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Electronic supplementary information (ESI)



Figure 1 Chemical equilibrium diagram for concentration of dissolved Co species in water at different pH, calculated with MEDUSA software



Figure 2 Chemical equilibrium diagram for concentration of dissolved Ni species in water at different pH calculated with MEDUSA software.



Figure 3 Energy –dispersive X-ray spectroscopy (EDS) spectrum of Co deposited on carbon support using gamma radiation induced synthesis.



Figure 4 Typical Energy –dispersive X-ray spectroscopy (EDS) spectrum of Ni deposited on carbon support by gamma-radiation induced reduction. The corresponding SEM image is shown in Fig.5.



Figure 5 Scanning Electron Microscopy image of carbon powder containing Ni. Ni particles can't be seen in the image The presence of Ni species is confirmed be EDS measurements done on the labelled particles. Typical EDS spectra is shown in Fig. 4.



Figure 6 Adsorption/desorption curves for Co3O4-C electrode material



Figure 7 Adsorption/desorption curves for Ni-C electrode material