

Dear authors, I have read and reviewed your manuscript. I rated your manuscript as a “Major revision”, there are some very important points you absolutely need to address, such as the glass transition points of the coatings used in the experiment. Please find my questions and suggestions below.

Throughout the manuscript I noticed several small mistakes in English (such as Line 12 through 13 „....in bonded in layer assemblies.... “– that does not make sense). I will not type them all out in this review, please re-read your manuscript and correct these mistakes.

I suggest a small change in the title of the article „.... Samples Coated with various Film-forming substances“ or simply „.....Samples Coated with various types of coatings “.

The word “lasure” is not the correct spelling. It is “lasur” or “stain”

Line 16: I see the reasoning for using lasur – coated samples as control, but you should have stated that you used the untreated samples to have something to compare the water vapor diffusion of coated samples to.

Line 54: “affect”, not “effect on”.

Lines 81 – 93 should be moved behind Line 61. The Introduction should end with the focus of your work.

Line 101: “its high sensitivity to moisture” is there a work which can support this claim? All wood species due to their hygroscopic nature are sensitive to moisture, and I might be wrong here, I have not read any works on whether one wood species is more sensitive to moisture than other.

Line 136: What does MW stand for? It is stated only in Line 154 in the manuscript; it should be explained when mentioned for the first time in the manuscript.

Line 139: What does MDI stand for?

Overall, the film forming substances, their properties, manufacturers etc. could be summarized in a Table.

Line 172: Is the temperature of 40°C set according to the mentioned standard? If this temperature was used during coating application and the experiment, the glass transition points of the used film forming materials should be mentioned, to ensure that the experiment temperature was below glass transition points on the film forming materials.

Line 173: What type of machine was used to sand the samples? What kind and number of sanding paper was used? Machining of the surface has an influence on the coating of wood, please fill the information in. Reference for influence of surface machining on coating performance: Slabejová, G., Fekiač, J., Pánek, M., Influence of selected factors on colour change of the transparent finishes at beech wood. In: Acta Facultatis Xylogiae Zvolen, 56 (1): 23 – 30, 2014

Line 176: How many layers exactly were applied? Did the authors measure the thickness of the final coating? Please refer to the article I suggested above for why coating thickness is an important factor.

Line 189: As I mentioned in a previous note, the glass transition points of each coating need to be filled in. Air temperature of 70°C is very high and could have changed the properties of the coating used which could have majorly impacted the results of the experiment.

Line 196: If there was water vapor condensation found on the coated surfaces, the authors should also state the water resistance of the coatings used in the experiment. A short-term water vapor condensates exposure should be fine, but a long-term water vapor condensates exposure could be counted as aging, which is a factor for coating performance.

Line 201: Please fill in the equations for Fick 's laws.

Line 251: Why is the text divided into bullet points here?

A general point for Results section: please introduce SMAJ, SMAX, SML and the likes properly, the Results cannot be properly understood without an explanation of the meanings.

Overall, the Results need to be simplified in terms of Table data and data stated in text coordination. The vapor flow rates are stated in Tab. 2, yet the authors keep on mentioning almost every data line in the text as well. Therefore, the text is difficult to read when it is constantly interrupted with numbers from the Table.

Conclusion: The authors explained some abbreviations, but most remained unexplained in this section. I suggest no abbreviations for the Conclusion part, to make it easier to understand.