Accepted Manuscript

Title: Formation and determination of organohalogen by-products in water. part iii. characterization and quantitative approaches

Author: Aziz Kinani, Said Kinani, Stéphane Bouchonnet

PII: S0165-9936(16)30168-6
DOI: http://dx.doi.org/doi: 10.1016/j.trac.2016.09.013
Reference: TRAC 14832

To appear in: *Trends in Analytical Chemistry*

Please cite this article as: Aziz Kinani, Said Kinani, Stéphane Bouchonnet, Formation and determination of organohalogen by-products in water. part iii. characterization and quantitative approaches, *Trends in Analytical Chemistry* (2016), http://dx.doi.org/doi: 10.1016/j.trac.2016.09.013.

Formation and determination of organohalogen by-products in water. Part III. Characterization and quantitative approaches

Aziz Kinani [1,2], Said Kinani [1], Stéphane Bouchonnet [*2]

* For correspondence

[1] Laboratoire National d'Hydraulique et Environnement (LNHE) – Division Recherche et Développement – Electricité de France (EDF) – 6 Quai de Watier – 78401 Chatou Cedex 01, France – Tel : +33 (0)1 30 87 91 13 – e-mail: said.kinani@edf.fr

[2] LCM, CNRS – École Polytechnique, Université Paris Saclay – Route de Saclay, 91128 Palaiseau, France – Tel : +33 (0)1 69 33 48 05 – e-mail: stephane.bouchonnet@polytechnique.edu

Highlights

- Third article of a review trio about formation and determination of OXBPs in water
- Derivation processes used for OXBPs analysis prior chemical analysis
- Technics used for characterization and identification of OXBPs in water samples

Abstract

Used as oxidizing biocides, halogen-containing oxidizing agents react with naturally occurring organic matter as well as inorganic compounds, leading to the formation of a wide range of organohalogen by-products (OXBPs). Despite the increase in the number of quantified OXBPs and the improved sensitivity of analytical methods, the mass balance (MB), defined as the percentage of known halides attributed to known, quantified OXBPs divided by the adsorbable organic halide (AOX) values, remains significantly below 100%. As a result, the toxicological and ecotoxicological effects of exposure to OXBPs cannot be assessed precisely. It is crucial to identify new and unknown OXBPs and to increase the scope and sensitivity of the analytical techniques employed. This article aims at