

Review of: "Regulatory Compliance of PCDD/F Emissions by a Municipal Solid Waste Incinerator: A Case Study in Sant Adrià de Besòs, Catalonia, Spain"

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Potential competing interests: No potential competing interests to declare.

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The paper titled « Environmental Impact of PCDD/F Emissions from MSWI of Sant Adrià de Besòs: A 20-Year Follow—Up Study's addresses the critical issue of pollutant emissions from municipal solid waste incineration (MSWIs). This study is significant because it provides long-term data on the environmental and potential public health impacts of PCDD/F emissions, which are known to be highly toxic and carcinogenic. The study is both compelling and essential, as it presents historical and long-term data that enable reflection on the environmental impact of such facilities. Additionally, the article addresses the various pollution mitigation devices employed over time at the incinerator in question. The article fits well within the journal's scope and is accepted for publication pending a medium level of revision.

Below are my comments/questions:

- 1- Line numbering is missing.
- 2- Unclear structure: Some paragraphs contain excessive information and lack clarity, making it difficult for readers to follow the author's thoughts. The paper includes a high quantity of qualitative information, but it is difficult to follow... Please restructure the paper by grouping related information together and clearly defining the theme and purpose of each section.
- 3- The abstract should be rewritten by highlighting the context, research findings, and novelty of the study.
- 4- The introduction section should be expanded by providing a more detailed description of the sources, hazards of PCDD/Fs, etc. Highlighting the points below:
 - More detailed explanations are necessary to justify the selection of the Sant Adrià de Besòs MSWI as the subject of this study and to offer additional background information. Please include previous research data from the area to create a more comprehensive background introduction.
 - The environmental and health risks associated with MSWI were assessed, but it could be strengthened by briefly mentioning the mechanisms through which these pollutants affect health and the environment.
 - The limitation of the study to PCDD/Fs, while acknowledging the presence of other pollutants, is well noted. However, a brief justification for this focus (e.g., their particularly high toxicity or regulatory significance) would be helpful.
 - Why was the decision made to focus solely on PCDD/Fs, and what are the implications of excluding other pollutants

from this analysis? Are you aware of other pollutants such as particulate matter and volatile organic compounds?

- How do PCDD/F emissions from the Sant Adrià de Besòs incinerator compare to those from other similar facilities globally?

5- In Section 3, the authors summarized the main results of the study conducted in their laboratory on the environmental/health impact of the MSWI of Sant Adrià de Besòs. The results are so condensed, and there is a mix between the analysis and the outcomes. I believe that adding a table summarizing the measurements in 1998-2005 would be a good idea to improve the readability, followability, and comparison of the results. The text provides detailed information about the year of the study, sampling, and PCDD/F concentrations, but a table would allow readers to quickly grasp the key points and comparisons.

6- Figure 2:

- The y-axis label of Figure 2 is missing.
- Further details are needed regarding the methodology employed in conducting the risk analyses depicted in Figure 2. Specifically, additional information on the hazards considered, routes and pathways of exposure taken into account, the demographic profile of the population assessed, among other relevant factors, would enhance the comprehensiveness and clarity of the analysis.

7- It would be better to have a separate section about the Materials and Methods and Data Collection Process, which is not described in enough detail. Please provide a detailed description of the experimental methods and data collection process, including the selection of sampling points, sampling frequency, and analysis methods.

8- Please separate the discussion from the conclusion part. You can elaborate more on atmospheric implications and perspectives in the conclusion part. This part should be divided into three sections: Findings, Limitations, recommendations for future research.

9- The reference list should be revised to follow the same format.

10- The English is well written.

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