

## The Effect of Transparent Oil Wood Stain on the Colour Stability of Spruce Wood during Weathering

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**Abstract :** Nowadays the use of wood, both indoors and outdoors, is constantly increasing. However wood is a natural organic material and in the exterior is subjected to a degradation process caused by abiotic factors (solar radiation, rain, moisture, wind, dust etc.). This process affects only surface layers of wood but neglecting some of the basic rules of wood protection leads to increased possibility of biological agents attack and thereby influences a function of the wood element. The process of wood degradation can be decreased by proper surface treatment, especially in the case of less naturally durable wood species, as spruce. Modern coating systems are subjected to many requirements such as colour stability, hydrophobicity, low volatile organic compound (VOC) content, long service life or easy maintenance. The aim of this study is to evaluate the colour stability of spruce wood (*Picea abies*), as the basic parameter indicating the coating durability, treated with two layers of transparent natural oil wood stain and exposed to outdoor conditions. The test specimens were exposed for 2 years to natural weathering and 2000 hours to artificial weathering in UV-chamber. The colour parameters were measured before and during exposure to weathering by the spectrophotometer according to CIELab colour space. The comparison between untreated and treated wood and both testing procedures was carried out. The results showed a significant effect of coating on the colour stability of wood, as expected. Nevertheless, increasing colour changes of wood observed during the exposure to weathering differed according to applied testing procedure - natural and artificial.

**Keywords :** colour stability, natural and artificial weathering, spruce wood, transparent coating

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