

## Comment on soil-2021-67

Anonymous Referee #2

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Referee comment on "What comes after the Sun? On the integration of soil biogeochemical pre-weathering into microplastic experiments" by Frederick Büks and Martin Kaupenjohann, SOIL Discuss., <https://doi.org/10.5194/soil-2021-67-RC2>, 2021

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This manuscript includes many aspects regarding microplastics effects in soil and comes up with suggestions to take the factor of plastic weathering processes into account in the design of future experiments. This is an important point in microplastics research in soil environments that merits a closer consideration. However, the structure and content of the manuscript has some shortcomings. To my opinion there is a – much shorter – perspectives paper within this manuscript that should be extracted, with a clearer focus on the weathering aspect and the consequential proposed future research direction / study design.

The manuscript doesn't appear to be a review paper. From the title I had expected a synthesis of the scientific literature available on impact studies of microplastics in soils that consider weathered microplastic particles. Expectedly, there are very few studies available, probably too few to fill a complete review paper.

However, the manuscript includes lengthy paragraphs that partly have no direct connection with weathering, or that are written rather like a technical report lacking new knowledge on the impact of weathering on soil – microplastic interaction as stated in the title. Specifically:

- Section 1: There is nothing new that has not been stated by other reviews
- Section 3: The reviewed studies did not use weathered plastics – this section seems to be out of scope
- Section 4: Mostly citing their own work, not new information
- Section 5: This is an interesting suggestion to future research – could be included in a perspectives paper
- Section 6: This section reads like a technical report
- Section 7: This section contains a review of weathering methods. It is not sufficient for a review on its own, and it doesn't fit the title's scope

- Section 8: The title of this section is misleading, it is rather a conclusions section.

In essence, some parts focussing on future research merit publication, but should be condensed in a much shorter and focussed perspectives article.