

VISUAL TEST DETERMINATION OF ETHYLENEDIAMINETETRAACETATE

The indicator system for ethylenediaminetetraacetate (EDTA) determination on the base of the complex compound of Cu(II) with 1-(4-adamantyl-2-thiasolylazo)-2-naphthol immobilized on silica surface was developed. The destruction of complex compound on the surface occurs at pH 3,5 and EDTA concentration $\geq 1,0 \mu\text{mol/L}$. The kinetic experiment has shown that the desorption equilibrium for Cu(II) can be attained within 20 min. The interface interaction has been investigated. The light absorbance of the adsorbents at 590 nm varies directly with the concentration of EDTA in the solution. The increase in EDTA content was accompanied by the change in the adsorbent color from red-purple to orange. This fact has been used to develop color scale for semiquantitative visual test determination of EDTA. Operating concentration range for the scale proposed was found to be 0,3–24 mg/L. The modified sorbent was shown to be promising as a ready to use analytical form for direct visual test determination of EDTA in highly mineralized samples, particularly in cosmetic products. The tolerance limits of the major components in cosmetic products on visual test determination have been reported. The technique has been successfully applied for the visual test determination of EDTA in the oxidizing emulsion for hair. Visual test determination in the sample was realized by comparing of adsorbent color with the color scale. The procedure proposed is simple, cost-effective and can be easily applied to the visual on-site testing.

Key words: ethylenediaminetetraacetate, 1-(4-adamantyl-2-thiasolylazo)-2-naphthol, modified silica, visual test method.