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An ATP-based method for monitoring the microbiological drinking water quality in a distribution network

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Abstract

The titration of adenosine triphosphate (ATP) by bioluminescence permits rapid evaluation of the quantity of viable micro-organisms present in a water sample. During two sampling campaigns, Société Anonyme de Gestion des Eaux de Paris (SAGEP) tested a new extraction and titration system of bacterial ATP in the Paris drinking water distribution network. As far as the entire set of results of analyses of water in the network is concerned there is a linear relationship between $\log [\text{ATP}]$ and $\log(\text{HPC-R2A}/\text{ml})$. Furthermore, as regards the drinking water originating from treatment of surface waters, some of the results obtained indicate a slight change as regards the Paris network in the microbiological quality. This is certainly linked to the distance travelled from the production location as well as to a reservoir effect observed on a site. Conversely, no change is apparent with regard to waters of underground origin. Lastly, despite changes in temperature and chlorine residual, no significant influence has been observed, essentially because of the very low density of culturable bacteria.

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