

Interactive comment on “Use of column experiments to investigate the fate of organic micropollutants – a review” by Stefan Banzhaf and Klaus H. Hebig

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We appreciate the comments provided by Referee #3 on our manuscript and will first provide a reply to the more general comments and then one-by-one replies to the specific comments.

Reply to general comments:

The referee suggests being “a bit more explicit about operative steps forward to improve the transferability of results”. We would like being able to provide this explicit information by, e.g. suggesting a standard setup to be used. However, as we also state in the manuscript, we can only suggest setting the boundary conditions of the

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column according to literature suggestions on (e.g. the ratio of length to diameter of the column) or based on field analogues (i.e. the groundwater flow velocity). We really do understand that it would be desirable for the scientific community if we could provide more explicit suggestions for the way forward. Unfortunately, we cannot provide more specific suggestions on standardized column experiments.

Reply to specific comments:

Comment 1: I have the impression the abstract may be rather long. Maybe less general details on column experiments (which are of course well developed in the paper) would make it more efficient as an abstract.

Reply: We agree that the abstract is rather long. We would, however, like to keep the abstract in its current form as also the “general details” the referee mentions as being lengthy are an essential part of this manuscript.

Comment 2: Sec 3.1.3 It may be worth pointing out here that if a column experiment is run under non-stationary conditions (which would be typical in field conditions), then the concentration breakthrough curve does not represent the distribution of transit times of the compound, and the mass breakthrough curve should be used instead.

Reply: The referee is right about the issue in case a column experiment is run under non-stationary conditions. However, almost all column experiments are run under stationary conditions in order to control the boundary conditions. We will add a sentence that indicates this potential problem when evaluating the breakthrough of a compound.

Comment 3: page 15, line 7: “(which represent the flow velocity of the fluid)”, I would reformulate into “(which allow inferring the flow velocity of the fluid)”

Reply: This will be changed accordingly.

TECHNICAL CORRECTIONS:

Comment 4: page 2, line 15: “into a problem contaminant”

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Reply: It is unclear what the referee wants to be corrected here.

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., doi:10.5194/hess-2016-196, 2016.