THE EFFECT OF SEASONAL CONDITIONS ON THE FLUE GAS (O_2, CO, CO_2, NO_X) VALUES FORMED BY THE COMBUSTION OF WOOD MATERIAL

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This study was carried out to determine the amount of gases (O_2, CO, CO_2, NO_x) that emerged with the combustion of the wood material left in the season (outdoor) conditions. For this purpose, Oriental beech (*Fagus orientalis* Lipsky) wood samples were left in outdoor at the beginning of each season after applying impregnation materials (tanalith-E, wolmanit-CB) and varnishes (synthetic, water based). At the end of the seasons, samples were combusted and flue gas device was used for gas measurements. The combustion process was carried out in 3 stages. At the first stage the combustion with flame phase (CF) was carried out, the flame source was cut to achieve self-combustion (SC) and ember combustion phases (EC).

According to the results of flue gas analysis, summer samples showed the lowest O_2 values in CF phase and highest in EC phase. The winter and year groups that received a lot of rain showed the opposite values. At the beginning of the combustion O_2 values increased by impregnation materials and decreased by varnishes. In all combustion phases showed NO_x amounts the highest in summer samples and the lowest in year samples.

Keywords: Outdoor conditions, Combustion, Wood, Impregnation, Flue gases analysis