

A Comparison of Direct and Indirect Ion Chromatographic Methods for the Determination of Bromide/Bromate Ions in Drinking Water

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Bromate – an inorganic disinfection by-product in ozonated water – has been classified to group 2B (possible human carcinogen) by the International Agency for Research on Cancer. Therefore, reliable analytical methods for the determination of bromate in the concentration range of $\mu\text{g L}^{-1}$ are required. This work presents a comparison study of two methods for the analysis of $\text{Br}^-/\text{BrO}_3^-$ ions in drinking water using ion chromatography with direct or indirect detection. Direct determination is based on the separation of bromate ions using high-capacity anion-exchange column and their further conductivity detection. An indirect method, in turn, involves post-column derivatisation and UV detection of the generated Br_3^- ions at 267 nm. Validation studies have confirmed the applicability of both investigated methods to the determination of bromate at the $\mu\text{g L}^{-1}$ level. Post-column derivatisation has occurred to be more accurate and sensitive; however, it requires more complex instrumentation and procedures.