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Flow Injection Speciation Analysis of Manganese in Real Samples by Diphenylcarbazide-Spectrophotometric Determination

Kazem KARGOSHA
Chemistry and Chemical Engineering Research Center of Iran, Tehran-IRAN
Meissam NOROOZIFAR
Department of Chemistry, Sistan and Baluchestan University, Zahedan-IRAN
e-mail: mnoroozifar@hamoon.usb.ac.ir

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Authors

chem@tubitak.gov.tr

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Abstract: The flow injection speciation of manganese in aqueous solution using a spectrophotometry method of detection is presented. Manganese (VII) can be determined spectrophotometrically at 308 nm after the reaction with Sym-diphenycarbazide in buffered at pH = 3.05 with phosphate. Under the optimized conditions, total manganese concentration can also be determined after oxidation of Mn^{2+} to MnO_4^- and then Mn^{2+} concentration can be calculated from the difference. The linear range of determination is 0.047-4.50 mg/l with a 3σ detection limit of 31 μ g/l. The proposed method is applied to the determination of MnO_4^- and Mn^{2+} in effluent streams and foods with a relative standard deviation better than 1.85%. A sampling frequency of up to 24 h^{-1} can be achieved. Interfering ions can be removed by an ion-exchange column built into the flow injection system.

Key Words: Flow-injection, Speciation, Manganese, Effluent streams, Foods

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