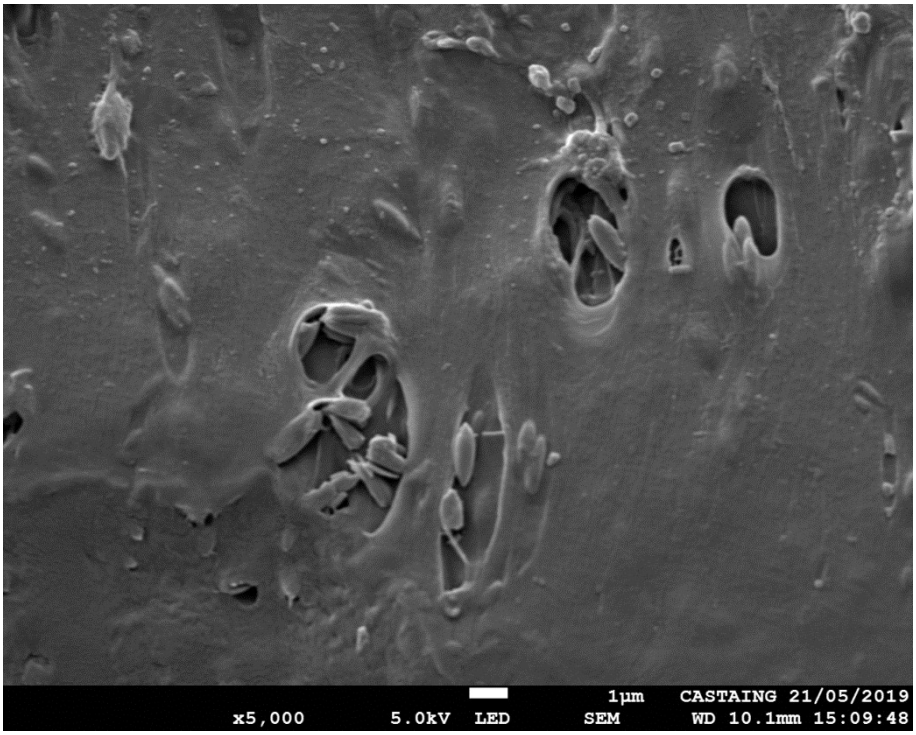


Figure S2: SEM coupled EDX analysis of two randomly selected areas for composite **1a**

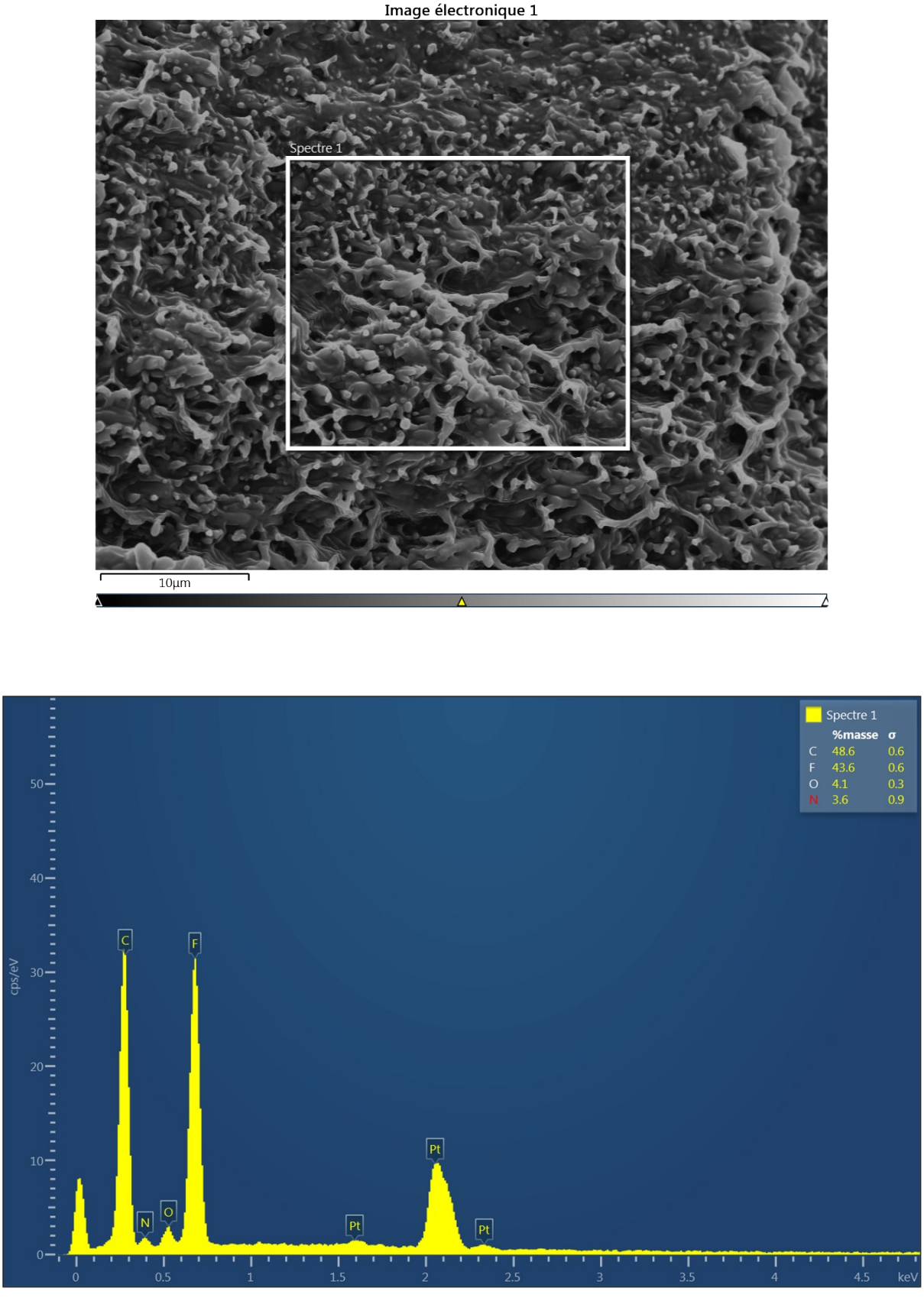
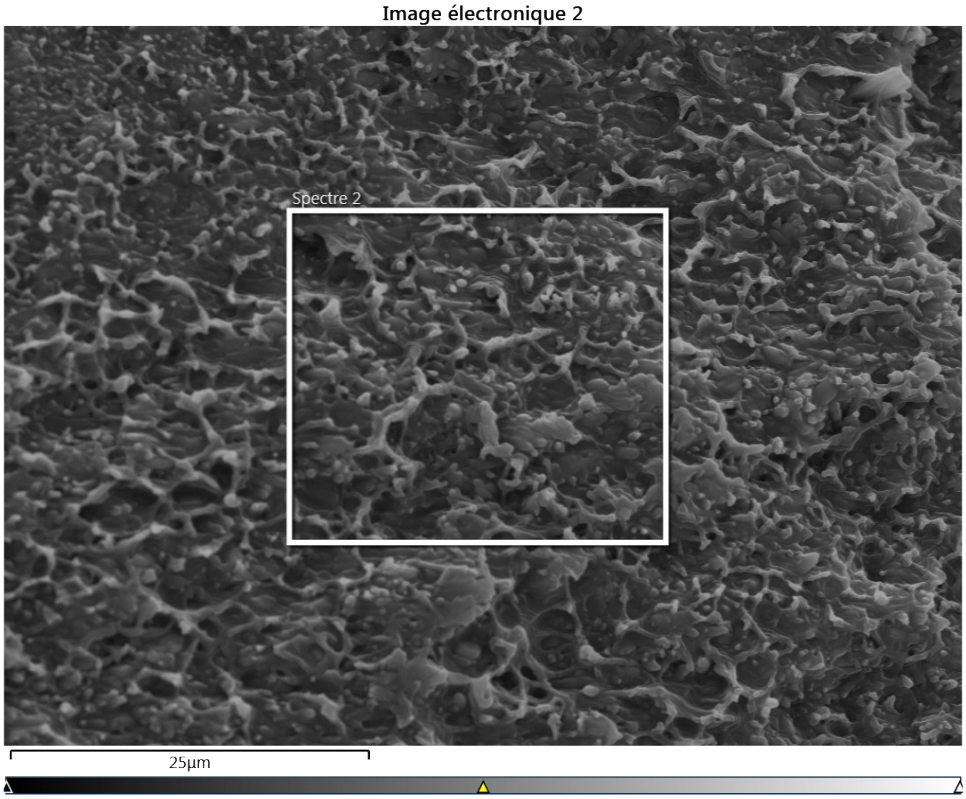


Image électronique 2



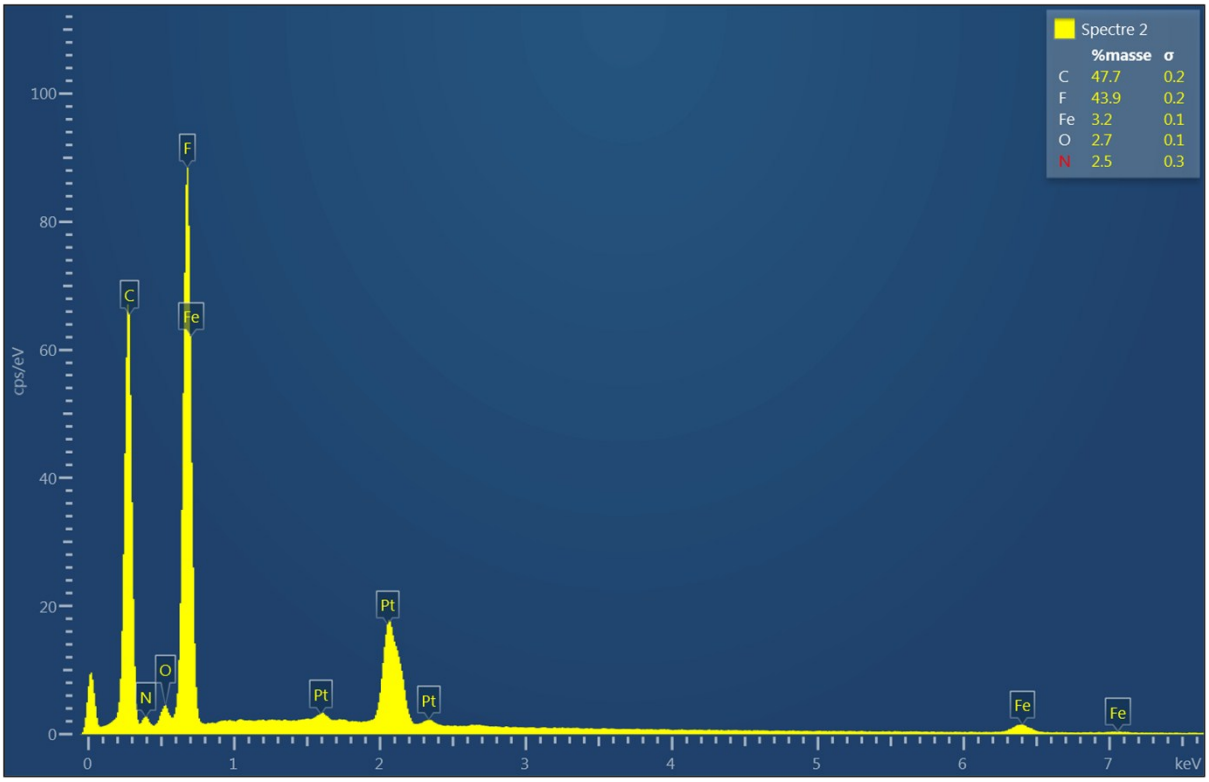
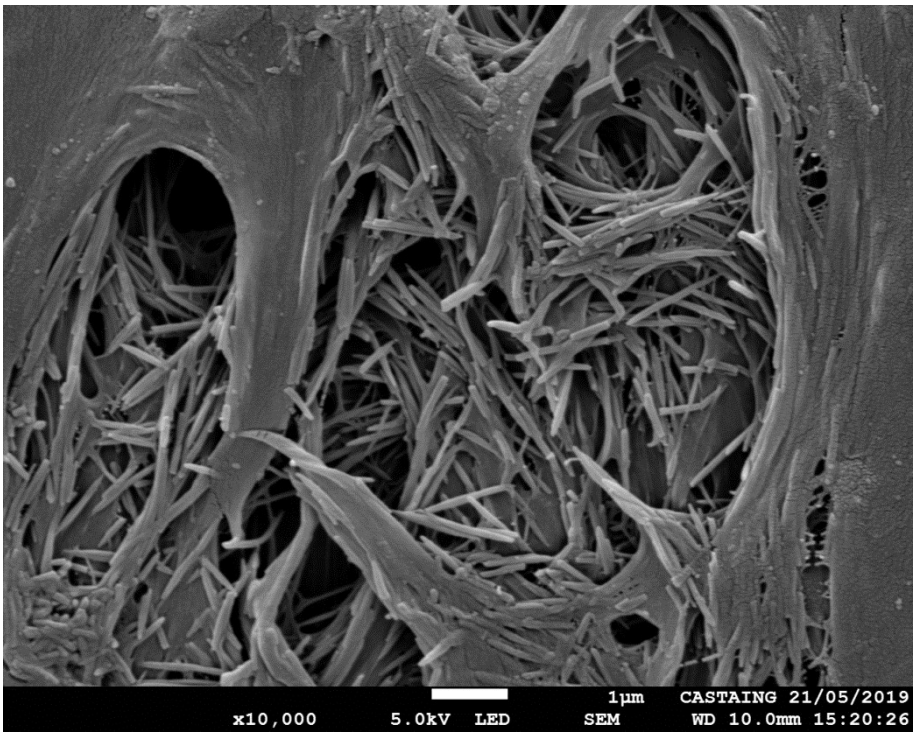


Figure S3: SEM images of the composite **4a** cross-section.



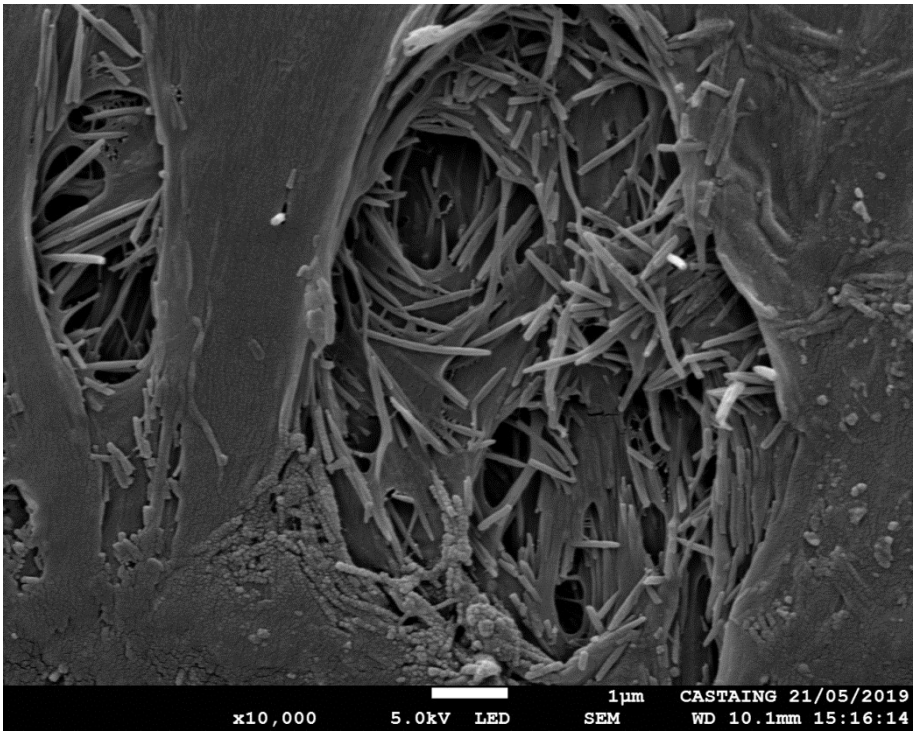


Figure S4: SEM coupled EDX analysis of two randomly selected areas for composite **4a**.

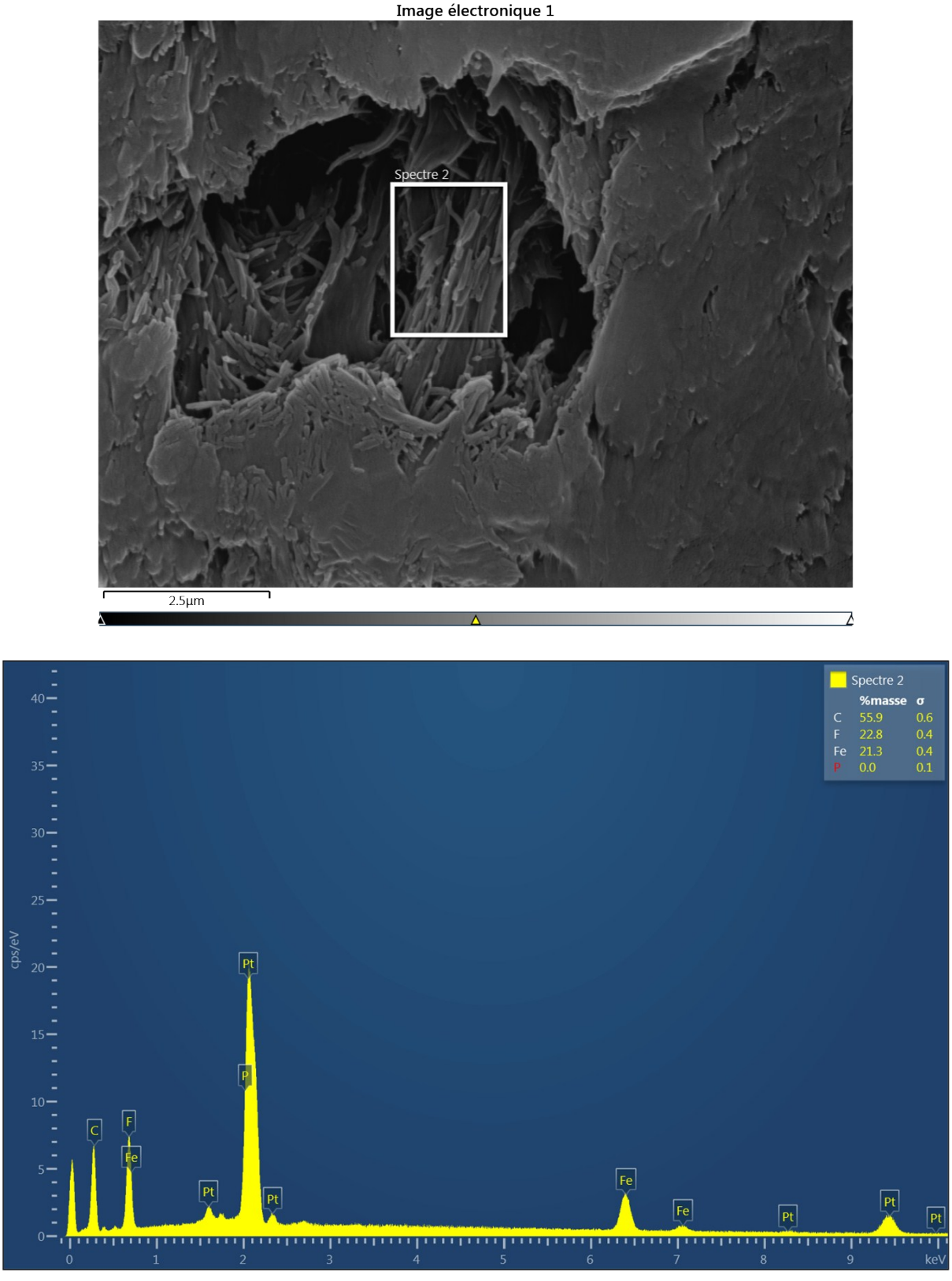
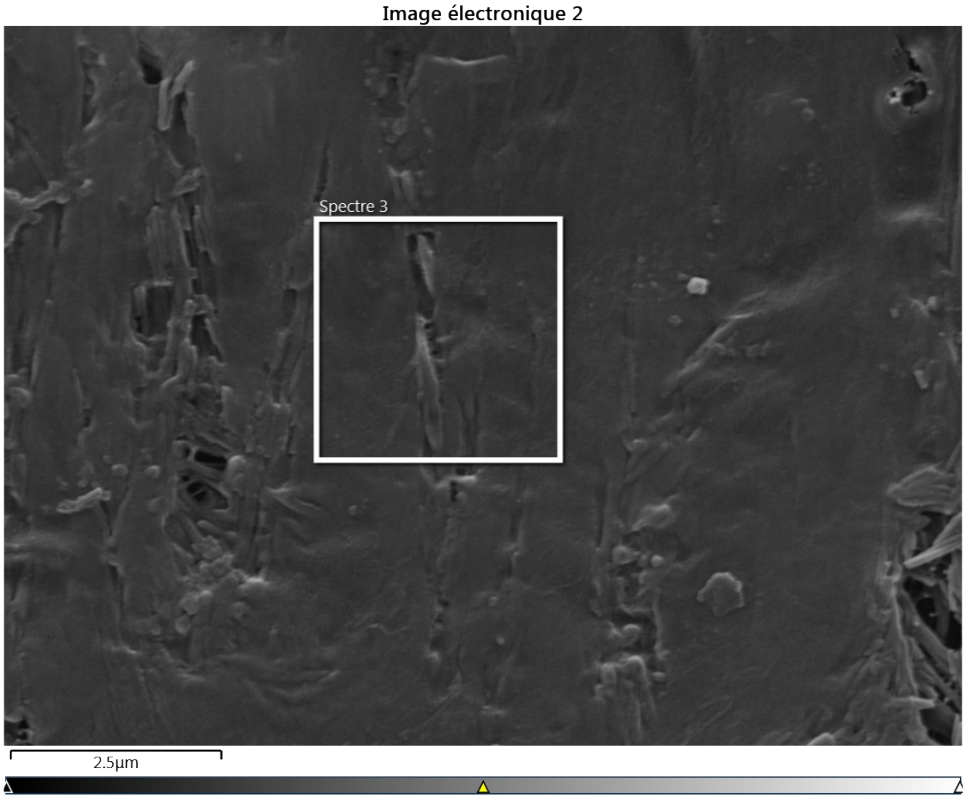


Image électronique 2



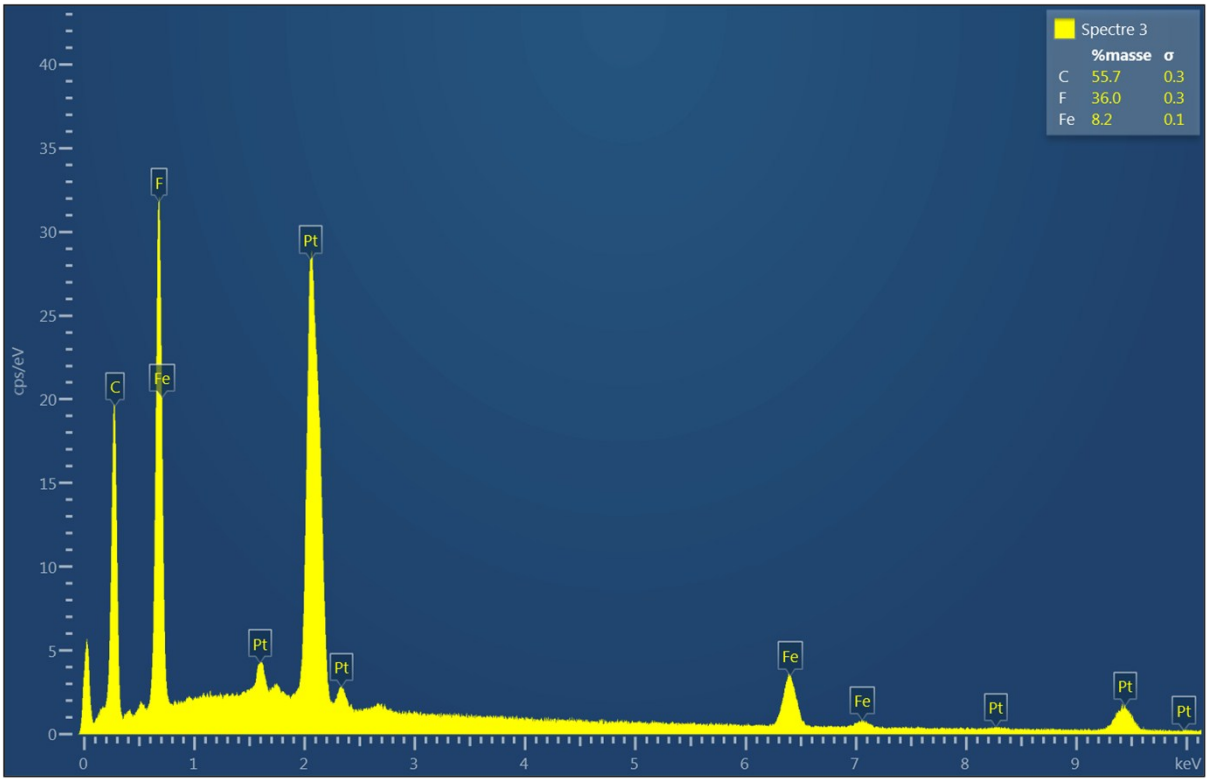


Figure S5: SEM images of the composite **5c** cross-section

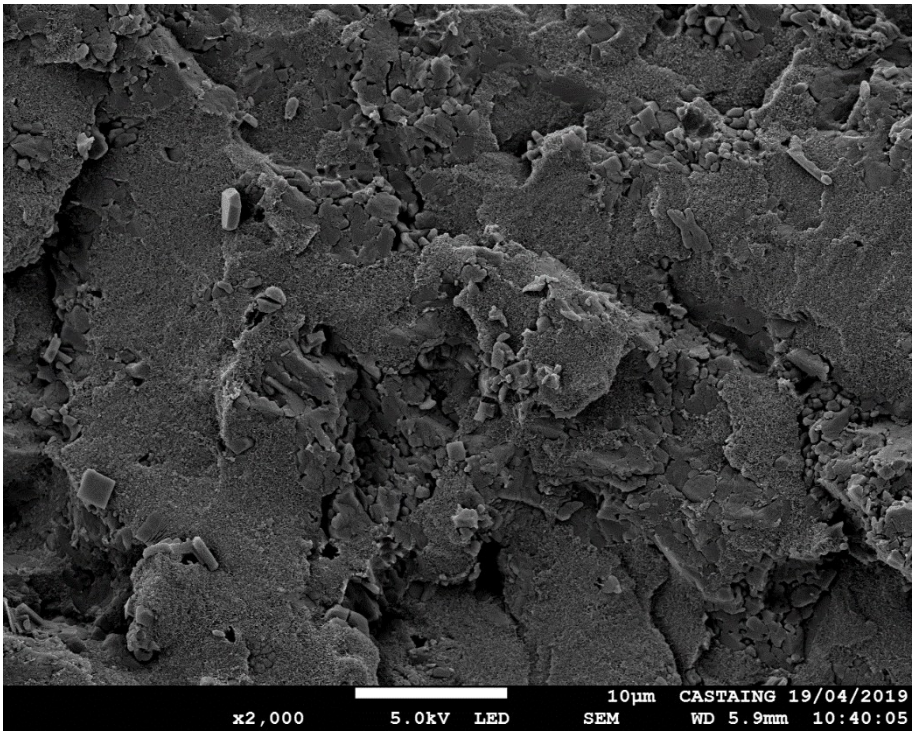
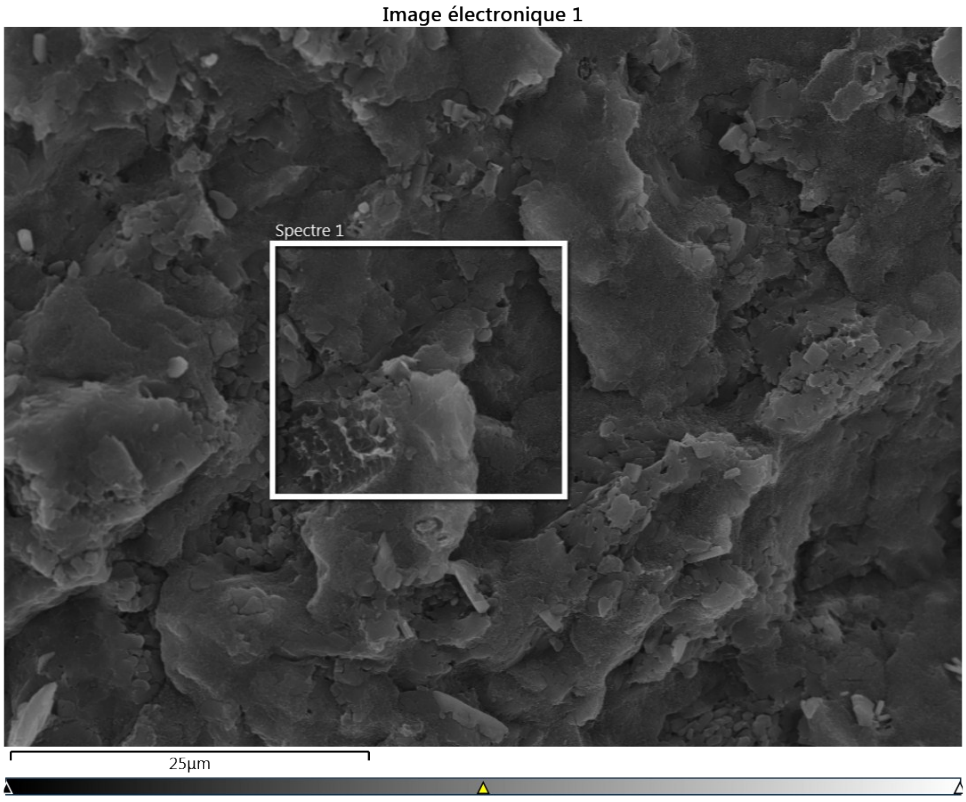


Figure S6: SEM coupled EDX analysis for composite **5c**



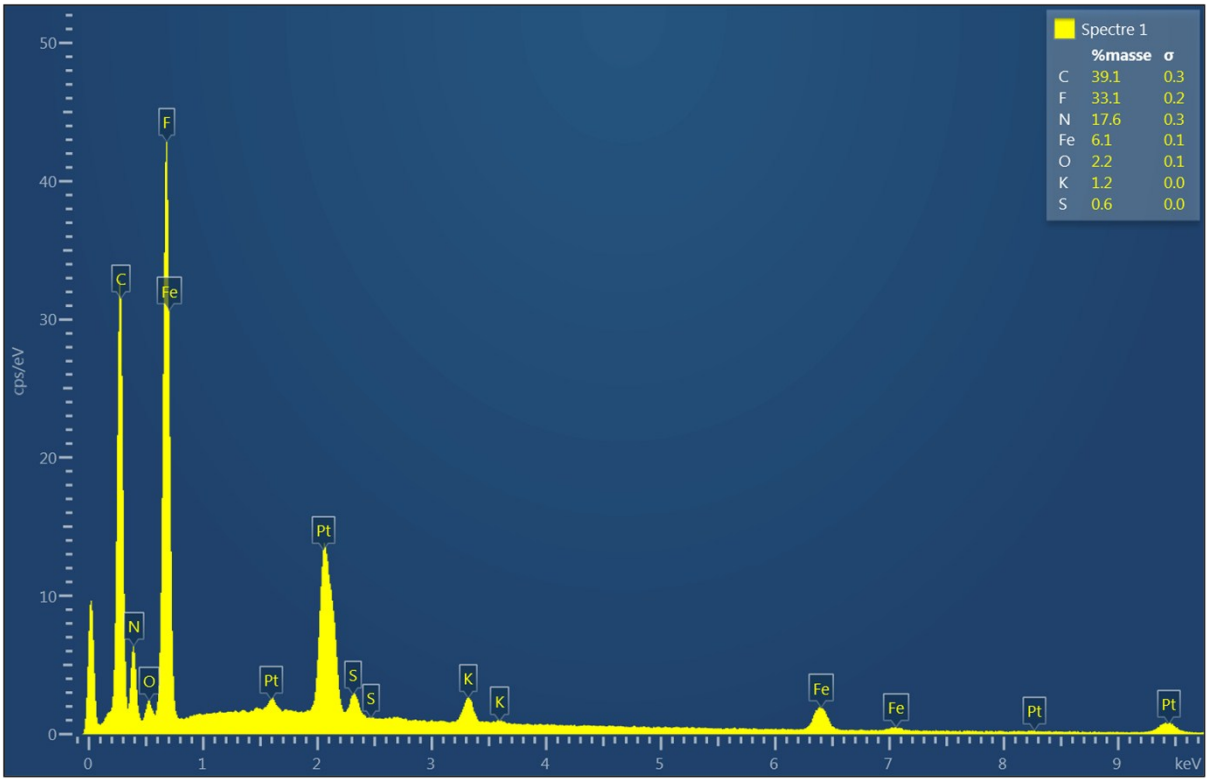


Figure S7: Powder XRD of the different composite **5a-5e** recorded at room temperature

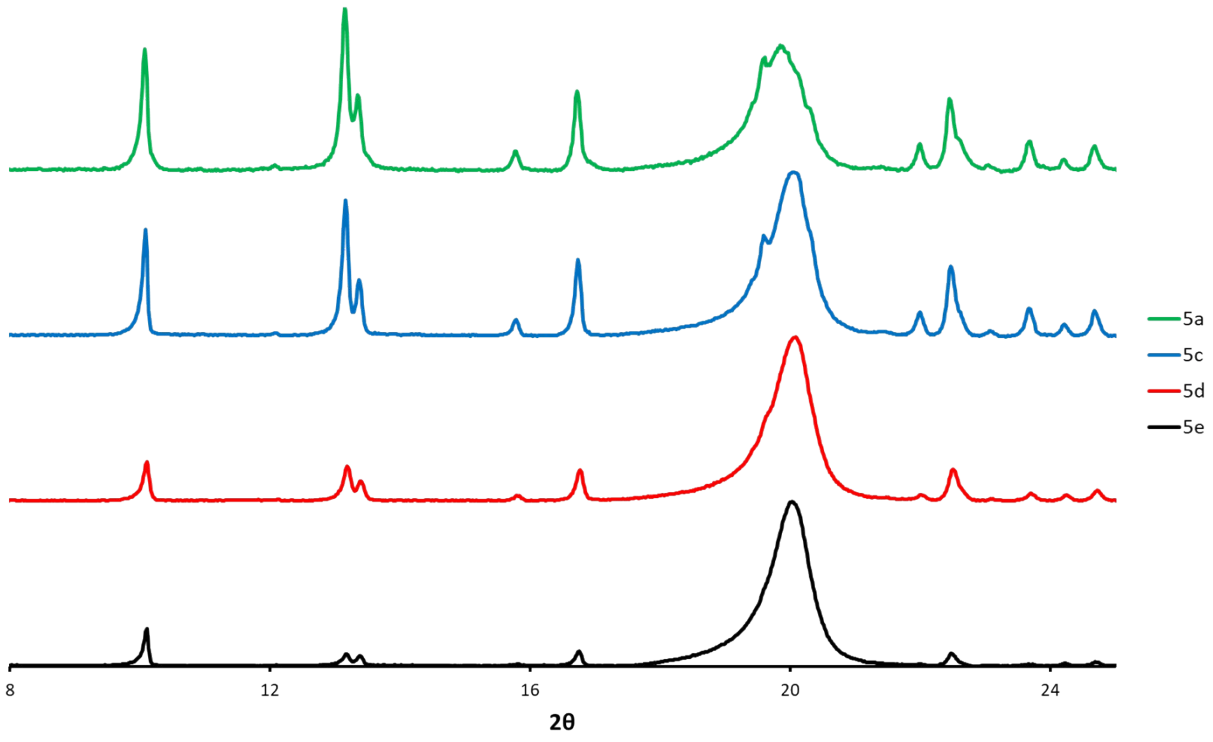
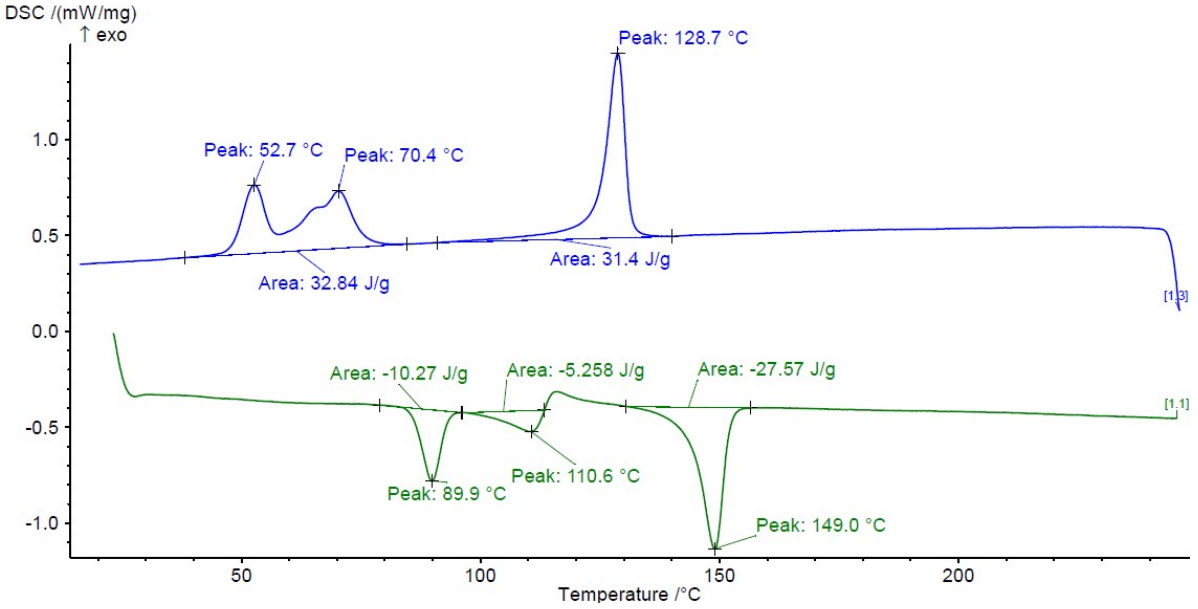
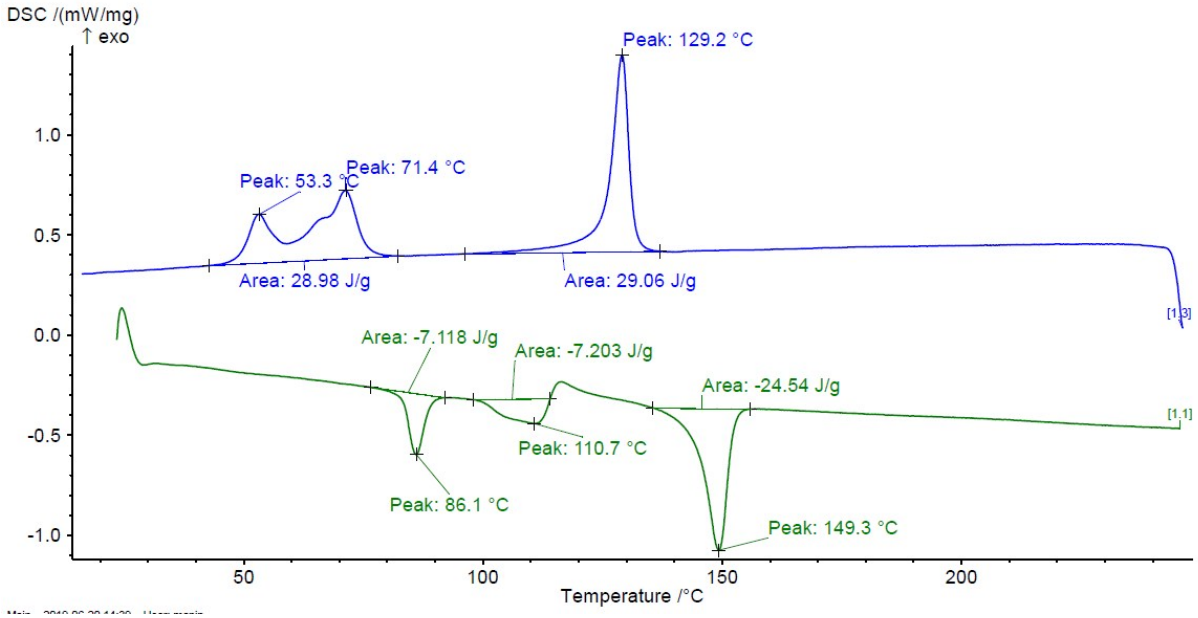


Figure S8: DSC Measurements for the composite materials and the pure copolymers

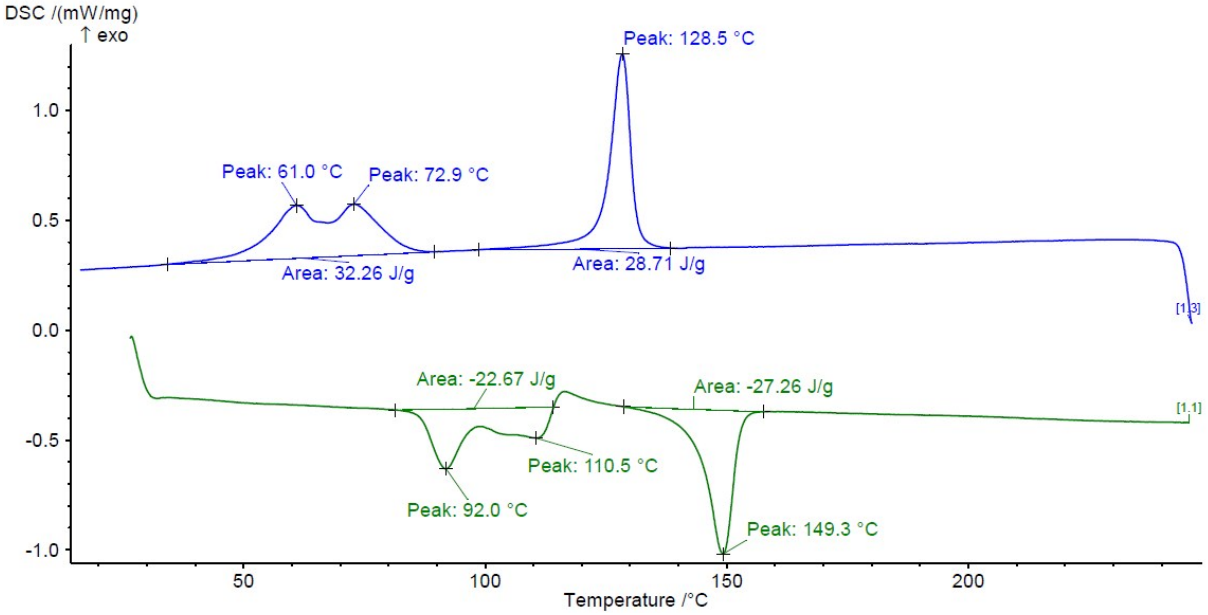
1a – 15% Triazole Mix Bulk PVDF-TrFE - 75-25:



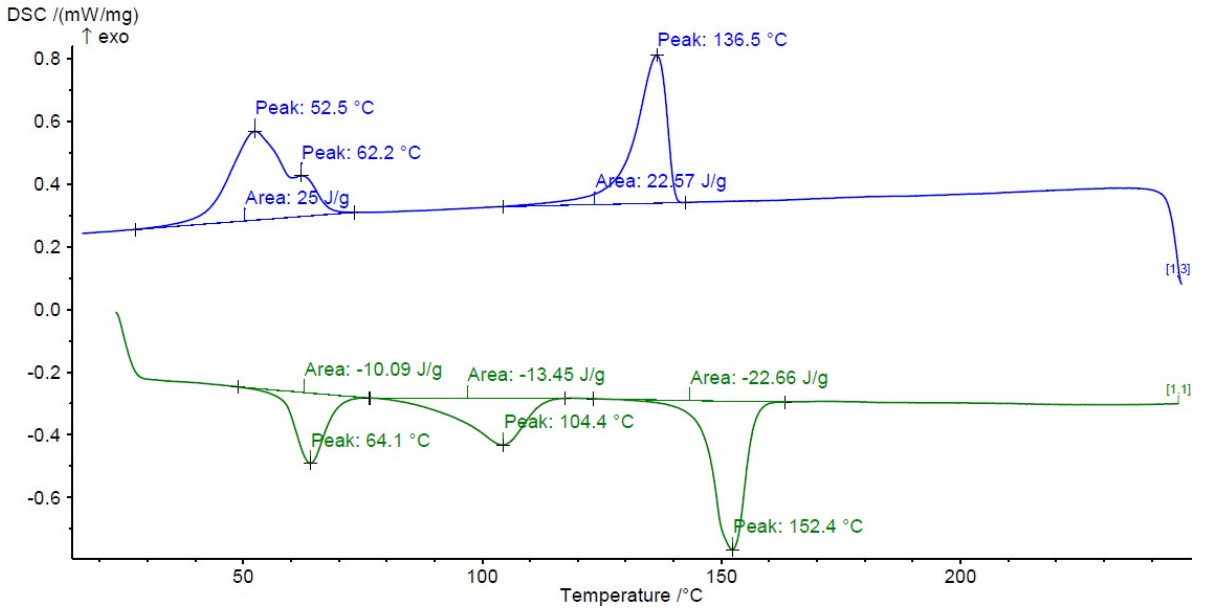
3a – 15% Triazole Mix Particles PVDF-TrFE – 75-25:



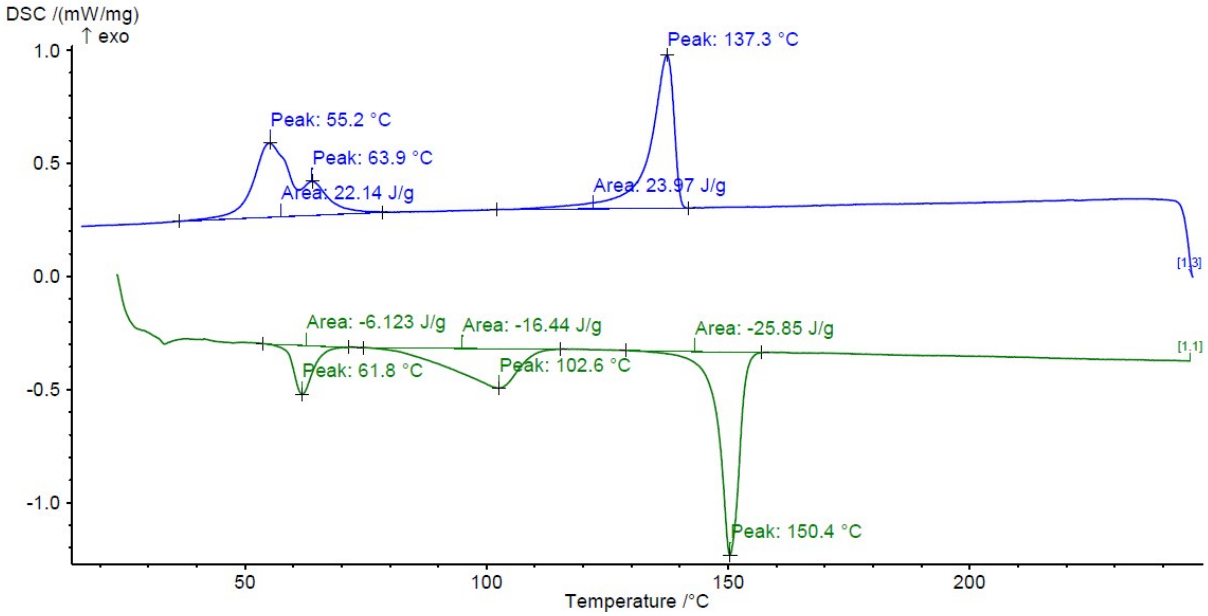
4a – 15% Triazole Mix 2µm Rods PVDF-TrFE – 75-25:



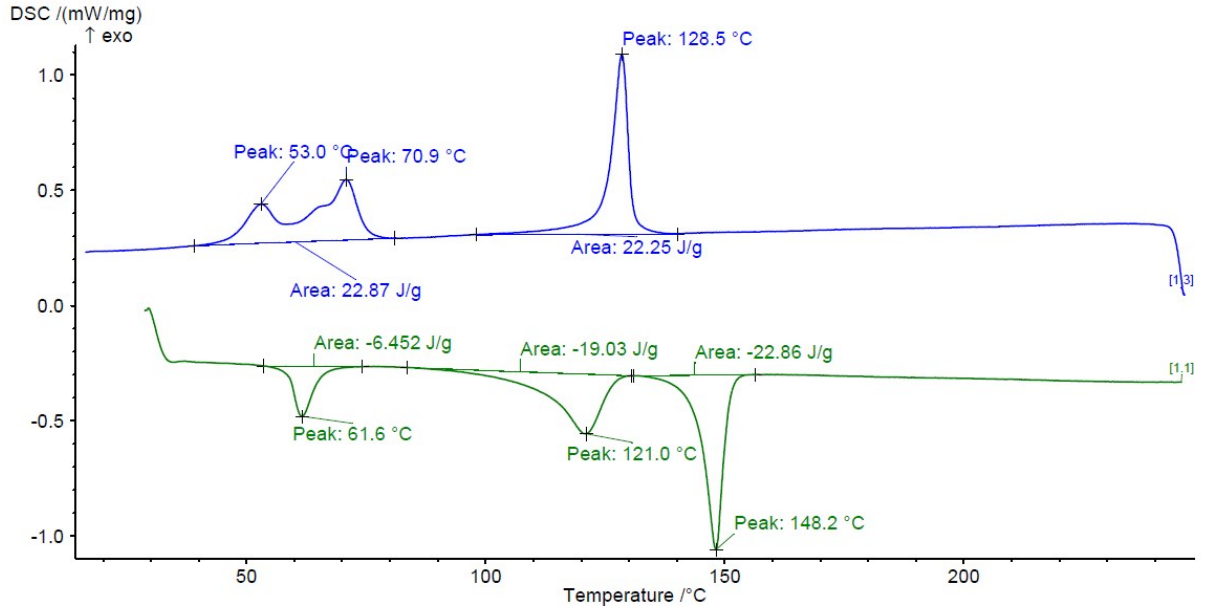
5a – 33% Triazolyl Borate PVDF-TrFE – 75-25:



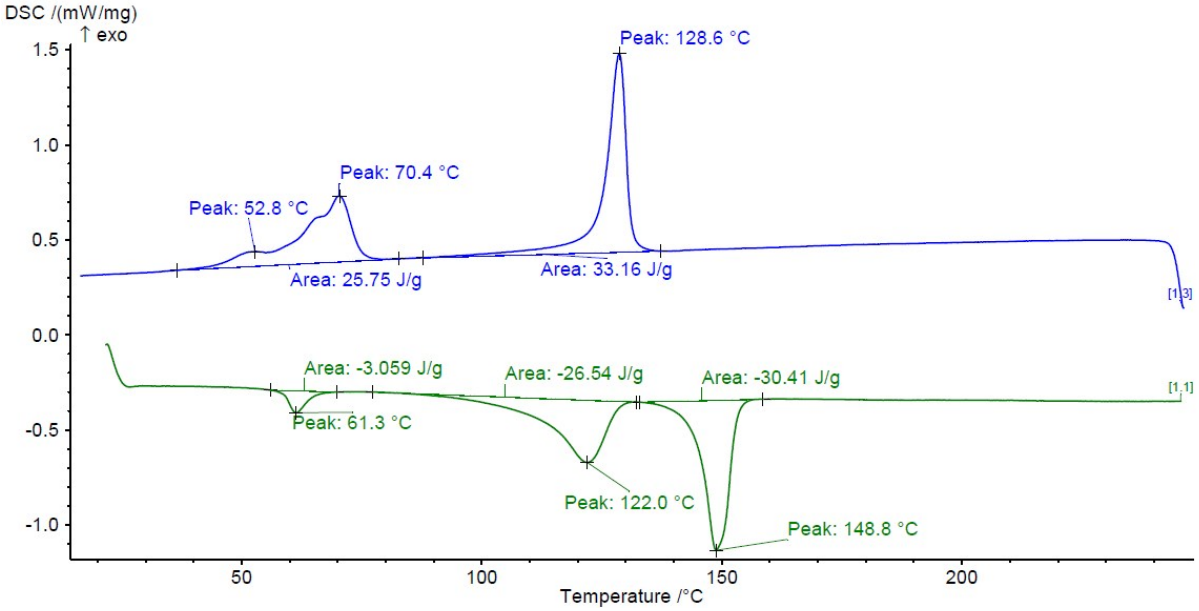
5b – 25% Triazolyl Borate PVDF-TrFE – 70-30:



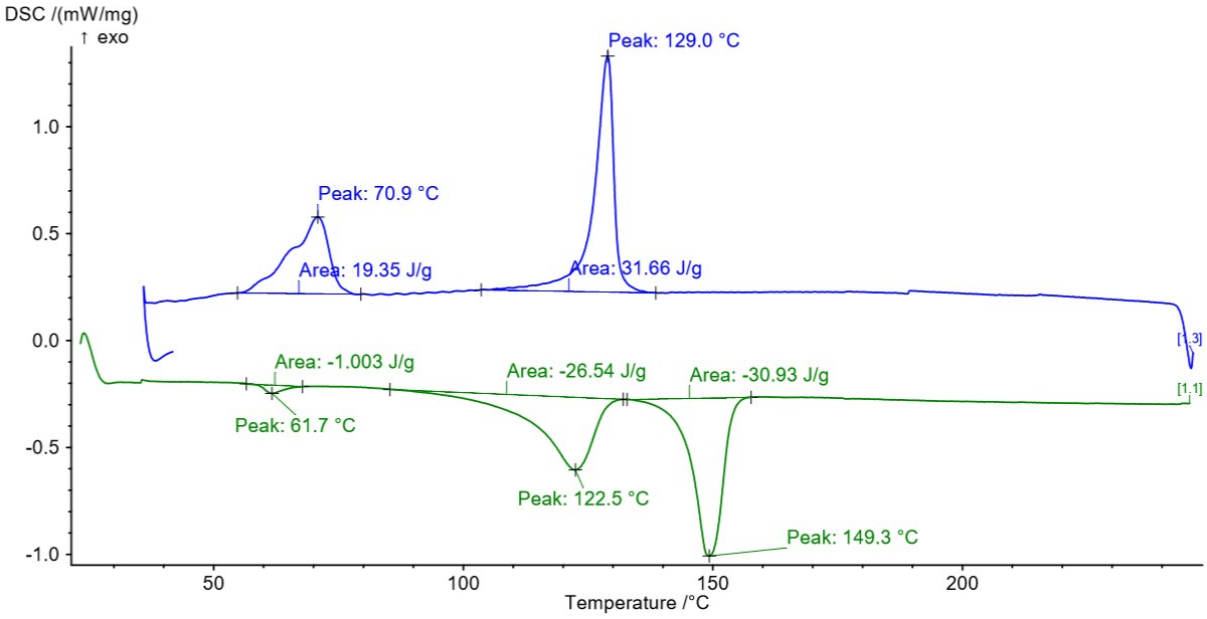
5c - 25% Triazolyl Borate PVDF-TrFE – 75-25:

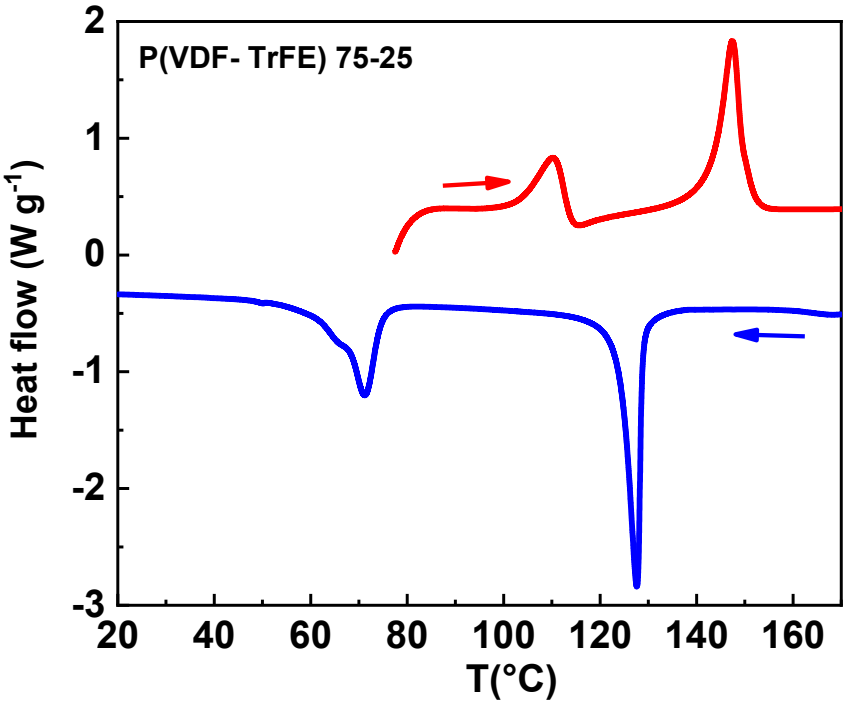


5d – 15% Triazolyl Borate PVDF-TrFE – 75-25:



5e –5% Triazolyl Borate PVDF-TrFE – 75-25:




P(VDF- TrFE) 75-25
Heat flow (W g-1)
T(°C)
2
1
0
-1
-2
-3
20
40
60
80
100
120
140
160

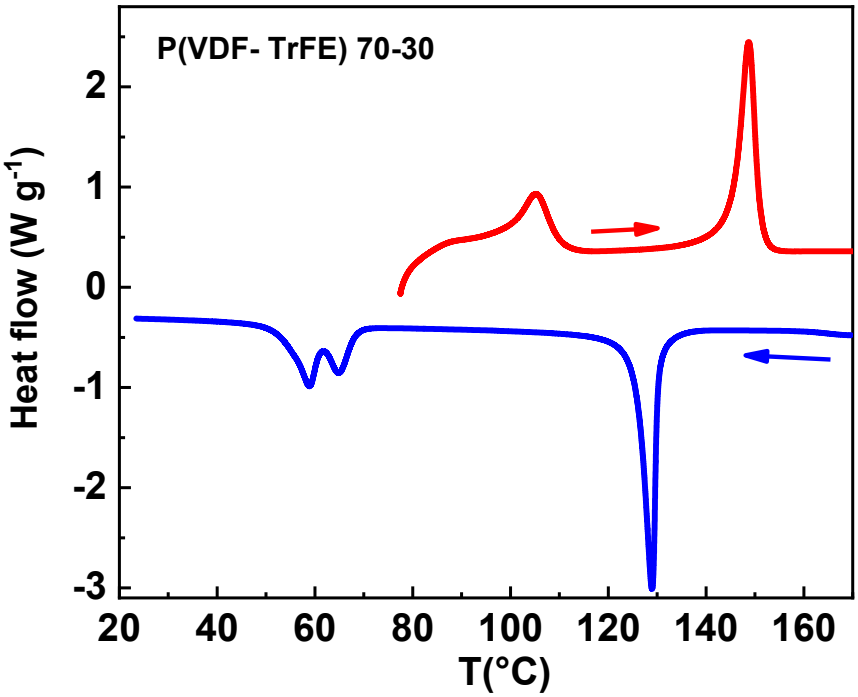
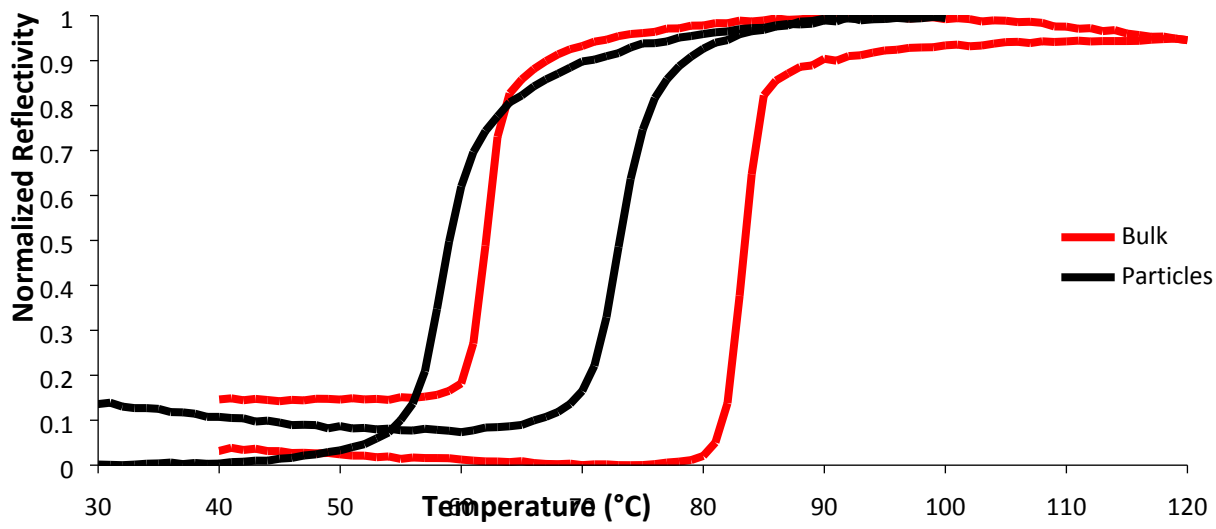

P(VDF- TrFE) 70-30
Heat flow (W g-1)
T(°C)
2
1
0
-1
-2
-3
20
40
60
80
100
120
140
160

Figure S9: Variable temperature optical reflectivity measurement of the different SCO powder samples.

Reflectivity of the 2nd thermal cycle of the bulk and particles used in the synthesis of composites **1** and **3** respectively.



Reflectivity Measurement of the 2 um particles used in the synthesis of composite **4**

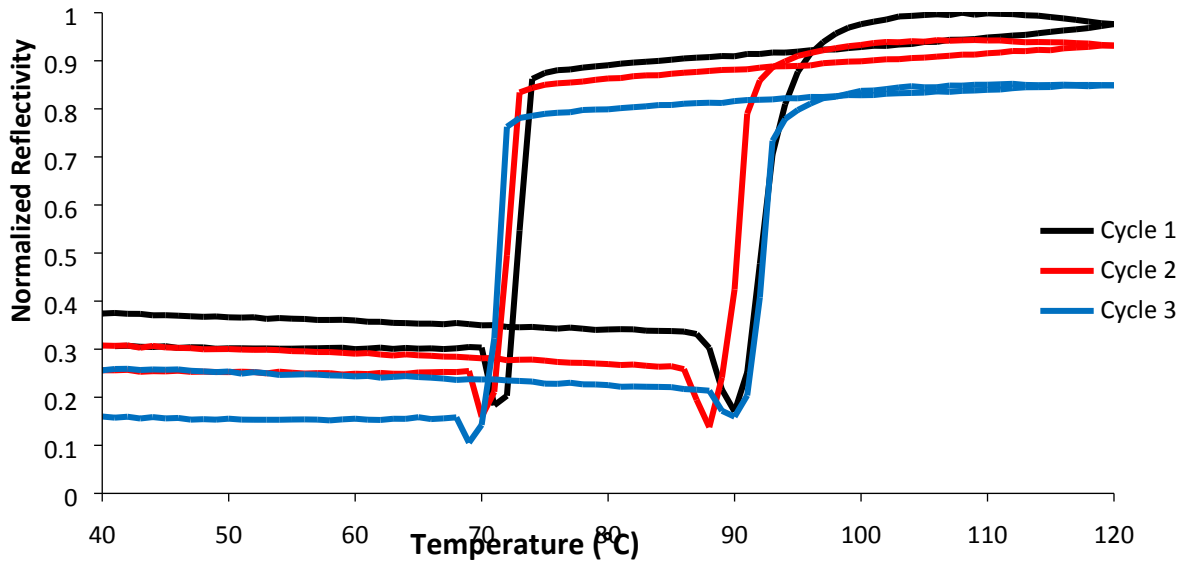
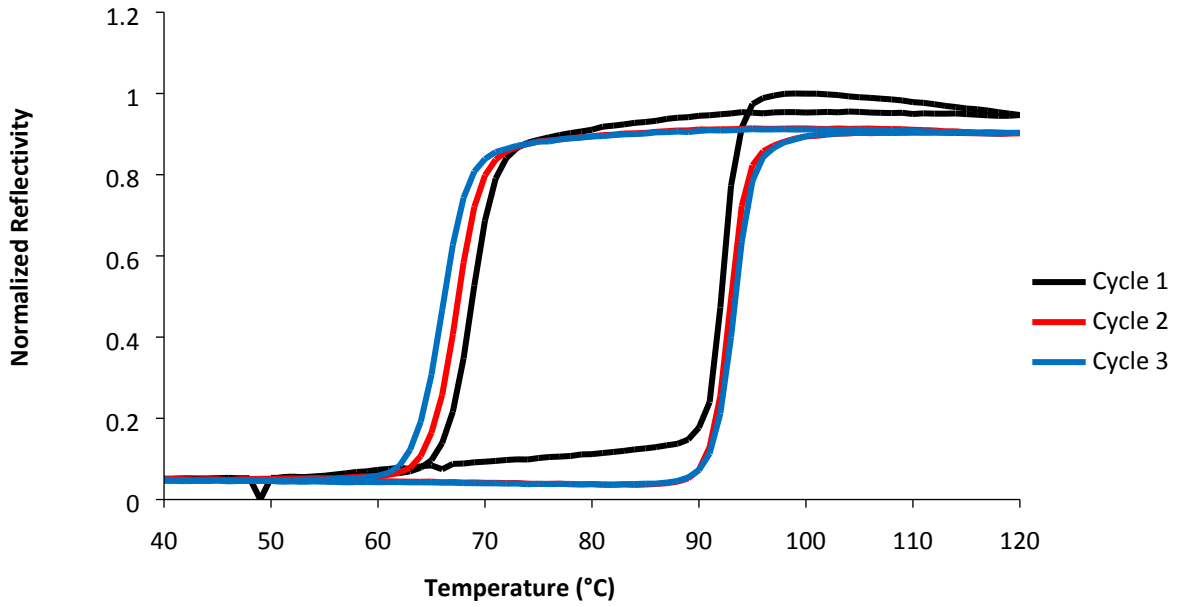
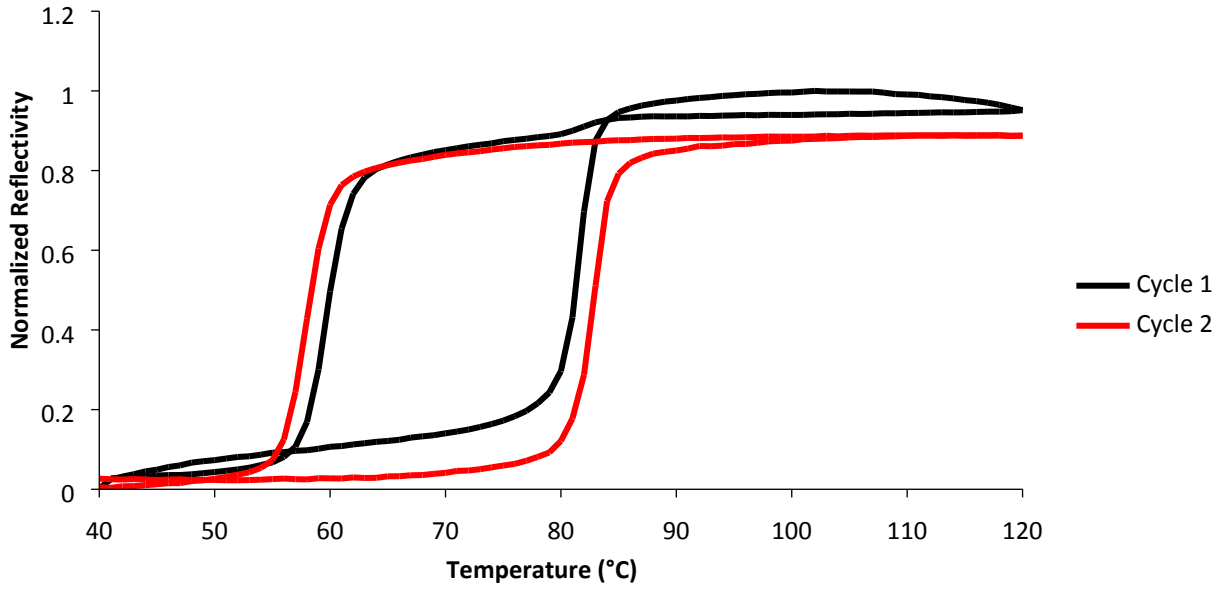


Figure S10: Variable temperature optical reflectivity measurement of the P(VDF-TrFE)/SCO composite

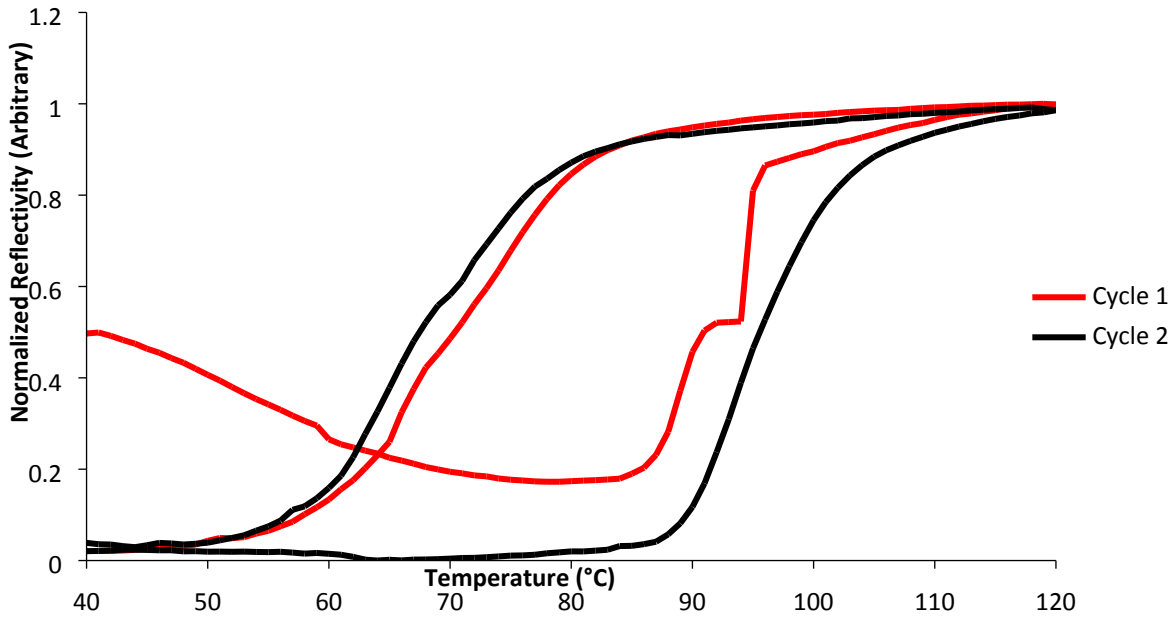
Reflectivity Measurement of Composite **1a**



Reflectivity Measurement of Composite **3a**



Reflectivity Measurement of Composite **4a**



Reflectivity Measurement of Composite **5a**

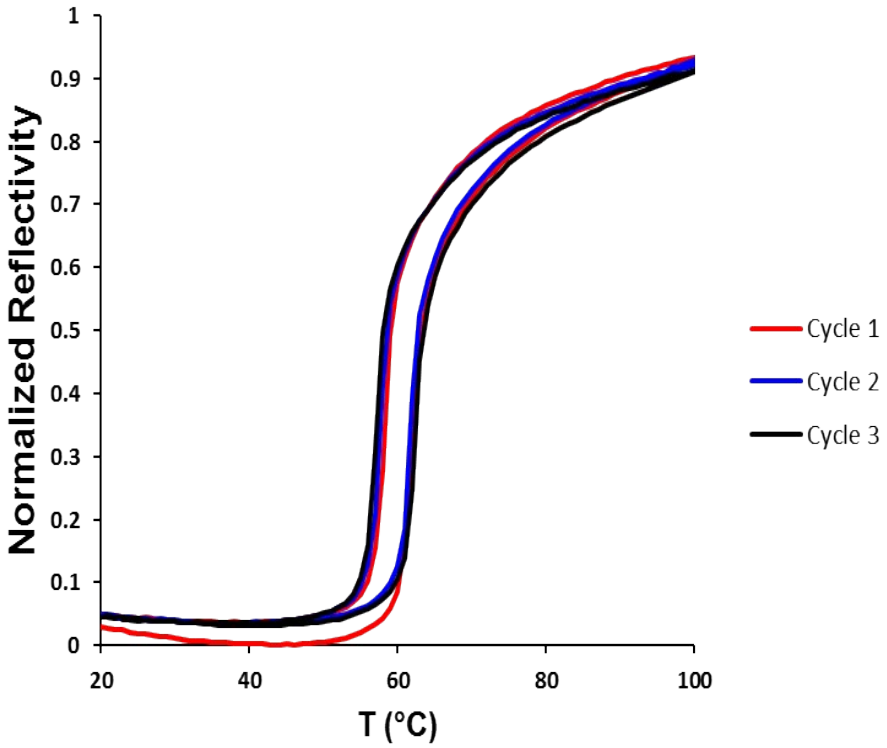


Figure S11: Pyroelectric discharge cycle for a depolarized and repolarized composite **1a**.

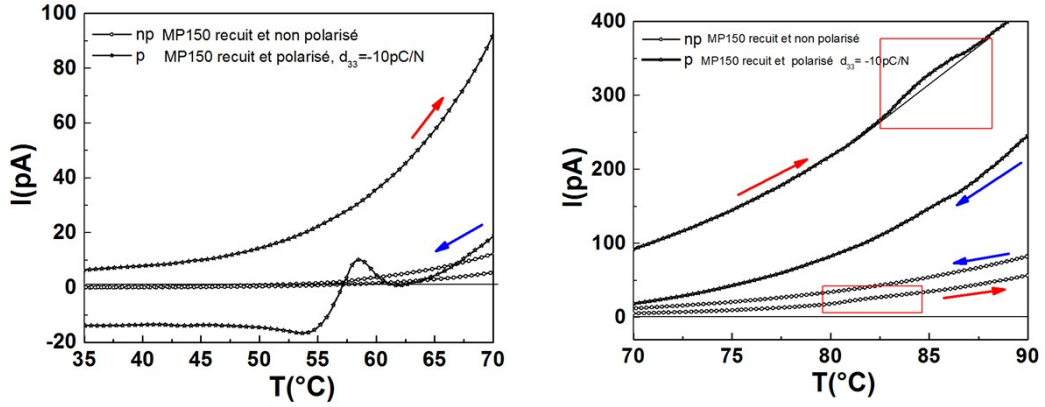


Figure S12: Pyroelectric discharge cycle for composite **2a** with different polarization intensities:

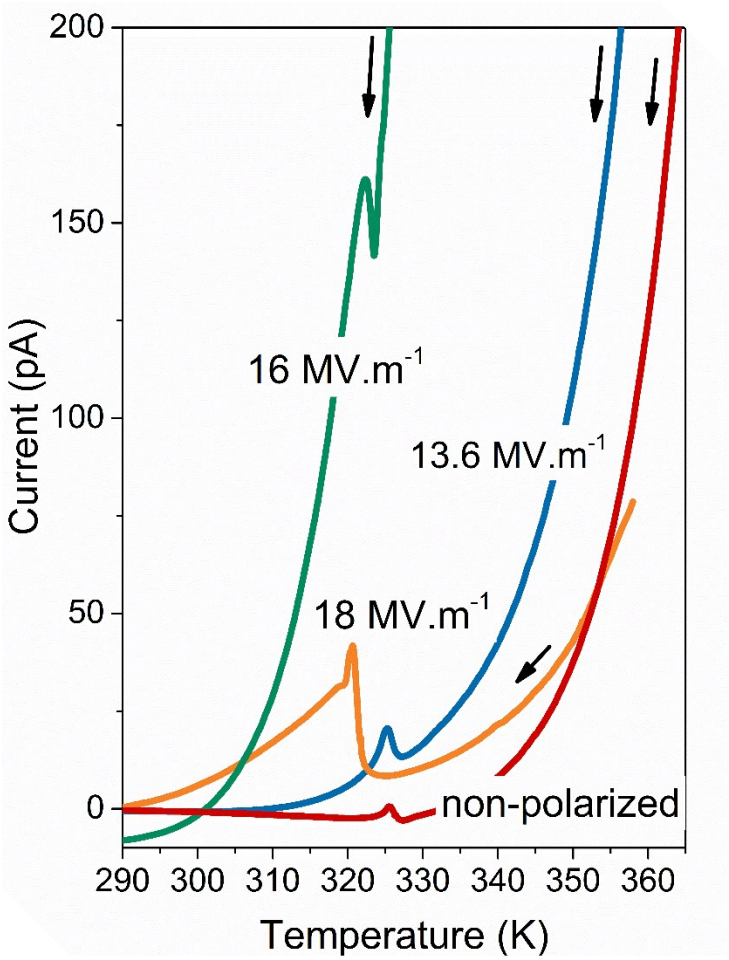


Figure S13. Pyroelectric discharge cycle for a polarized composite **3a**.

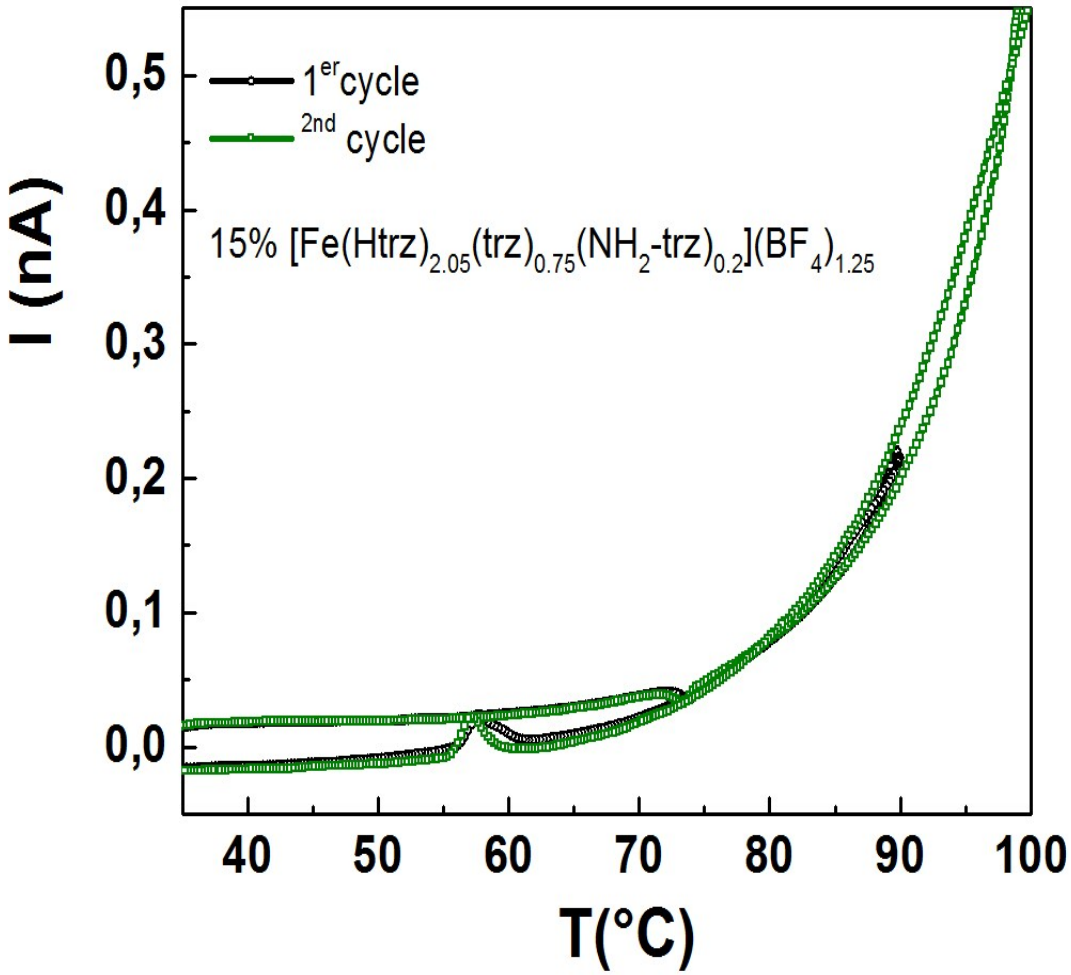


Figure S14. Pyroelectric discharge cycle for a polarized composite **4a**.

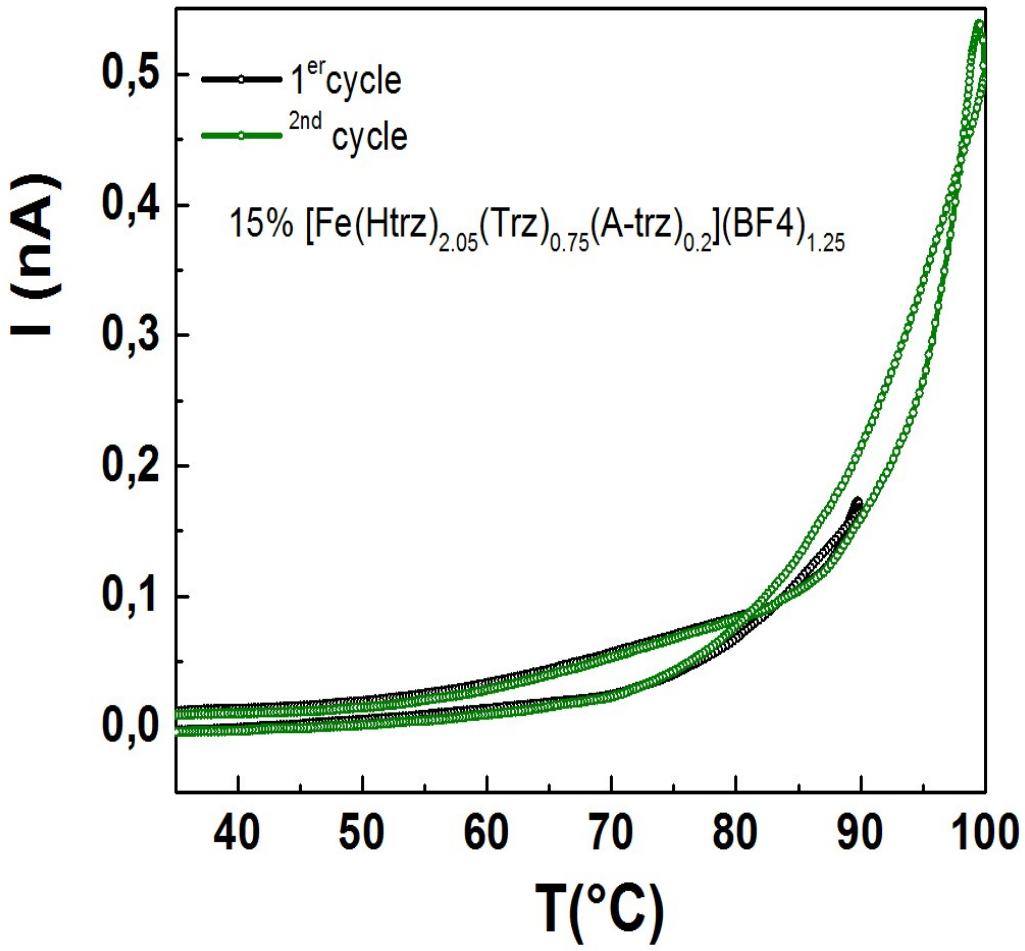


Figure S15. Pyroelectric discharge cycle for a polarized composite **5a**

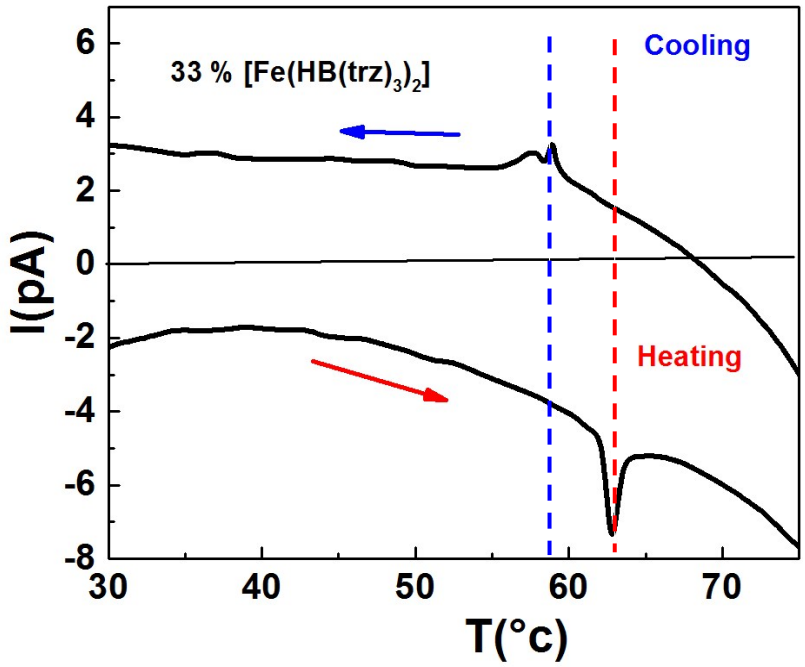


Figure S16. Pyroelectric discharge cycle for a polarized composite **5b**

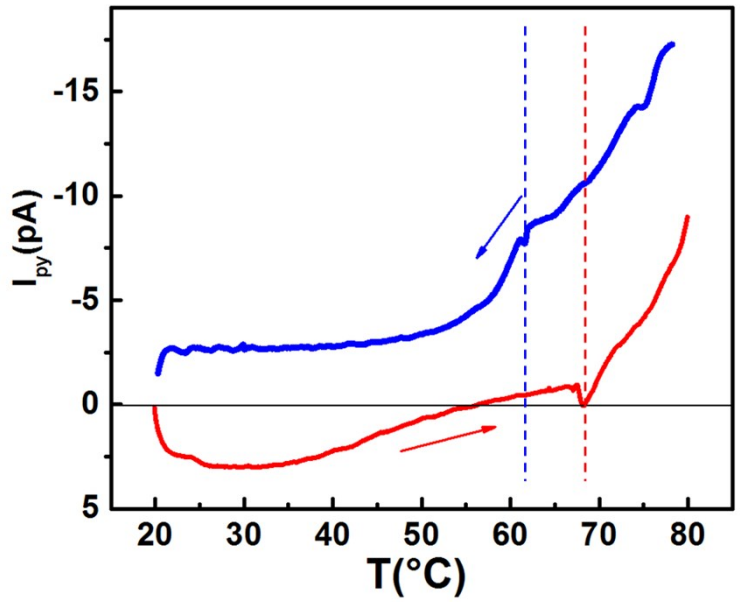


Figure S17. Pyroelectric discharge cycle for a polarized composite **5c**

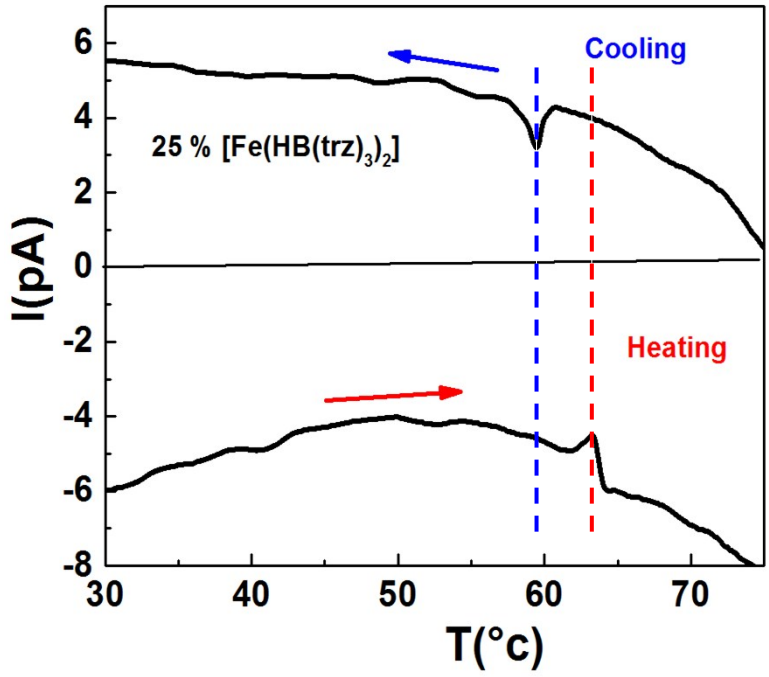


Figure S18. Pyroelectric discharge cycle for a nonpolarized Composite **5d**. Dotted lines indicate the discharge peak temperatures for cooling (left) and heating (right).

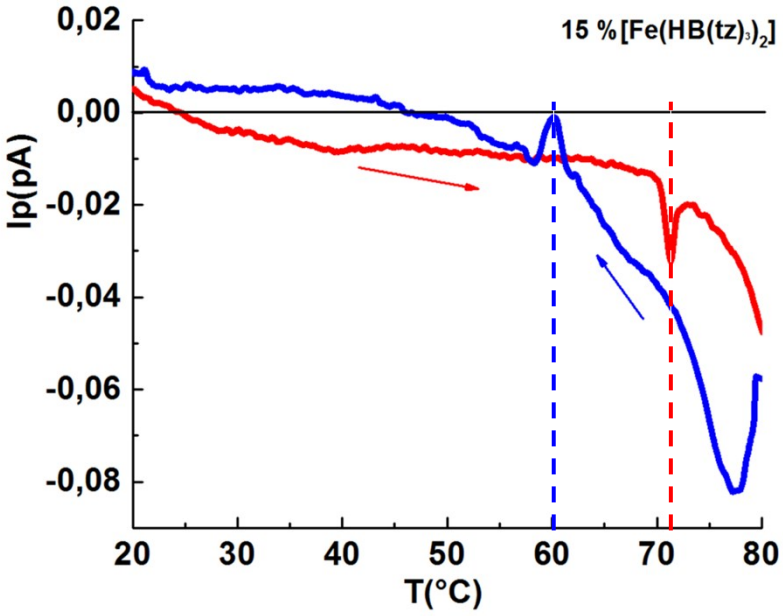


Figure S19. Pyroelectric discharge cycle for a polarized composite **5d**

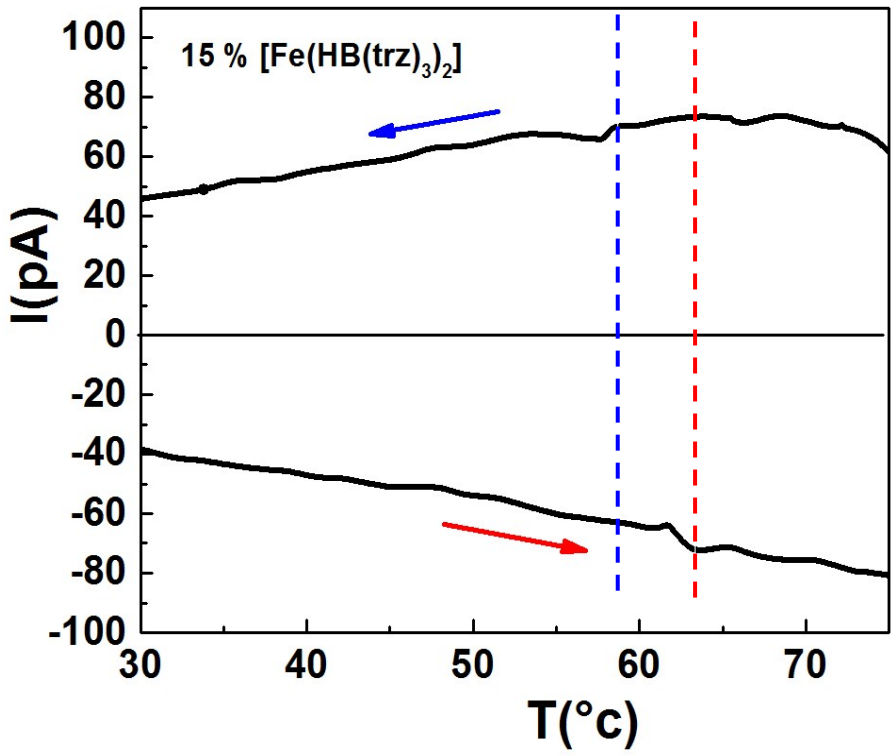


Figure S20. Pyroelectric discharge cycle for a polarized composite **5e**

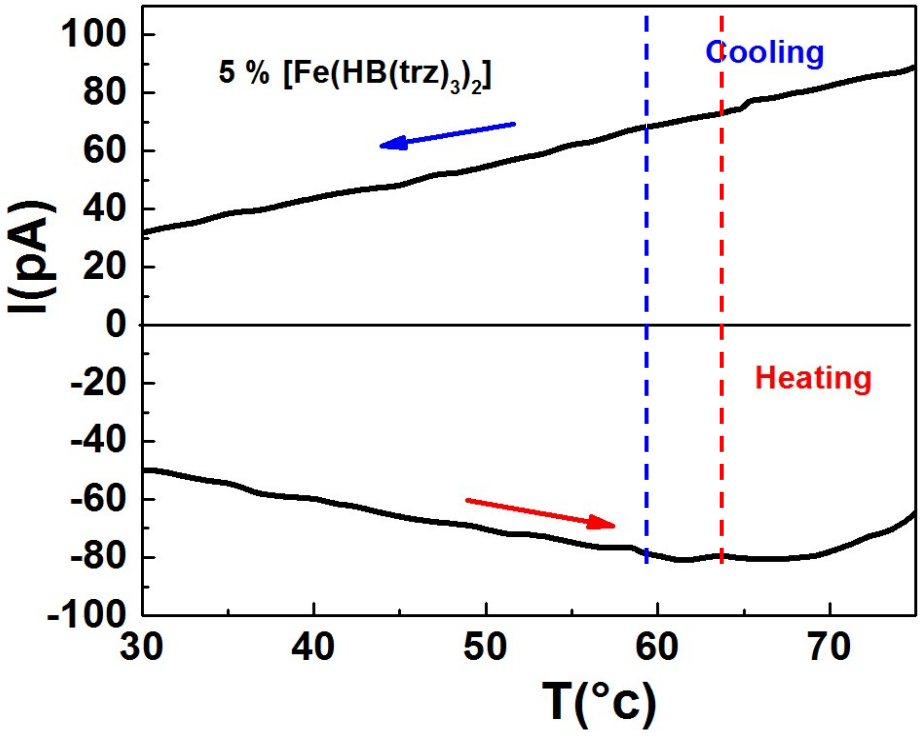


Figure S21. Pyroelectric discharge cycle for polarized composite **5a-5e**

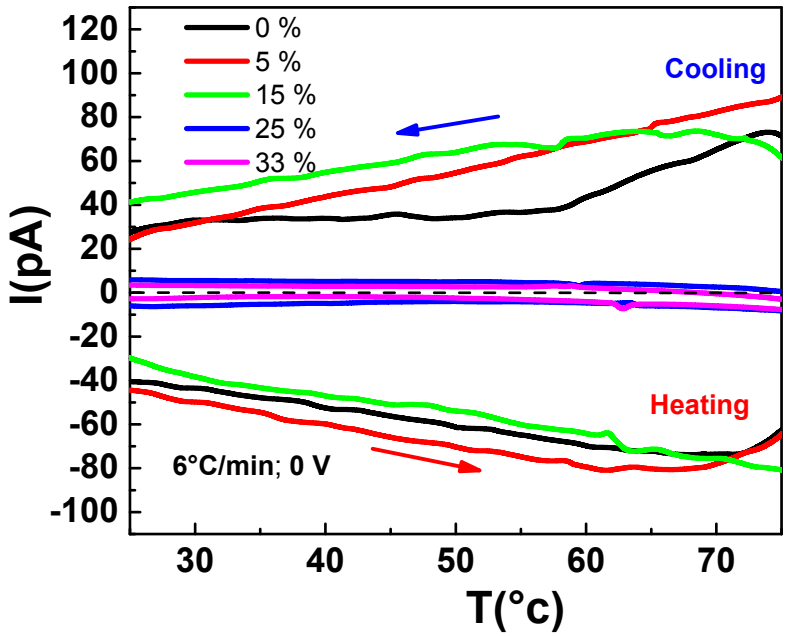


Figure S22. Pyroelectric discharge cycle for composite **5c** in two different orientations at two different speeds.

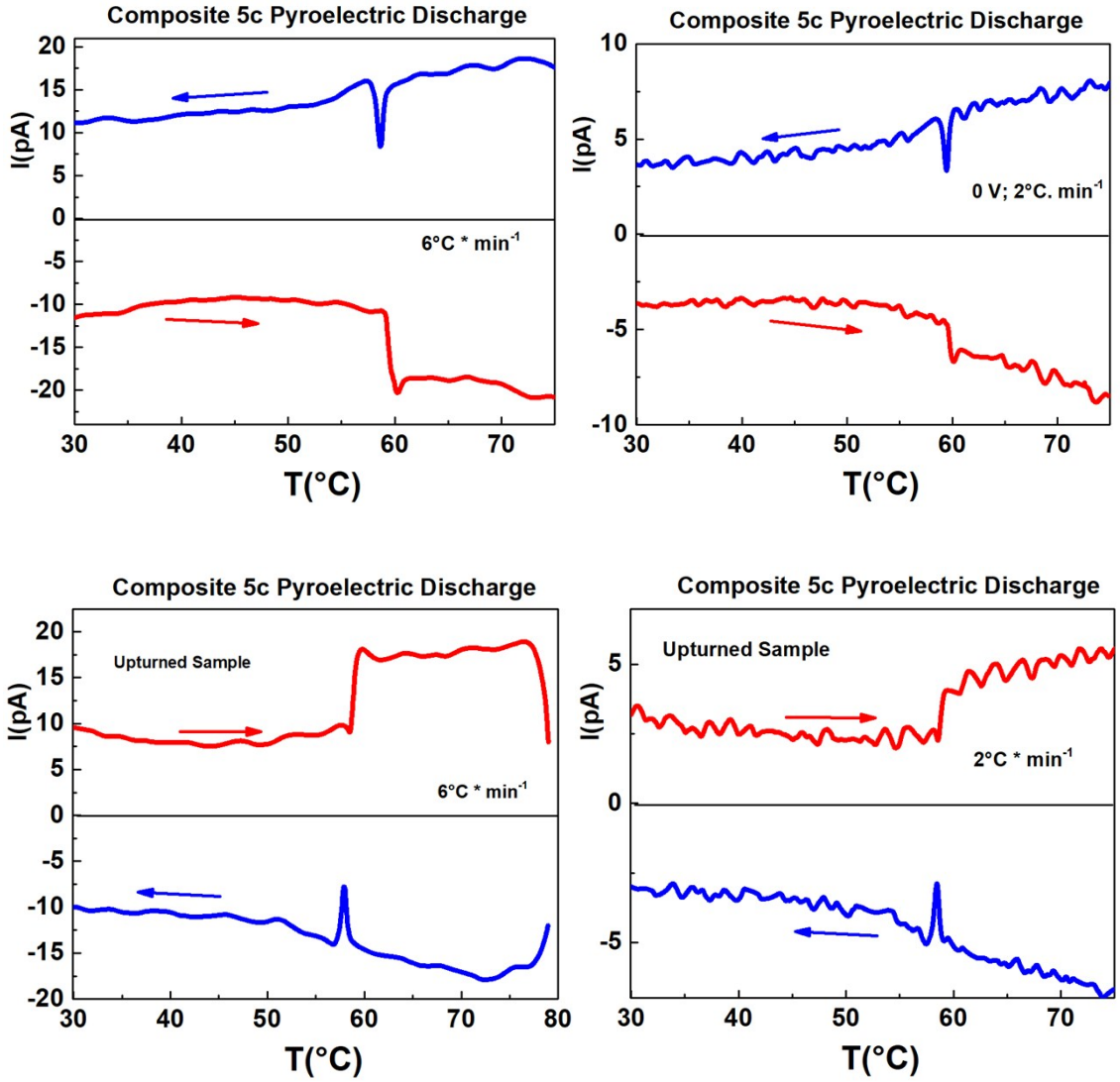


Figure S23: Temperature-dependent Permittivity measurement of sample 5c.