ELECTRONIC SUPPLEMENTARY INFORMATION

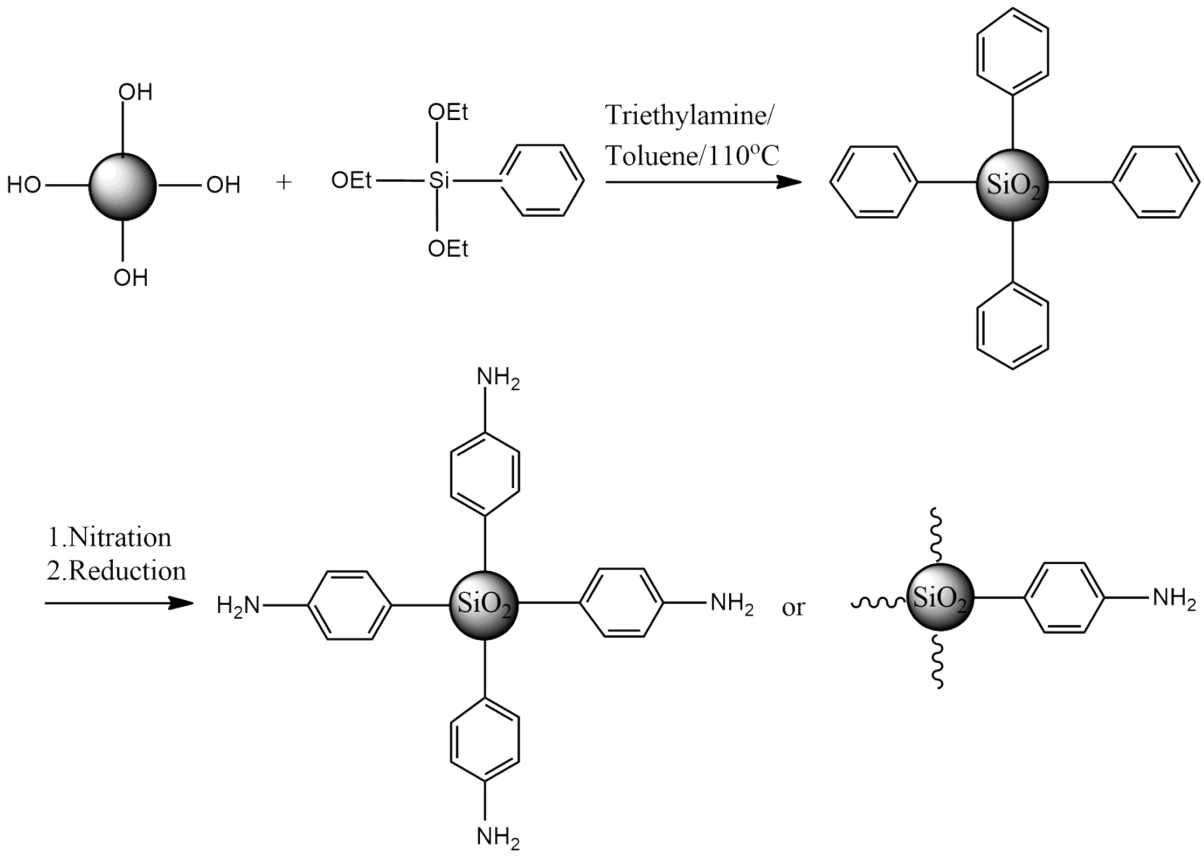
ESI 1. Preparation of aromatic amino functionalized silica nanoparticles

Aromatic amino functionalized nano silica particles were synthesized following a reported procedure. (Ghorpade *et al.* 2015).

Modification of silica nanoparticles with PTEOS. Silica nanoparticles (15nm) were dried under reduced pressure at 120°C for 12 h in vacuum oven. Dried silica nanoparticles (3.0g) were suspended in 200ml of toluene for 30 min and sonicated. The mixture of nanosilica and toluene were then subjected to mechanical stirring in a three necked round bottomed flask under nitrogen atmosphere. 1.0g of triethylamine was added into the mixture. 1.0g and some excess of phenyl triethoxy silane (PTEOS) was added to the suspension of nano silica and toluene and stirred for 30 minutes at room temperature. The mixture was refluxed for 24h with continuous stirring. The reaction was stopped by cooling to room temperature and the mixture was kept in this state for two days. After that the reaction mixture was heated and was maintained under reflux condition for another five hours. The reaction mixture was cooled and the particles formed were washed free of unreacted reagents by centrifugation thrice and re-suspension in toluene. Then the volatiles were removed under vacuum in a rotatory evaporator and dried again in a vacuum oven at 100˚C.

Nitration of PTEOS modified nanosilica. sodium nitrite (2.0g) was added to a 100ml RB flask containing a mixture of PTEOS modified silica nano - particles (2.0g), chloroform (20ml), and acetic acid(3ml), and the mixture was stirred for 2 hours at room temperature. Acetic acid (2ml) was then added and the mixture was stirred for a further period of 18 hours. Nanoparticles were separated by centrifugation and washed with water several times to remove any unreacted $NaNO_2$ and acetic acid. Finally, silica nano particles were washed by centrifugation with ethanol and dried under vacuum.

Reduction of nitro group on modified nanosilica. 4.0g of aromatic-nitro modified silica nanoparticles was dispersed in 50mL of ethanol and sonicated for 1 hour. 4.0g of $SnCl_2{\cdot}2H_2O$ dissolved in 25ml of ethanol was added to the above silica suspension with mechanical stirring at 30˚C. The reaction mixture was then heated to 78˚C, stirred for 24 hours at this temperature and cooled to room temperature (Scheme 4). The pH was made slightly basic (pH = 8) by addition of 5% aqueous sodium bicarbonate and the resulting basic mixture was stirred for another 6 hours. The nanoparticles were washed with slightly basic water several times to remove unreacted components. The nanoparticles were washed finally with ethanol to remove the unreacted $SnCl_2{\cdot}2H_2O$ and dried under reduced pressure. These modified nanoparticles were characterized by FT-IR and XPS.



Scheme S1 Preparation of aromatic amino functionalized Silica.

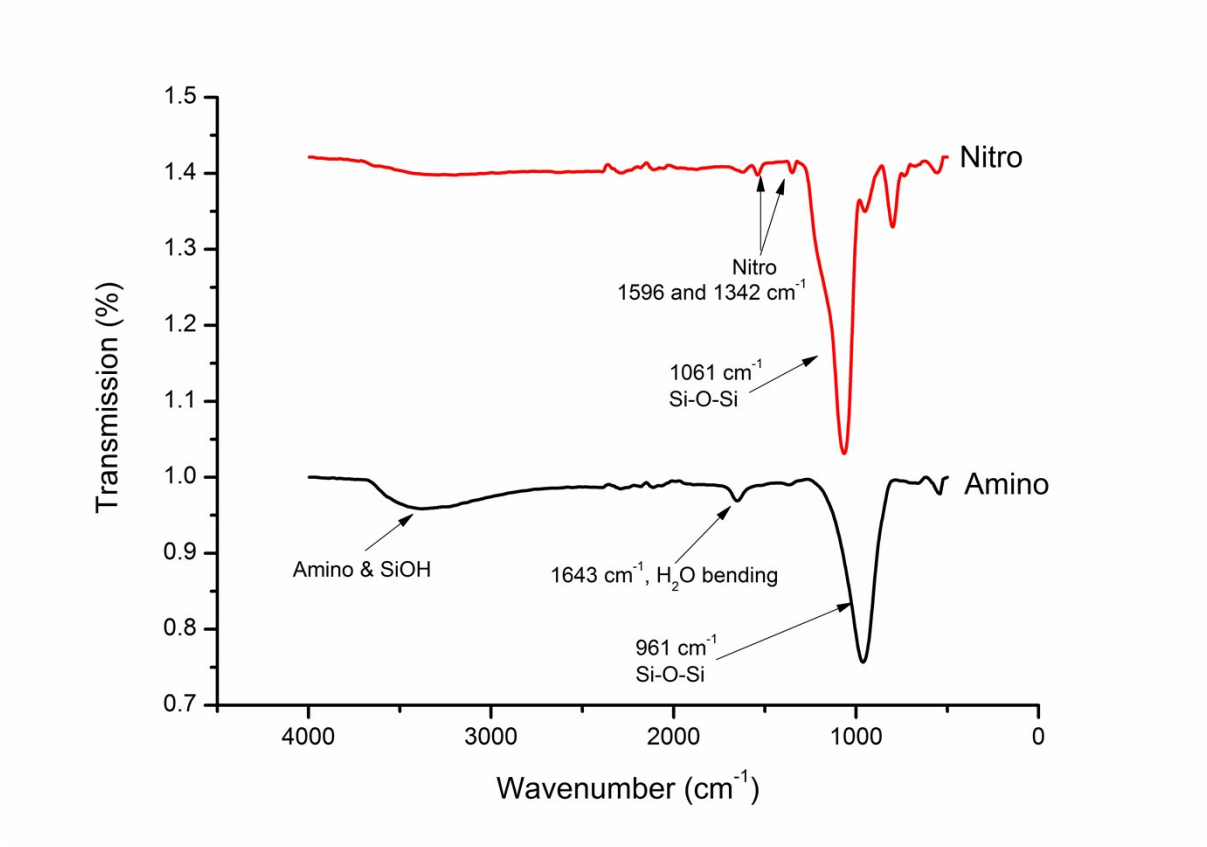


Fig. S1 FT-IR spectra of aromatic nitro and amino functionalized silica.

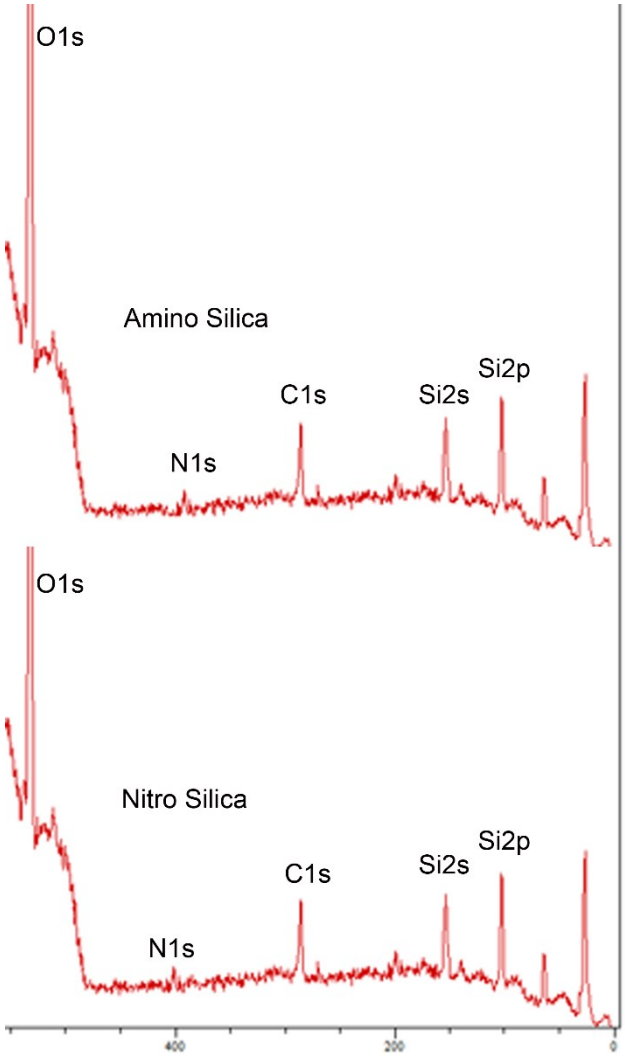


Fig.S2. XPS spectra of aromatic nitro and amino functionalized silica.

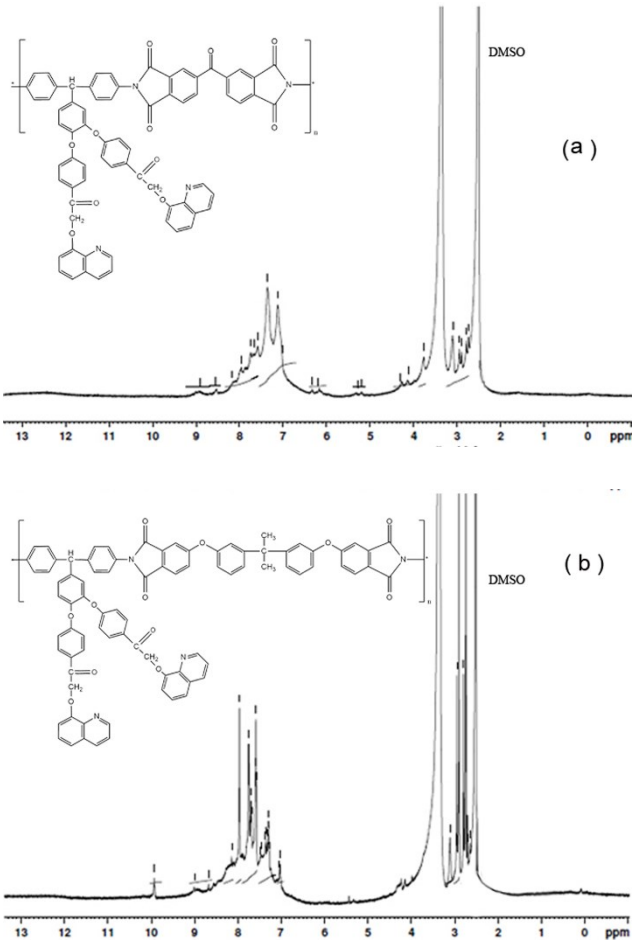


Fig.S3 ^{1}H-NMR spectra of a) BAPQMCPM-BTDA PI b) BAPQMCPM-BPADA PI.

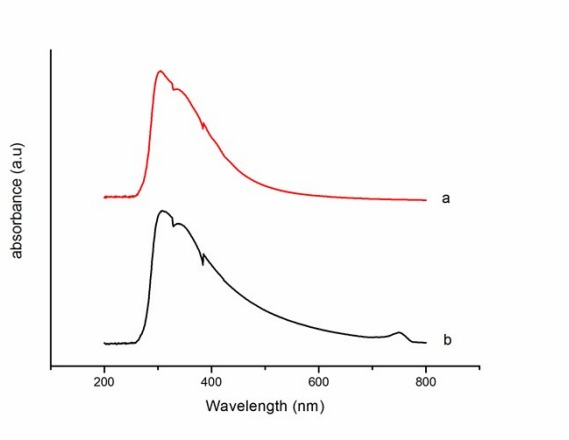


Fig. S4 UV-Visible spectra of a) BAPQMCPM-BPADA PI b) BAPQMCPM-BTDA.

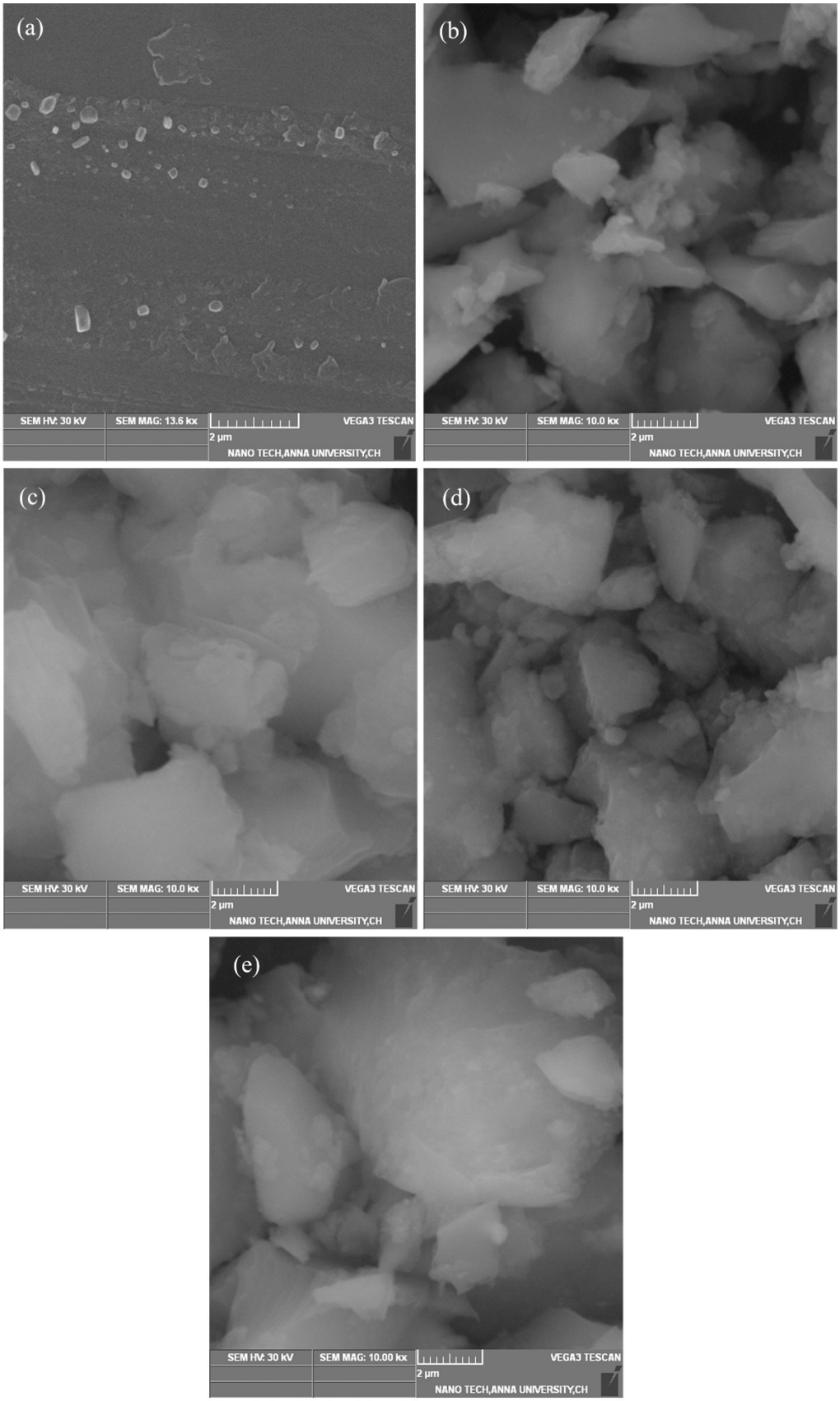


Fig.S5 SEM images of a) BAPQMCPM-BPADA PI 2%F-Silica, b) BAPQMCPM-BPADA PI/5%F-Silica, c) BAPQMCPM-BPADA PI 10%F-Silica, d) BAPQMCPM-BTADA PI/5% F-Silica, e) BAPQMCPM-BTDA PI 10%F-Silica.

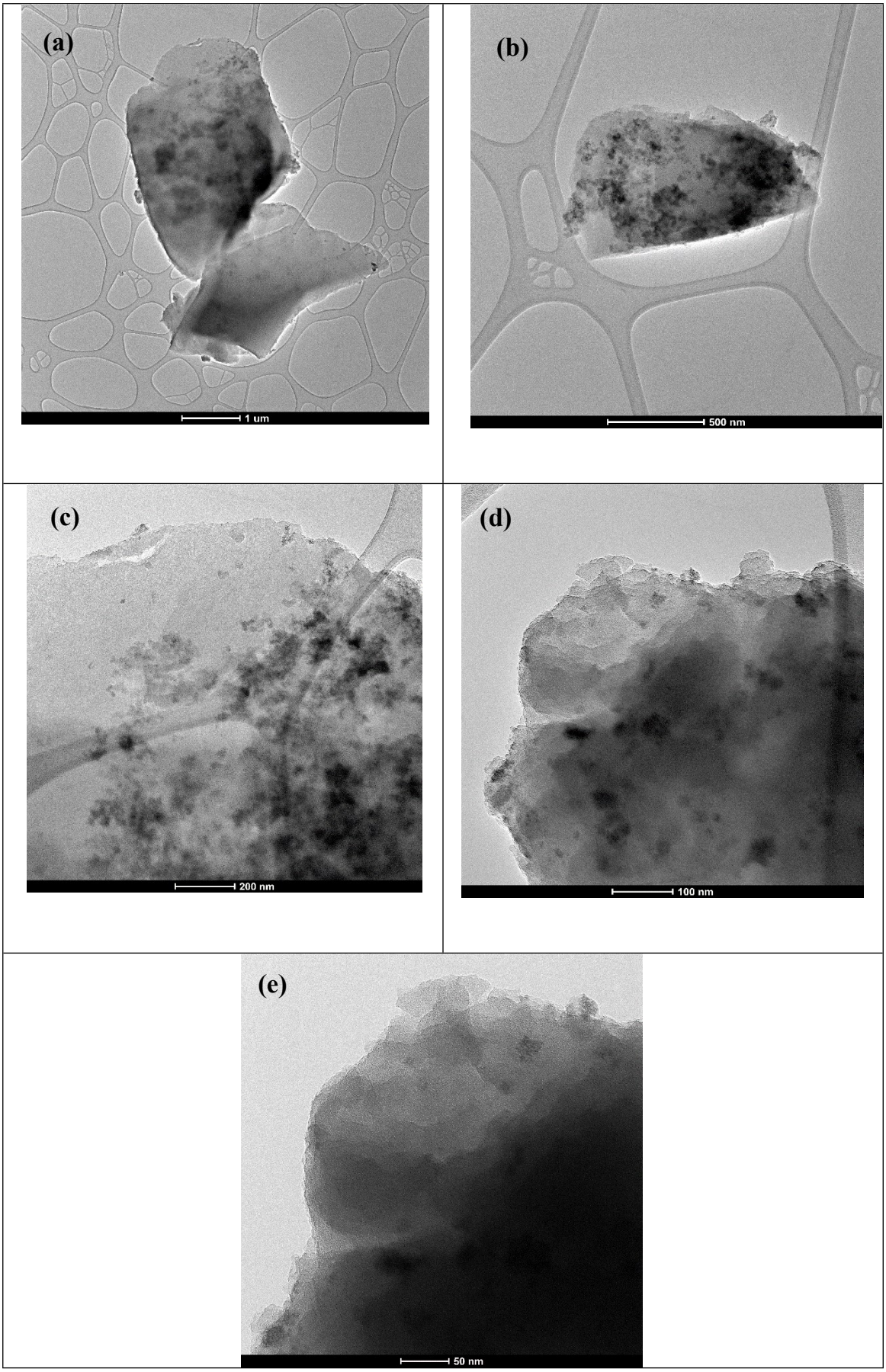


Fig.S6 (a-e) TEM images of BAPQMCPM-BTDA PI 10%F-Silica,high magnification and low magnification

Fig.S6(a)TEM image of BAPQMCPM-BTDA PI 10%F-Silica-1mu low magnification

Fig.S6(b)TEM image of BAPQMCPM-BTDA PI 10%F-Silica-500nm low magnification

Fig.S6(c)TEM image of BAPQMCPM-BTDA PI 10%F-Silica-200nm low magnification

Fig.S6(d)TEM image of BAPQMCPM-BTDA PI 10%F-Silica-100nm low magnification

Fig.S6(e)TEM image of BAPQMCPM-BTDA PI 10%F-Silica-50nm low magnification

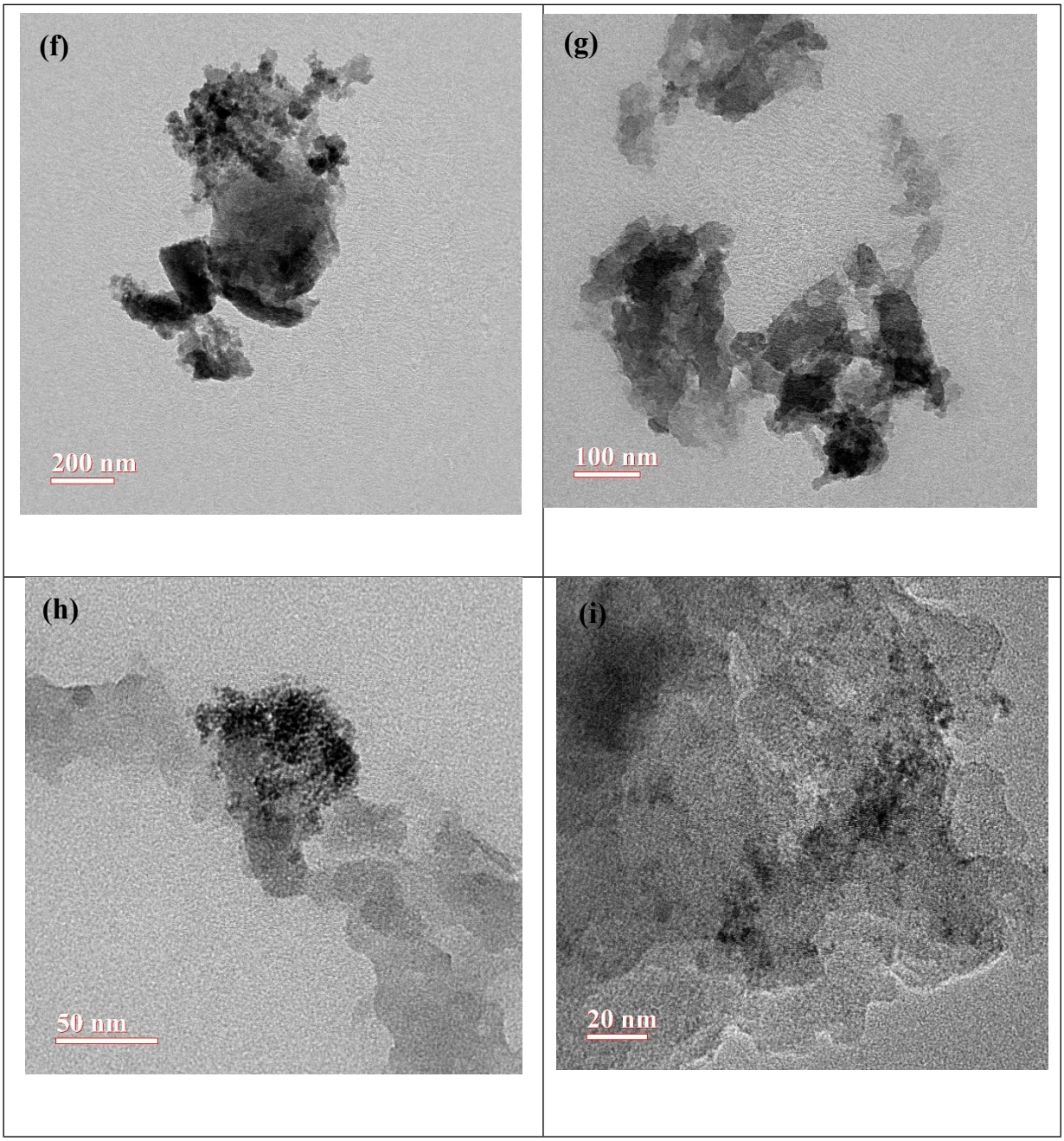


Fig.S6 (f-i) TEM images of BAPQMCPM-BPADA PI 4%F-Silica,high magnification

Fig.S6(f) TEM image of BAPQMCPM-BPADA PI 4%F-Silica 200nm

Fig.S6(g) TEM image of BAPQMCPM-BPADA PI 4%F-Silica 100 nm

Fig.S6(h) TEM image of BAPQMCPM-BPADA PI 4%F-Silica 50nm

Fig.S6(i) TEM image of BAPQMCPM-BPADA PI 4%F-Silica 20nm

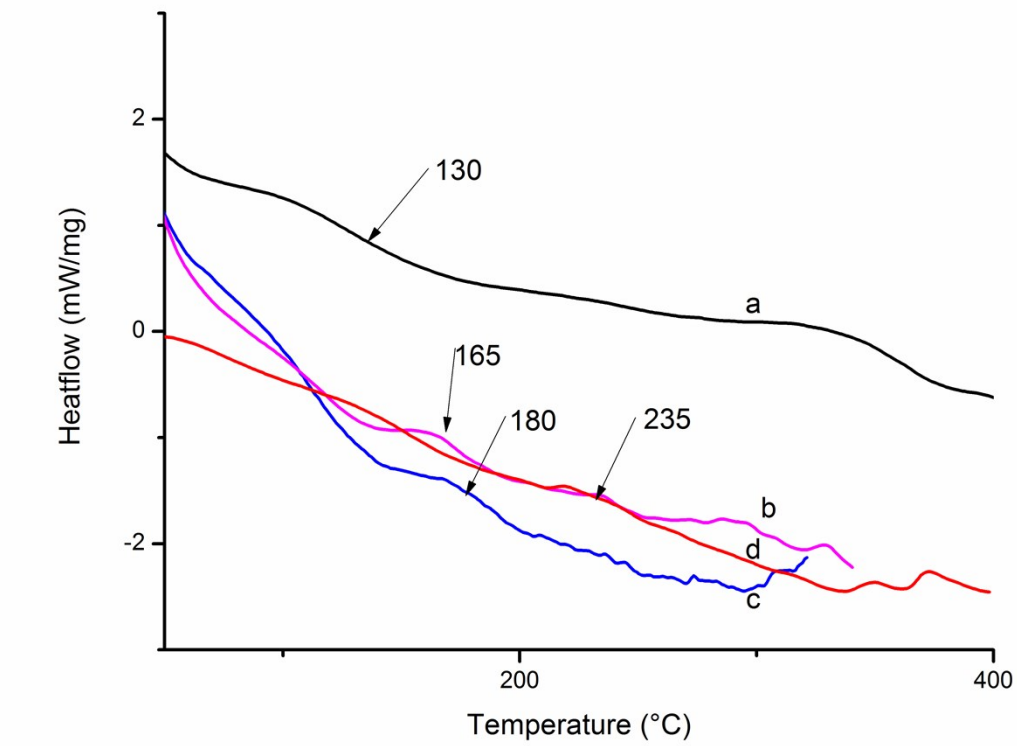


Fig. S7 DSC Diagrams of a) BAPQMCPM-BPADA PI b) BAPQMCPM-BPADA PI/2%F-Silica, c) BAPQMCPM-BPADA PI/5%F-Silica, d) BAPQMCPM-BPADA PI/10%F-Silica.