Recycling of Nickel in the Electroless Nickel Plating Baths

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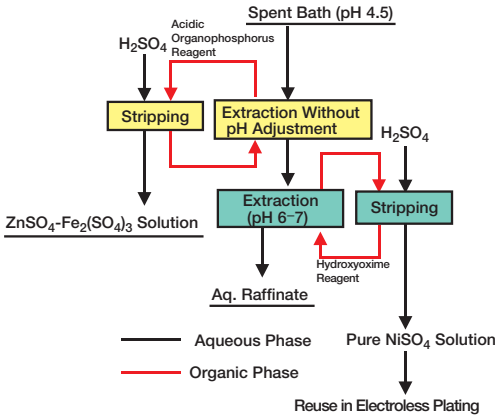
AIST Today Vol. 4, No.1 (2004) 16

With increasing importance of the electroless nickel plating technology in many fields such as electronic and automobile industries, the treatment of the spent baths is becoming a serious problem. The spent baths are currently treated by the conventional precipitation method, and nickel in these baths is not recovered. We are developing a recycling process of nickel in the spent baths using solvent extraction (Fig. 1). Nickel in the spent baths is efficiently extracted by a hydroxyoxime reagent at a pH higher than 6 and is readily stripped with sulfuric acid. The impurity metal ions (iron and zinc) are selectively extracted with organophosphorous reagent before extracting nickel.



Proposed flowsheet for recycling nickel from the spent baths

Naked-eye Detection of Arsenic(V) using a New Chromogenic Material

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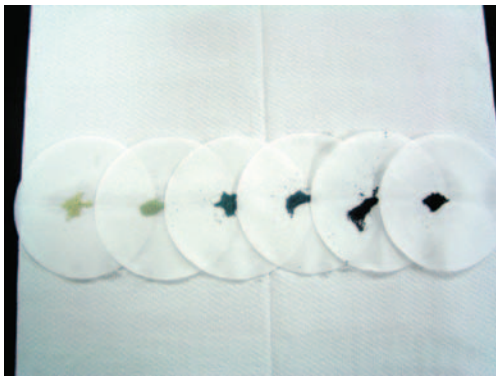
AIST Today Vol. 4, No.2 (2004) 16

A method of naked-eye detection for trace arsenic in aqueous samples has been newly developed. The proposed method is based on the formation of hetero poly acid in a solid polymer phase. The intensity of the color of the material changes corresponding to the concentration of arsenic(V) in the sample solutions. The detection limit of this method is 5×10^{-8} mol dm^{-3} by the combined use of a preconcentration method. Since the development of the color occurs within 30 min, this system leads a simple, rapid and low-cost detection method of trace arsenic(V) in an aqueous media.



A color change of a chromogenic material with the different concentrations of arsenic(V). [As(V)] = 0ppb, 75ppb, 750, ppb, 1.5ppm, 7.5ppm, 15ppm, from left to right