*Chem. Anal. (Warsaw),* **48**, 859 (2003)

# Kinetic-Spectrophotometric Determination of Rhodium(III) Based on Its Catalytic Effect Towards the Oxidation of Malachite Green with Periodate

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**Key words:** rhodium(III) determination, kinetic-spectrophotometric method, periodate

A simple, sensitive, accurate and selective method for the fast determination of rhodium(III) based on catalytic oxidation of malachite green with sodium periodate has been described. The reaction was monitored spectrophotometrically by measuring the decrease of the absorbance of malachite green at 617 nm during 3 min with the fixed time method. The reagent concentration and other conditions were optimised. The effect of various cations and anions was studied. The method allowed one to determine Rh(III) in the concentration range: 2.0–150.0 ng $mL^{-1}$. The relative standard deviation for 10 replicate determinations of 20 ng $mL^{-1}$ Rh(III) was 1.3%, and the detection limit of the method equalled to 1.2 ng $mL^{-1}$. The method was applied to the determination of rhodium(III) in synthetic samples with satisfactory results.