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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.

Anonymous Referee #2

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Drinking Water Engineering and Science Discussions, manuscript #: doi:10.5194/dwes-2016-5, 2016 Manuscript Title: Optimized photodegradation of Bisphenol A in water using ZnO, TiO2 and SnO2 photocatalysts under UV radiation as a decontamination procedure Authors: Rudy Abo, Nicolai-Alexeji Kummer, Broder J. Merkel

This paper deals with optimizing the treatment procedure accelerating the photodegradation process of BPA and other phenolic compounds in natural water by using various photodegradation approaches; photodegradation, photo-oxidation/ photocatalytic

degradation and advanced photocatalytic oxidation degradation. To develop an improved technique that can be used as remediation procedure for BPA contaminated surface and groundwater based on solar radiation, experiments were performed under low-intensity UV mimics natural solar irradiation. The topic of the manuscript is interesting. However, there are some concerns and some aspects that need more clarity. In addition, more detail explanation of some of the results presented is needed in the paper. Therefore, the manuscript has to be revised due to concerns cited below:

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

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?

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.

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.)

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.

Please also note the supplement to this comment:

http://www.drink-water-eng-sci-discuss.net/dwes-2016-5/dwes-2016-5-RC2-supplement.pdf

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