Drink. Water Eng. Sci. Discuss.,
doi:10.5194/dwes-2016-5-AC2, 2016

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Drinking Water Engineering and Science Discussions

Interactive comment on "Optimized photodegradation of Bisphenol A in water using ZnO, TiO_2 and SnO_2 photocatalysts under UV radiation as a decontamination procedure" *by* Rudy Abo et al.

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Received and published: 31 July 2016

Dear Referee 2, The authors would like to thank you for your constructive comments on our manuscript. We will consider your remarks to improve this work. Please find below our response to your comments:

1) The intensity VS. the light wavelength of the light source that mimics natural solar light should be illustrated.

We would like to clarify, that the exposed UV the used lamps replicates to some extent the electromagnetic spectrum UVA and UVC with a wavelength between 254 and 365

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nm, and not the entire spectrum of the sun light from 10 to 400 nm. However, the UV radiation between 254-360 nm has the crucial role in the disintegration of most organic compounds. We clarified this point in the abstract and throughout the text. Unfortunately, laboratory and industrial photometric data about the lamps aren't available.

2) Page 2, Line 32. The author explained that "the advanced photocatalytic oxidation using sodium hypochlorite (NaOCl) as an oxidizing agent can accelerate the degradation efficiency by releasing oxygen (O2) into the water". The phenomenon is interesting. However, the mechanism is not clear. More experiment should be designed to reveal the mechanism. Is any role of chlorine play in the reaction?

The authors thanks the reviewer for his valuable remark. The mentioned paragraph was included contain uncertain information due to narrative order. The paragraph was revised in the new version of the manuscript, including the written equation and cited researches. The statement about releasing of oxygen occurs during the photocatalytic process was removed. The role of chlorine explained in more details.

3) Page 3, Line 6. The author said that "Few studies have dealt with other catalysts such as ZnO and SnO2, particularly the ZnO which shows high stability and a large band gap in comparison to other existing catalysts." Please provide relevant supporting papers? To the best of my knowledge, the stability of ZnO is not as good as TiO2.

Despite the widespread use of TiO2 in the photodegradation of organic compounds, many published studies beside this work showed higher degradation efficiency by using ZnO2. However, other studies argued that sometimes ZnO appears to be unstable due to the dissolution in water. These statements requires more investigation and further research. We added were added the corresponding references to the manuscript.

4) Page 5, Section 3.2 and 3.3. Just suggest. Section 3.2 and 3.3 were conducted in the same conditions and I think Fig.4 just looks like one part of Fig.5. They can be showed just in one Figure. (Degradation efficiency of BPA and downtrend of BPA concentration (ppm) just express the same meaning.)

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The referee meant Fig. 6 and 7 since Fig. 4 states totally different information (UV-VIS absorbance curve). However, providing 2 figure will reinforce the idea of each section (change in concentration by photolysis and the effect of BPA initial concentration), thus we suggest to leave them as they are.

5) Page 7, Line27. The author said that "it offers the additional advantage of lower turbidity which was not the case for the other catalysts (Fig. 13)." What exactly did it express? For good water quality or easy separation of ZnO? Please clarify it more clearly.

This was intended to easily removal of ZnO particles from treated water after completion of photocatalytic oxidation process. We reworded the mentioned paragraph above to clarify the idea.

Interactive comment on Drink. Water Eng. Sci. Discuss., doi:10.5194/dwes-2016-5, 2016.

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