Abstract

A simple, rapid and reasonable selective Complexometric technique for nickel (II) determination using some selected hydroxytriazene as a metallochromic indicator is reported in the present study. The colour change at the end point was from greenish-yellow/yellow to colourless with sharp end point. The pH ranges were 9.3-9.7, 9.0-9.5, 8.5-9.0, 8.0-8.5 while temperature ranges were 25-60, 25-60, 25-60, 25-50 and 25-50 0C for reagent (i), (ii), (iii), (iv), and (v) respectively. Nickel(II) was determined accurately up to concentration as low as 3.0x10-3M for reagents (ii), (iv), and (v)) while for reagents (i) and (iii) the concentration range could be even lowered to 1.0x10-3M for the determination of nickel (II). The ions such as Cl-, Br-, CH3COO-, CO32-, PO43-, SO42-, C2O42-, S2O32-, NO2-, SO32-, S2-, HPO42-, F-, NO3, WO42-, MO7O246-, I-, NH4+, Na+, K+ did not show any interference in the determination of nickel (II) even when they were present in tenfold excess. Ba2+, Mg2+, Ca2+, were tolerated up to five-fold excess. However Mn2+, Pb2+, Hg2+, Sn2+, Th4+, Cd2+, Co2+, Cu2+,Zn2+, interfered even at equivalent amount. The method was used to determine nickel in its synthetic alloy with maximum relative error of 0.78 when using secondary masking agent.