INFLUENCE OF THERMAL MODIFICATION SCHEDULES ON THE NATURAL WEATHERING OF MAPLE AND ASH WOOD

Marko Veizović, Goran Cvjetićanin, Nebojša Todorović, Ranko Popadić, Goran Milić

ABSTRACT

This study aimed to compare the influence of two thermal modification (TM) schedules—with short (65 h) and long (112 h) heating phases—on the natural weathering of maple (Acer pseudoplatanus L.) and ash (Fraxinus excelsior L.) wood. Over a duration of almost 21 months (October 2021–June 2023), the changes in wood colour and moisture content (MC) were monitored. The samples were exposed to all weather conditions facing south, positioned 1 m above ground level under a 45-degree slope with horizontal grain orientation. As the weathering process progressed, a pronounced alteration in the inherent colouration of the control and TM samples (both schedules) was observed in both wood species. At the end of the weathering process, the colour of all samples, whether treated or untreated, had reached a similar appearance. In the initial phase of the experiment (first winter—from October '21 to March '22), MC variations were more pronounced, but the extent of these changes diminished with time. The control samples were found to be the most responsive to weather condition changes, while TM (fast schedule) samples exhibited slightly higher MC variations compared to samples modified under a slow schedule. Throughout the duration of the experiment, the MC of the maple control samples was mostly between 15% and 45%, whereas the MC of the maple TM samples ranged from 8% to 25%. The ash control samples had a MC ranging from 12% to 27%, while the ash TM samples had MC mainly between 5% and 15%.

Keywords: weathering, thermal modification schedule, maple wood, ash wood