Drink. Water Eng. Sci. Discuss.,
https://doi.org/10.5194/dwes-2018-29-AC2, 2019

Open Access Drinking Water Engineering and Science Discussions

Interactive comment on "De-chlorination of drinking water by forced aeration" *by* Ghanim Hassan and Robert G. J. Edyvean

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Received and published: 14 February 2019

The abstract is reduced to 9 lines. The introduction was separated from the hypothesis because the last contain many details. Hypothesis; in turn, divided into 3 parts to support the 3 potential hypotheses of why aeration will accelerate the de-chlorination process (I think this is one of the reasons behind too many paragraphs, hence the bad structure). Too many figures because I used 3 Chlorine sources. Every one tested for low and high ranges. I think and to the best of my knowledge, this cannot be reduced without affecting the whole paper understand. Additional graphs such as 13, 14, 15 and 16 can be omitted as they contain supplementary and not so necessary data in the work and some of them deals with CHLORINATION rate. Since the bubble climbs up the column very fast, the residence time of a bubble along the column is

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very low hence can be neglected and Kla is assumed to be the same along the water column. Furthermore, the turbulence along the column due to air pumping will minimize Chlorine gradient then constant Chlorine concentration can be justified. Repetition everywhere were treated.

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Discussion paper

De-chlorination of drinking water by forced aeration

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Key words: De-chlorination, Drinking water, Aeration.

Abstract

Shock chlorination is a well-known practice in swimming pools and domestic wells. One of the limitations for using this technique in drinking water purification facilities is the difficulty of quickly removing high chlorine concentrations in water distribution systems or production facilities. Forced air bubbling is a possible technique for de-chlorination but there is lack of data supporting such a process.

A 20 cm diameter, 1-meter height column provided with air sparger was designed to collect the desired data were used.

Shock de-chlorination by aeration is found to be a promising method that opens up the horizon to drinking water industry to produce microorganism and disinfectant free drinking water.

1. Introduction

Chlorination of drinking water has been used as a disinfection technique for more than a century or so to produce water that is safe from waterborne diseases. This method is preferred due to low cost, abundance, ease of use and less need of high technology equipment. On the other hand, during the last forty years disinfectants by-products “DBPs” as an emerged branch of reality in the water industry has developed first by discovering the presence of Chloroform (Rook, 1974) and trihalomethanes “THMs” (Singer, 1994) in drinking water. To date some 700 or more DBPs have been identified but understanding their effect on humans and the environment still needs more work (Brown et al., 2011;Gonsior et al., 2014;Richardson and Postigo, 2015).

Fig. 1.