?sotherms Studies. Saturation magnetization Ms values were calculated through the interception of M versus 1/H curve with the vertical axis.)The excitation source was 532 nm radiation from a Nd:YVO4 laser (frequency-doubled) and the laser power on the sample was 5 mW. Magnetic properties were examined using a Quantum Design PPMS DynaCool-9 System with a vibrating sample magnetometer (VSM) option.to 70?, with a scanning speed of 0.025deg/s and a step time of 10 s. The Fourier transformed infrared (FTIR) technique was conducted using a Nicolet Nexus 670 FTIR infrared spectrometer within a range from 4000 to 400 cm−1 with a resolution of 4 cm−1 in a KBr wafer.For isotherms studies, 0.01g of either ZnFe2 O4 , NiFe2 O4 , or CoFe2 O4 ferrite samples was mixed with 10 mL of aqueous solution at pH = 2 for different concentrations of Pb(II) (10, 40, 80, and 100 mg/L).?Langmuir and Freundlich isotherm models are com- monly used by various researchers to describe the equilib- rium of heavy metal ions between solid and solution phases [35].The Langmuir equation is expressed as ?qe = qmKLCe , (7) 1+KLCe ?where qe is the amount adsorbed at equilibrium (mg/g), Ce is the equilibrium concentration (mg/L), KL is the Langmuir constant related to the affinity of binding site (L/mg), and qm is the maximum amount of solute adsorbed (mg/g).The Langmuir isotherm model considers that the binding sites are homogeneously distributed on the adsorbent surface and the adsorption takes place at specific homogeneous sites within the adsorbent.Characterization Techniques.radiation (??2.4.= 10?