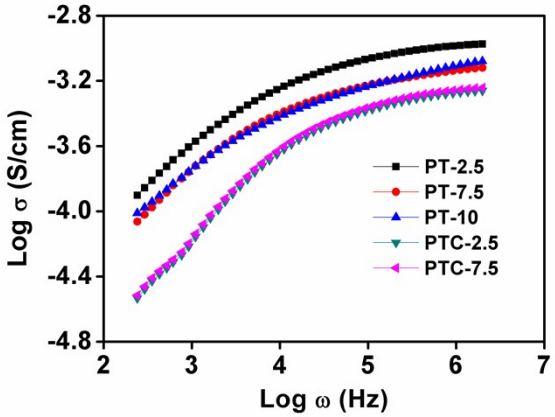
Electronic Supplementary Material (ESI) for RSC Advances.

Supplementary Information

2θ values (in deg)								
TiO_2 nanorods	**Commercial TiO_2**	**PT-2.5**	**PT-5.0**	**PT-7.5**	**PT-10**	**PTC-2.5**	**PTC-5**	**PTC-7.5**
25.14	25.30	-	25.80	25.70	25.24	25.53	25.61	25.64
37.27	37.66	37.30	-	37.95	36.48	37.42	37.39	37.64
47.87	47.92	-	-	-	47.69	47.93	48.17	48.12
54.27	54.62	-	-	54.08	-	-	-	-
62.26	62.37	62.96	-	-	62.13	-	-	-
69.64	70.05	-	-	-	-	-	-	-
75.13	75.72	-	-	-	-	-	-	-
82.60	82.71	-	-	-	-	-	-	-

File S1. XRD data of filler and polymer electrolytes



File S2. Conductivity spectra for composite polymer electrolytes PT-2.5, PT-7.5, PT-10, PTC-2.5 & PTC-7.5

Symbols used

'*d*' spacing – interlayer distance (nm)
k – Boltzmann constant (1.381×10^{-23} m^2 kg s^{-2} K^{-1})
λ – wavelength of X-ray (Å)
β – dielectric relaxation peak
θ – interlayer angle (degree)
ρ – density of 1-butanol (Kg/m^3)
V- apparent volume of the membrane (m^3)