inhibit development of wood active adsorptive stresses. The preventive stress is determined in a series of trials with the preliminary stress increased up to the value at which moistened wood no longer exhibits positive strains. The arithmetic mean of two subsequent values of initial stress: the one at which wood still generated slight active adsorptive stress and the one at which no active adsorptive stress was generated, was assumed as the value of the preventive stress σ_p. The value of the preventive stress in the longitudinal direction of the spruce wood examined assessed in this way amounted to 22.5 MPa. Moreover, the coefficient of moisture strain "k" was calculated as the ratio of the maximum degree of swelling to the moisture content of the fibre saturation point (assumed in this work as 0.3), while the coefficient of the mechano-sorptive coupling "p" was found as the ratio of the coefficient "k" to the preventive stress. The results are presented in Tab. 2 as mean values. The same Table also presents mean values of the maximal active adsorptive stress – calculated ($_c$*) and determined experimentally ($_e$*) – defined as the stress needed to preserved the size of the wood moistened under initial stress minus the value of this initial stress. The presented numerical values refer to small initial stress required only to eliminate contact strains. The value of the initial stress makes about 5% of the stress at the proportionality limit on longitudinal compression of wood in the wet state.

Tab. 2: Values of parameters determined experimentally and calculated characterising spruce wood

Property	Value
Maximum active adsorptive stress in longitudinal direction, determined experimentally, $\hat{\sigma}_e$* (MPa)	8.47
Calculated maximum active adsorptive stress in longitudinal direction, $\hat{\sigma}_c$* (MPa)	8.51
Compressive stress needed to inhibit active adsorptive stress in longitudinal direction, σ_p (MPa)	22.5
Coefficient of longitudinal moisture strain, k (%/%)	0.0067
Coefficient of hydro-mechanical coupling of moistened wood in conditions of compressive stress in longitudinal direction, p (1/MPa)	0.0003
Ratio of calculated and experimentally determined maximum active adsorptive stress in longitudinal direction, $\hat{\sigma}_c$*/$\hat{\sigma}_e$*	1.0
Ratio of compressive stress value needed to inhibit active adsorptive stress in longitudinal direction and maximum of this stress, $\sigma_p/\hat{\sigma}_e$*	2.7