A New Approach For The Speciation Of Chromium By Coprecipitation

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Chromium exists naturally with other metals such as iron in small amounts. It is especially used in steel and alloy industry, dye and leather industries. Cr(III) and Cr(VI) species are more common than the other species of Chromium in waters. Cr(III) is essential for the metabolisms of glucose, lipid and protein. Cr(VI) is toxic and carcinogenic (1-3).

A new method for the speciation of Chromium is improved by this work. Cr(III) and Cr(VI) amounts is determined by the means of dysprosium hydroxide precipitate. Cr(III) is recovered by the Dysprosium hydroxide precipitate quantitatively while the recovery of Cr(VI) was less than 10%. For the determination of total Chromium, Cr(VI) is reduced to Cr(III) by KI before applying coprecipitation method. Cr(VI) amount is calculated by subtracting Cr(III) amount from the total Chromium value. The method is optimized for the effects of pH, the amount of Dysprosium, sample volume and matrix ions. Several water samples and certified materials are analysed by the method. Flame AAS is used for the determinations.

References