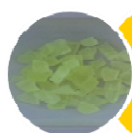


Supplementary Materials: Enhanced Removal of Trichloroethylene in Water Using Nano-ZnO/Polybutadiene Rubber Composites

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Materials and Methods



Branched butadiene rubber (BBR) (J.W.G Co., China) was prepared as length of 3–5 mm size of specimens



300 g BBR specimens were immersed in 3-L tetrahydrofuran (THF) solvent



THF molecule-penetrated swollen BBR specimens were placed in a tray containing nanoscale ZnO powder



The BBR specimens were then dried in an electric furnace at 130 °C for 5 min



Nanoscale ZnO/Branched Butadiene Rubber Composites (ZBBR) were cleaned using an ultrasonic cleaner



ZBBR were dried at 100 °C for an hour to evaporate moisture

Figure S1. Preparation procedure of Nanoscale ZnO/Polybutadiene Rubber Composite (ZBRC).

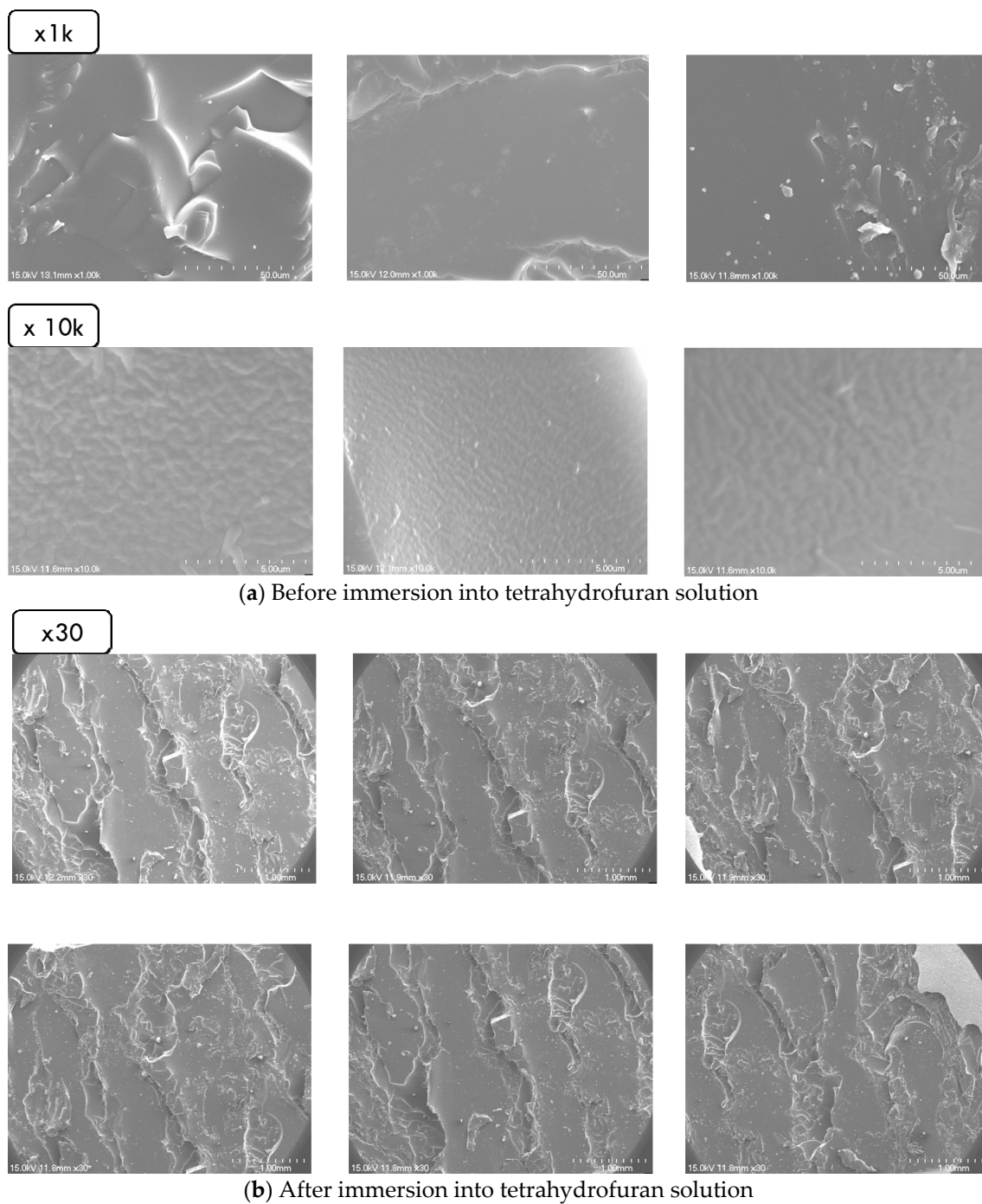


Figure S2. Scanning electron microscope (SEM) Images of polybutadiene rubber.

***T-BR (After Immersion)* SEM/EDX (1)**

Spectrum processing : 1k
 Peaks possibly omitted : 2.078, 2.848 keV

Processing option : All elements analyzed (Normalised)
 Number of iterations = 3

Standard :
 C CaCO₃ 1-Jun-1999 12:00 AM
 O SiO₂ 1-Jun-1999 12:00 AM

Element	Weight%	Atomic%
C K	90.03	92.33
O K	9.97	7.67
Totals	100.00	

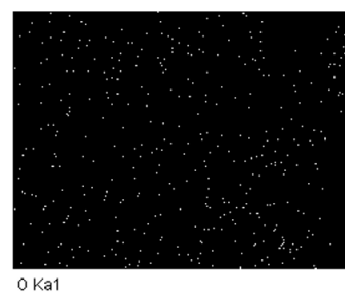
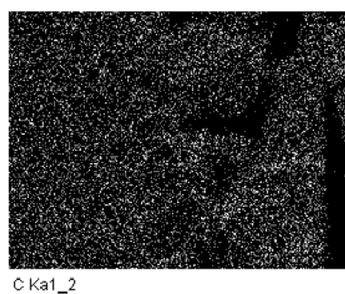
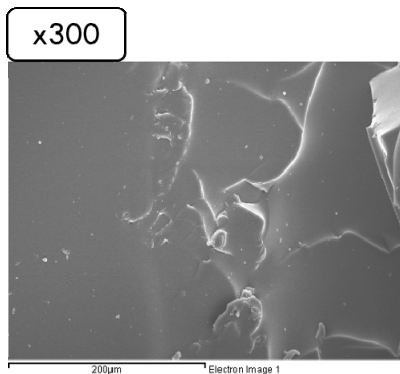
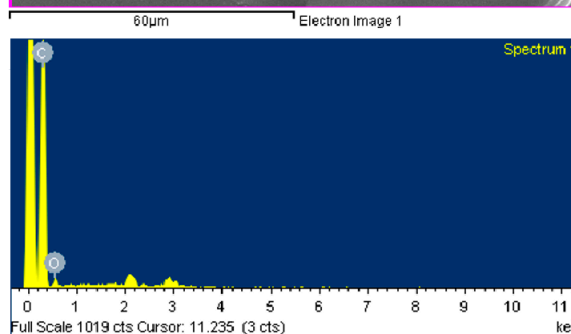
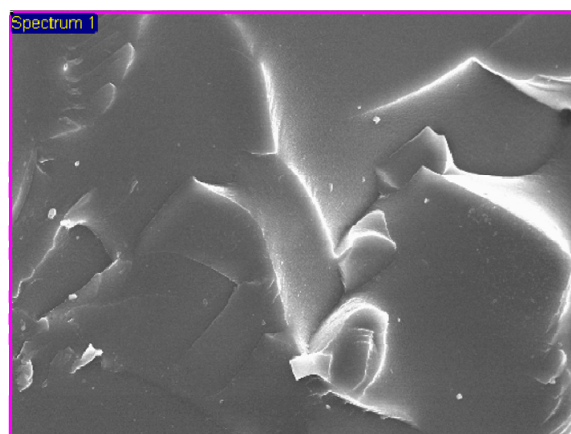


Figure S3. Scanning electron microscope (SEM)/energy dispersive X-ray spectra of polybutadiene rubber.

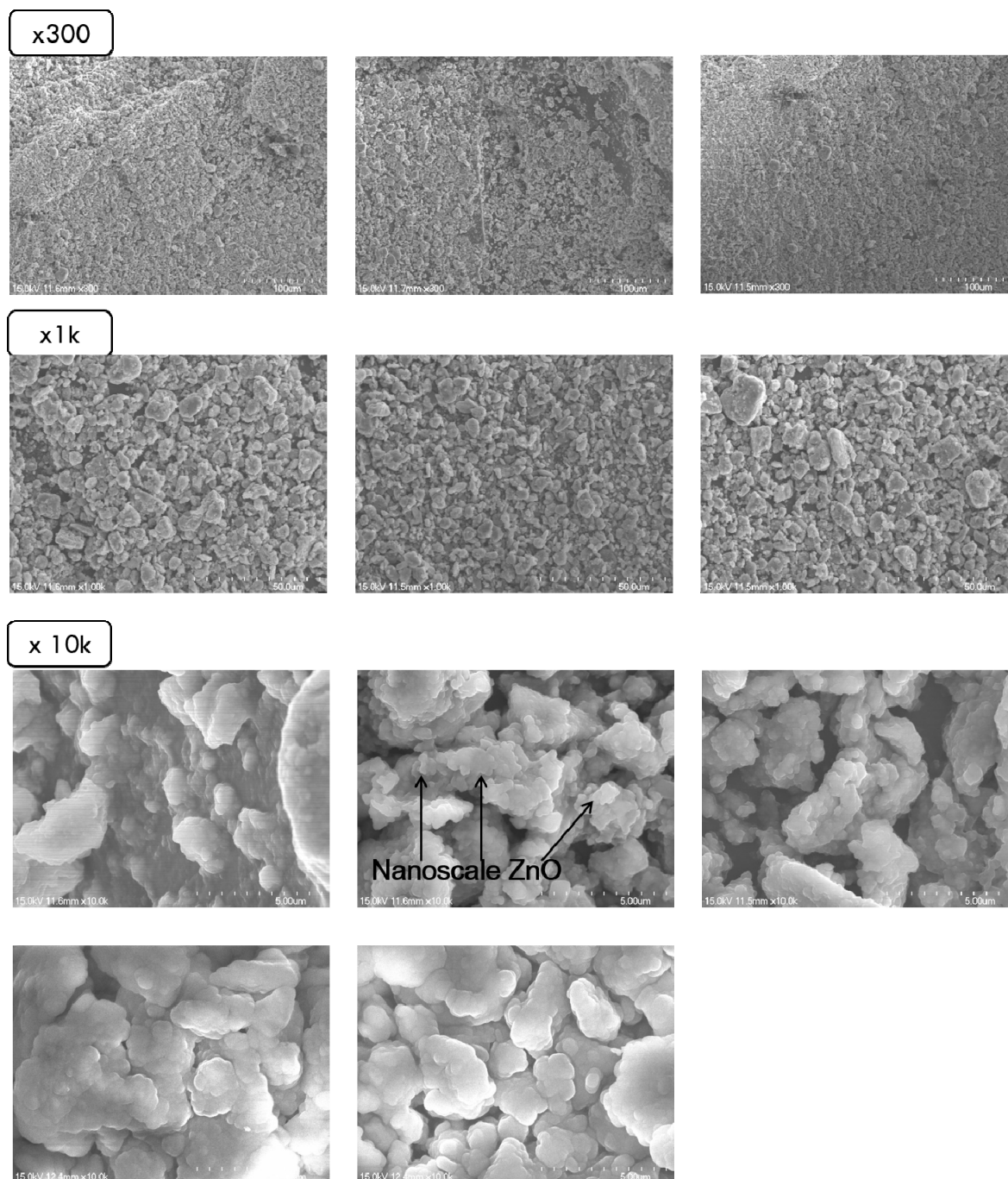


Figure S4. Scanning electron microscope (SEM) images of Nano-ZnO/polybutadiene Rubber Composites (ZBRC) at different magnifications.

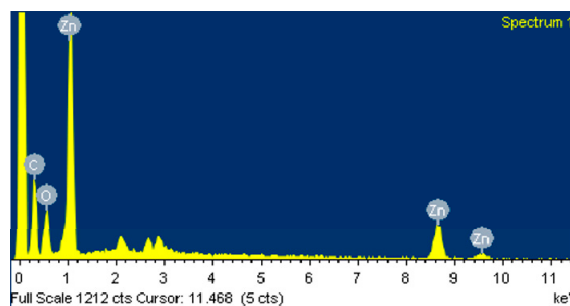
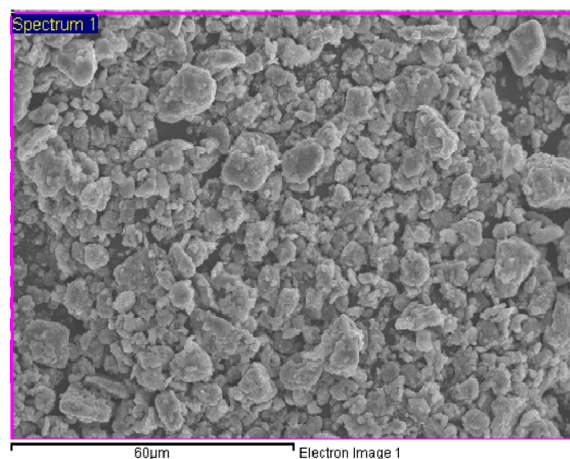
ZBRC SEM/EDX(1)

Spectrum processing : 1 k
 Peaks possibly omitted : 2.074, 2.623, 2.850 keV

Processing option : All elements analyzed (Normalised)
 Number of iterations = 5

Standard :
 C CaCO₃ 1-Jun-1999 12:00 AM
 O SiO₂ 1-Jun-1999 12:00 AM
 Zn Zn 1-Jun-1999 12:00 AM

Element	Weight%	Atomic%
C K	41.35	67.68
O K	15.82	19.44
Zn L	42.83	12.88
Totals	100.00	

**ZBRC SEM/mapping(1)**

x300

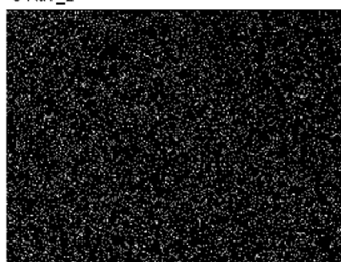
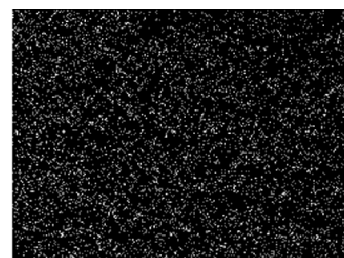
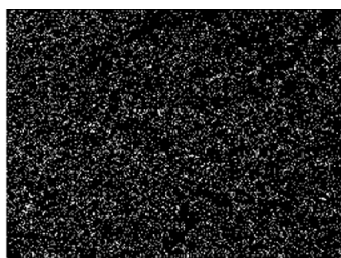
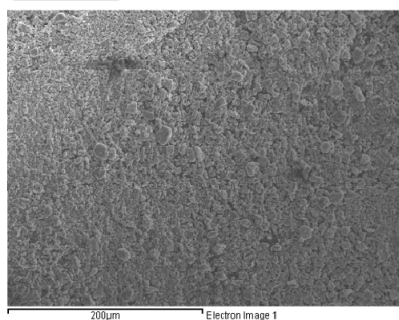


Figure S5. Scanning electron microscope (SEM)/energy dispersive X-ray spectra of Nano-ZnO/polybutadiene Rubber Composites (ZBRC).

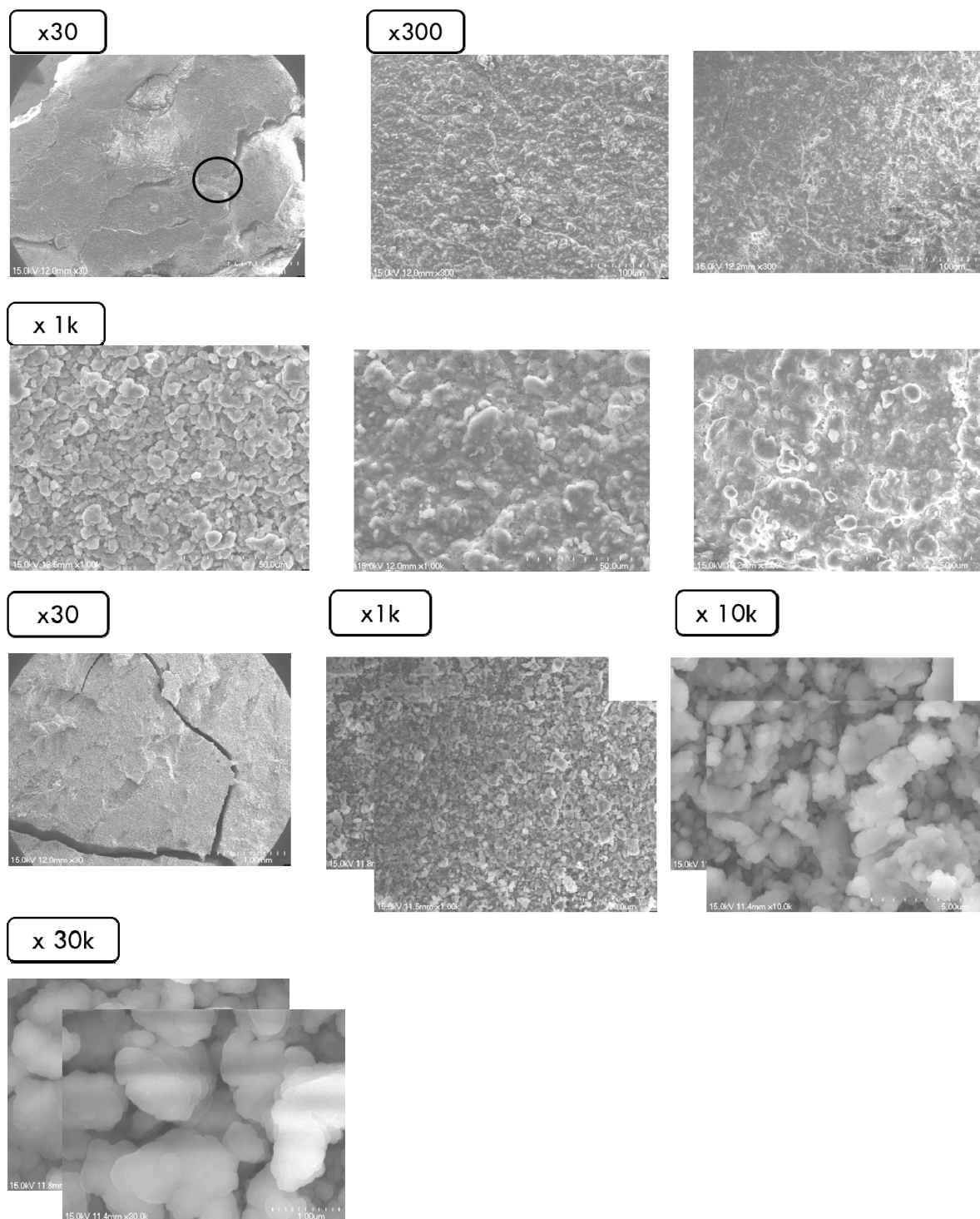


Figure S6. Scanning electron microscope (SEM) images of Nano-ZnO/polybutadiene Rubber Composites (ZBRC) at different magnifications after five runs.

ZBRC_After 5 runs SEM/EDX(1)

Spectrum processing : 1k
 Peaks possibly omitted : 2.075, 2.841 keV
 Processing option : All elements analyzed (Normalised)
 Number of iterations = 6
 Standard :
 C CaCO3 1-Jun-1999 12:00 AM
 O SiO2 1-Jun-1999 12:00 AM
 Zn Zn 1-Jun-1999 12:00 AM

Element	Weight%	Atomic%
C K	65.38	81.24
O K	15.42	14.38
Zn L	19.20	4.38
Totals	100.00	

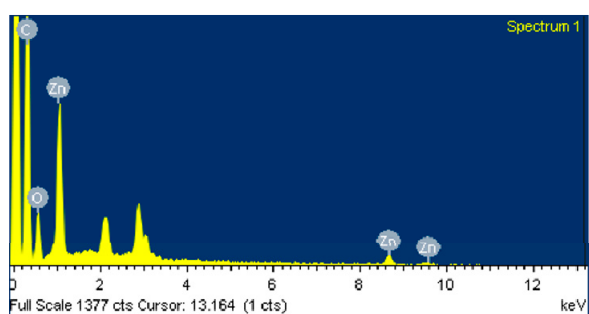
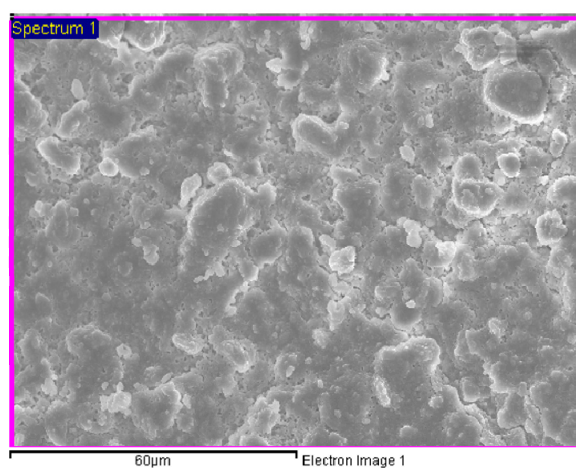
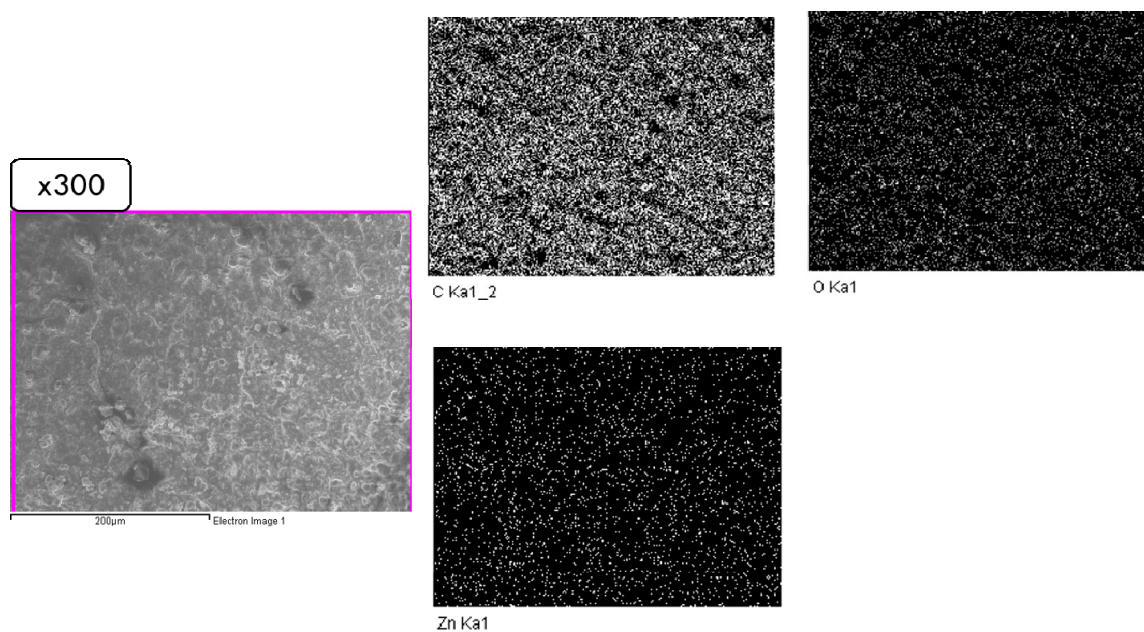
**ZBRC_After 5 runs SEM/mapping(1)**

Figure S7. Scanning electron microscope (SEM)/energy dispersive X-ray spectra of Nano-ZnO/polybutadiene Rubber Composites (ZBRC) after five runs.

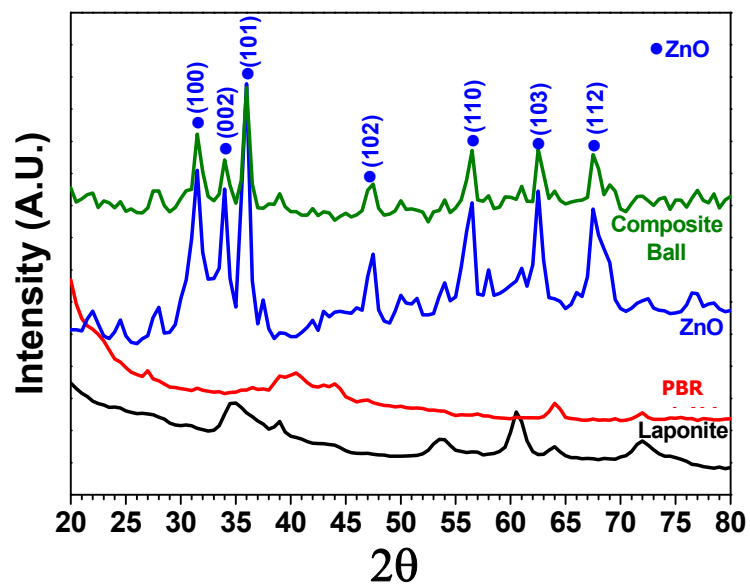


Figure S8. X-ray diffraction (XRD) graphs of Laponite, polybutadiene Rubber (PBR), ZnO nanopowder, and Nano-ZnO/polybutadiene Rubber Composites (ZBRC) ball.