

Hydrol. Earth Syst. Sci. Discuss., referee comment RC1  
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## Comment on hess-2022-265

Anonymous Referee #1

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Referee comment on "Predicting soil hydraulic properties for binary mixtures – concept and application for constructed Technosols" by Moreen Willaredt et al., Hydrol. Earth Syst. Sci. Discuss., <https://doi.org/10.5194/hess-2022-265-RC1>, 2022

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The motivation and objectives of this work are clearly described.

Compared to the usual high scientific level of papers published in HESS, the paper should be improved by addressing also the saturated hydraulic conductivity.

It should also provide a deeper discussion of the model parameter  $x_{crit}$  whose impact on the model results remains unclear to me.

The evaluation of the model fitting is limited because it is restricted to the root mean square error with a complementary analysis of the absolute deviation. Absolute deviation scaled by the measured water content would have been more relevant and could have been implemented in the parameter fitting procedure. More information should be provided on parameter correlation and parameter uncertainty related to the estimation. Moreover, the fitted models are biased; the match for high water contents values is different than the match for the low water contents values (fig. 8).

Discussion in section 3.6 has to be improved by addressing saturated hydraulic conductivity.

Typo L40, L76, L80, L200, L310, L232 ??? : Is it Technsol or Technosol or both ?

Figure 4, 5, ... have to be improved. They are too small.

Considering that the paper could be greatly improved by addressing also saturated hydraulic conductivity, that the discussion of the model and model fitting are not enough detailed, and that the topic is not at the heart of the HESS's themes, the paper should not be published in HESS. I encourage the authors to submit the paper after improvement to a more suitable journal.