

Simultaneous determination of copper and iron by solvent extraction and first derivative spectrophotometry

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A simple, sensitive and selective first derivative spectrophotometric method has been developed for the determination of copper and iron in mixtures. The method is based on the recovery of the analytes, by liquid-liquid extraction, Integrated reaction with 5-phenyl-3-(4-phenyl-2-pyridinyl)-1,2,4-triazine (PPT) and perchlorate in dichloroethane and on the subsequent direct derivative spectrophotometric measurement using the zero-crossing approach for determination of both analytes. Copper and Iron were thus determined in the ranges 50 - 2500 ng/ml and 2-120 ng/ml, respectively, in the presence of one another. The detection limits achieved (3 σ) were found to be 17 ng/ml of copper and 0.7 ng/ml of iron. The relative standard deviations were in all instances less than 3.1%. The proposed method was applied to the determination of both analytes in well water and the results were consistent with those provided by the AAS standard method. © 1995, Taylor & Francis Group, LLC. All rights reserved