**Response to a Technical Check**

Dear Reviewers of the *Journal of Hemijska Industrija*,

Please find attached the revised version of Ref. No.: #469

Title: Pentachlorobenzene sequestration in sediment by carbon rich amendment

We have studied the given suggestions very carefully and made corrections in accordance with your recommendations.

For your guidance, a list of changes and our comments for each point raised are appended below.

Sincerely yours,

Authors

**Reviewer #1 comments:**

The manuscript Pentachlorobenzene sequestration in sediment by carbon rich amendment by Grgic et al., presents detoxification of sediment by three carbon-rich amendments: activated carbon, and biochar and hummus. Pentachlorobenzene was studied as a model organic pollutant. The manuscript describes sediment and amendments characterization followed by experimental

studies of the contaminant removal as a function of the amendment dosage and the contact time. However, some characterization data are shown in the Supplementary material and not discussed in detail while the experimental data on the effects of the contact time are not presented. Also, desorption data by using XAD4 are modeled by a two-compartment model but only data for

the unamended sediment are shown. Results of the modeling of the rest of the data are shown in the Supplementary material but the data and modeling curves are not shown and the meaning of this modeling is not clear. These results are not discussed and, unless a reasonable explanation of why and how the desorption kinetics should changed upon amendments, should be omitted. Overall, the manuscript is fairly interesting and of potential practical significance but does not present a scientific contribution and could be considered as a technical paper.

**Author replay:**

Thank you for your useful comments. We made correction according your comments and replays are given in attached marked up manuscript. Also, if you think that this paper is better suitable to go as a technical paper, the authors agree with your proposal.

**Comment:** Specific comments are marked directly in the pdf document.

**Author replay:** Below is a list of the itemized answers and changes made against each point which is being raised in the Reviewers' comments. Also, a part of the manuscript is revised and discussion is improved.

**Comment:**

**Abstract.** Page 2, line 32-33: Not shown in the manuscript, just in the Supplementary material.

**Author replay:**

Changes are made in Results and discussion part, so this is a part of a manuscript now.

**Comment:**

Page 3, Line 46-47: This concept is difficult to simplify and a numerous scientist traid to define an redefine it (1-7).

Page 3, Line 57: ...representative chlorinated aromatic because it is frequently detected in sediment (11).

Page 3, Line 58: In some earlier studies, researchers observed that POPs may associated with coal-derived and....

**Author replay:**

Page 3, Line 46-47: This concept is difficult to simplify and numerous scientist tried to define and redefine it (1-7).

Page 3, Line 57: representative chlorinated aromatic because it is frequently detected in sediments (11).

Page 3, Line 58: In some earlier studies, researchers observed that POPs may be associated with coal-derived and....

There are numerous spelling and grammar errors in text. The authors corrected these errors though entire manuscript. Replays are given in attached marked up manuscript.

**Comment:**

Page 5, Line 84-88. 2.1. Chemicals. Next to each chemical, the producer should be stated. Producers should be stated

**Author replay:**

Page 5, Line 85-92.Text in this section is changed. Next to each chemical is added producer and country of origin through entire section.

**Comment:**

Page 5-6, Line 89-103. 2.2. Methods for analysis and characterization. This section should be 2.3 after Sediment preparation since this is a standard method.

**Author replay:**

Page 6-7, Line 117-132. This section is now 2.3.

**Comment:**

Page 6, Line 113: ... with the respect of carbon content in the sorbents.... This is unclear here. Is it regarding C % as in Table 1? Please specify.

**Author replay:**

Page 7, Line 138-139: Now it is specified that C% is given in table 1.

... doses: 0.1 wt%; 0,5 wt%; 1 wt% and 10 wt% with the respect of carbon content in the sorbents given in table 1...

**Comment:**

Page 7, Line 123: Please unify throughout the text either XAD4 or XAD-4

**Author replay:**

Throughout the text XAD4 was unify.

**Comment:**

Page 8, Line 143-144. How was this determined? Please explain in the text and show data.

**Author replay:**

Page 9, Line 168-169: Used sediment had 31.6% of clay, 11.9% of silt and 15.6% of coarse sand determined by wet sieving method ISO 11277:2009.

**Comment:**

Page 8, Line 145. Please show the results SEM analysis in the manuscript.

**Author replay:**

Page 9-10, Line 175-178. Figure 1 was added with SEM results from supplementary material

**Comment:**

Page 9, Line 163. Please show first measured desorbed amounts and then the fig. 1. Please explain how the model was fitted to the data using which software.

**Author replay:**

Page 12, Line 195-198. The total amount of the desorbed PeCB from sediment by XAD4 beads was 3333±20.7 µg kg-1, which represents 99.8% of the total PeCB quantity (Figure 2) . Obtained results were modeled according to two compartments model using Origin lab softver (free version), where Ffast is generally considered as a readily bioavailable fraction (22-27).

**Comment:**

Page 9, Line 168. This is unclear - please revise

**Author replay:**

Page 12, Line 203-207. As it stated earlyer it is extremely important to evaluate the available fraction of pollutant. Estimation of bioavailability is traditionally performed by using biodegradation and accumulation in organism's tissues. However, these methods have some limits and the need arises for developing rapid, accurate, compound specific, cheap and environmental-friendly methods such as chemical tests [7].

**Comment:**

Page10, Line 174. Not in the case of this sediment, which was almost all depleted in 48 h according to Fig. 1.

**Author replay:**

This sentence in the manuscript was revised and it has been deleted.

**Comment:**

Figure 1 is not clear. What are the experimental data - square symbols? Why these symbols do not have error bars while error bars are drawn for the line (model)?

**Author replay:**

Figure 1 is now Figure 2. It was corrected according reviewer comments. Desorption kinetic parameters for the two-compartment model for the sediment: experimental data (symbols) and model predictions (line). Error bars are now given for experimental data (symbols) and not for model prediction (line).

**Comment:**

Page 11, Line 181-182. This is not convincing without desorption data and graphs and also without discussion of the parameters.

**Author replay:**

This sentence in the manuscript was revised and it has been deleted.

**Comment:**

Page 11, Line 185-186. After which time?

**Author replay:**

Figure 2 is now figure 3…. shows that the extracted amount of PeCB decreased in all sediment/AC, sediment/BC and sediment/HC treatments after 180 days.

**Comment:**

Page 12, Line 204-205. Experimental results should be shown

**Author replay:**

Experimental results are now shown on figure 4. Supplementary material has been deleted and results are now graphically displayed. 0% was measured only once, in the beginning of the experiment, but for the easier monitoring of Amount of PeCB uptaken by XAD4 in different time period they were presented for every dose separately