

Removal of Deposits and Improvement of Shelf Life in CO₂-Rich Mineral Water by Ozone-Microbubbles

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Abstract : The aim of this study was to effectively remove Fe²⁺ by using ozone microbubbles in bottled mineral water to prevent sediment from occurring during storage and increase shelf life. By considering the characteristics of mineral water with low solubility of ozone and high CO₂ content, a suitable ozone injection step was chosen and a new mineral water treatment method using microbubbles was proposed. As a result of the treatment of the bottled mineral water with ozone microbubbles, the iron ion concentration was reduced from 0.14 mg/L to 0.01 mg/L, and the shelf life increased to 360 days. During the treatment, the concentrations of K⁺ and Na⁺ were almost unchanged, and the deposition time was reduced to one-third compared to the natural oxidation.

Keywords : CO₂-rich mineral water, ozone-micro bubble, shelf life, bottled mineral water, water treatment

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